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PROPERTIES OF ACCOUNTING EARNINGS, OWNERSHIP STRUCTURES, AND THE IMPLICATIONS FOR IAS HARMONIZATION: EVIDENCE FROM TAIWAN

by

ALEX YUAN-FU HUANG

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

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Abstract

PROPERTIES OF ACCOUNTING EARNINGS, OWNERSHIP STRUCTURES, AND THE IMPLICATIONS FOR IAS HARMONIZATION: EVIDENCE FROM TAIWAN

by

Alex Yuan-Fu Huang

Adviser: Professor Joseph Weintrop

With the integration of global financial markets, securities market regulators are moving toward unified accounting standards to make cross-border comparisons of financial statements less costly.

The objective of standards harmonization is subject to empirical examination. The first part of this dissertation set out to ascertain whether harmonization of standards could achieve equivalent usefulness, using Taiwan as the experimental setting.

There are advantages in using Taiwan. First, Taiwanese accounting and auditing standards generally follow the U.S. standards, and the U.S. Big Five auditing firms' Taiwanese affiliates audit listed companies. Second, the Taiwan Stock Exchange is assumed to be of semi-strong efficient. Third, Taiwanese family businesses and socio-economic settings differ from those of the U.S. and very few lawsuits have been filed against corporate management or auditors from shareholders in Taiwan.

My first finding is that the comparatively low measures of timeliness and conservatism for Taiwan are similar to that of the four Asian countries (Hong Kong, Malaysia, Singapore and Thailand) studied in Ball, Robin and Wu (2000) as opposed to higher measures of the common-law countries (Australia, Canada, U.K. and U.S.) studied in Ball, Kothari and Robin (2000).

My second finding suggests that the accounting earnings of high-family-ownership firms are more timely for bad news and more conservative for good news than those of low-family-ownership in Taiwan. Given that shareholders' litigation against managers or auditors is rare, one possible explanation for this observation is that high family ownership firms have a governance structure that more closely disciplines their managers so that the accounting standards are "properly" applied. I conjecture that the lack of a shareholder litigation infrastructure has a bigger effect on the "improper" application of GAAP.

As Ball, Robin and Wu conclude, "...'Asian model' in accounting...timely financial statement...is not part of it." Users of those financial statements, and global investors in particular, might be fooled into thinking that disclosure from any country is of high quality when a one-world standard is applied. My results are consistent with these claims.

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Table of Contents

List of Tables

Chapter 1: INTRODUCTION

1.1 Overview and motivation

Since the seminal work of Ball and Brown (1968), accounting researchers have shown that accounting earnings are informative to U.S. capital market participants. More recently, Brown (1989) argues that "international capital markets are now highly integrated" and "these trends must affect our research agenda." With the growing integration of global financial markets, securities market regulators are considering a move toward unified accounting standards to make cross-border comparisons of financial statements less costly[1] [International Accounting Standards Committee (IASC) (1999)]. Whether a commonality of standards meets the objective of achieving equivalent usefulness is the focus of this dissertation.

One of the more recent attempts to address this commonality objective was made in 1998. The IASC completed the major components of a core set of standards to fulfill an agreement, signed in July of 1995, with the International Organization of Securities Commissions (IOSCO). In its

[1]According to the IASC: "...without a set of one-world standards...investment analysts and other users of financial reports incur extra costs of analysis when the reports are prepared according to different standards in different countries. They may be confused in their interpretation of the reports. Effective competition among the capital markets of the world may be impaired and companies may have to bear higher costs of capital because of the difficulties involved in financial analysis. The preparation of accounting standards involves considerable cost and, quite apart from the advantages of uniformity, it would not be economic for each country to have a separate process."

Constitution (approved in May, 2000), IASC states three objectives for the harmonization of international accounting standards:

> "...First, to develop, in the public interest, a single set of high quality, understandable and enforceable global accounting standards that require high quality, transparent and comparable information in financial statements and other financial reporting to help participants in the world's capital markets and other users make economic decisions. Second, to promote the use and rigorous application of those standards. And, third, to bring about convergence of national accounting standards and International Accounting Standards to high quality solutions"

In completing these core standards, the IASC has thus provided a basic set of international standards to serve as a commonality.

The unification or harmonization of accounting standards need not immediately translate to a level playing field for cross-border comparisons. Any national set of Generally Accepted Accounting Principles (GAAP) likely reflects an idiosyncratic set of institutional or cultural features that are country-specific, shaped by the tax structure, cross-holdings between corporations, industrial relations, legal system, national, economic, and social policies [Chan and Seow (1996), Ali and Hwang (2000) and Ball, Kothari and Robin (2000)]. Thus, as a part of an analysis of standards harmonization, it is relevant to examine whether differences in capital markets, accounting standards, disclosure practices, and corporate governance leads to significant differences in the usefulness of accounting earnings [Alford, Jones, Leftwich and Zmijewski (1993)].

Pownall and Schipper (1999) offer the following research questions relating to standards harmonization: "...the SEC [Securities and Exchange Commission] would like to understand the implication of applying the same rules (IAS) in different countries with widely varying practices related to taxation, enforcement, auditing, financing and ownership; the SEC would like to know whether the results yield comparability, transparency and full disclosure." In this study, I maintain that Taiwan provides an opportunity to address many aspects of the research questions posted by Pownall and Schipper (1999).

1.2 Research questions

1.2.1 Will the implementation of common standards in different institutional settings provide an equivalent usefulness?

The first part of this dissertation offers an empirical test of what we might observe in a world of common, or harmonized, accounting standards for firms operating in a different institutional setting. I use Taiwanese firms listed on Taiwan Stock Exchange for the experiment—firms subjected only to Taiwanese rules and regulations.[2]

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[2]Taiwan Semiconductor Manufacturing Corporation (ticker symbol: TSM) and United Microelectronics Corporation (UMC) are the only two Taiwanese company listed in the U.S. TSM did not list its ADR until late 1996 and UMC listed its ADR on September 20, 2000

There are several advantages to studying Taiwanese firms. First, Taiwanese accounting standards follow U.S. standards to the extent that when the Financial Accounting Standard Board (FASB) issues a new pronouncement, the Taiwanese standards setters quickly decide whether or when to adopt the new U.S. standard. To date, Taiwan has adopted a majority of U.S. standards on a timely basis. Thus, Taiwanese GAAP could be viewed as a contemporaneous subset of the U.S. GAAP [e.g. Chu (1991), Ho and Chang (1994) and Bao, Bao and Firth (1996)].[3] Second, the Big Five auditing firms' Taiwanese affiliates audit Taiwanese listed companies using the same auditing standards as the U.S. Given the congruence of Taiwanese and U.S. accounting and auditing standards, I assume that the earnings reported under Taiwanese GAAP are comparable to the earnings reported under Anglo-American GAAP.

Third, China News Agency (2000) reports that "...Taiwan Stock Exchange is the world's third largest stock exchange in terms of daily trading volume after U.S. and Japan." Chordia and Swaminathan (2000) suggest that trading volume plays a major role in the speed with which price adjusts to information for the U.S. market. Borrowing from Chordia and Swaminathan's argument, I assume that, given the high trading volume in

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(source: http://www.nyse.com). Moreover, according to the "Foreign Securities Issued by Publicly Issued Companies" posted in the web-site (http://www.sfc.gov.tw) of the Security and Future Commission (SFC), there are no Global Depository Receipts issued by listed companies in 1991; there are 4 in 1992, 1 in 1993, 6 in 1994, 5 in 1995 and 7 in 1996.

Taiwan, the Taiwanese stock market exhibits the semi-strong form of market efficiency.[4]

Although Taiwan adopts U.S. political systems in many aspects, there still remain some institutional differences.[5] What does distinguish Taiwanese business institutions is that, unlike the Anglo-American common-law system, they follow a Chinese socio-economic model relying heavily on interpersonal networking (*Guanxi*).[6] As an example of the difference, large shareholding families control a significant numbers of the listed companies. Moreover, Taiwan did not pass laws to facilitate class action lawsuits until the end of 1999; consequently, few lawsuits were filed against firm management or their auditors by shareholders.[7] Based on these conditions, I test whether one set of Anglo-American standards could be applied to a different (Chinese) economic setting. As part of the analyses I examine whether

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[3]Although there is much similarity between Taiwanese GAAP and U.S. GAAP, some differences do exist. For example, the land and asset revaluation and the legal reserve are two distinctive differences (see section 3.4 for further discussion).

[4]According to Fama (1976), the semi-strong efficient market is defined as follows. The information set (θ_t) contains all published information at time t that are readily available at low cost. Hence, we expect no systematic abnormal rates of return to be observed by trading on this information.

[5]Taiwan follows the U.S. in following a democratic process, and ensuring basic human rights, like the freedom of speech, etc.

[6]The ninety-seven largest business groups are formed by people having close personal ties with one another [Peng (1989)]. According to Asian Business Networks [Hamilton (1996)], studies found that the Chinese inter-firm networks are similar in Taiwan, Hong Kong, Singapore and Malaysia.

[7]Article 11 of the Company Law states that "...in the event of apparent difficulty in the operation of a company or serious damage thereto, the court may, upon the application of ***shareholders*** and after receiving the opinion of the central competent authority and the central competent authority having jurisdiction over such specific enterprise and demanding the company's reply thereto, rule for dissolution..." [emphasis added].

Taiwanese accounting earnings exhibit characteristics of conservatism and timeliness as discussed in Basu (1997).

1.2.2 Is there a relationship between the Chinese family business model and accounting income being neither timely nor conservative, as suggested by Ball, Robin and Wu (2000)?

Basu (1997) suggests that the more timely recognition of bad news than good news in the U.S. is enforced, to a large extent, by shareholder litigation. In contrast, the Asian countries experience comparatively little litigation [e.g. Choi, Frost and Meek (1999), Diga and Saudagaran (1998)]. Ball, Robin and Wu (2000) argue that, in addition to little shareholders' litigation, the prevalence of the Chinese family business model hampers the application of accounting standards in the four Asian countries.

The question of whether the lack of shareholders' litigation, the predominance of the Chinese family business model, or both cause the "improper" application of GAAP remains unanswered. Because institutional features reflect a combination of socio-cultural, financial, political and economic traits, it is difficult to isolate individual causes. Shleifer and Vishny (1998) suggest that, in the absence of shareholders' litigation against managers, shareholders have to be large enough, or have more powerful board control, to be able to take concerted actions to discipline the

managers. Thus, the second part of this dissertation investigates the impacts of share ownership of large shareholding families on earnings properties in Taiwan.

If the earnings of firms with large shareholding families are timely for bad news but not timely for good news, I argue that the "improper" application of GAAP is consistent with the lack of a litigation infrastructure. On the other hand, if I find otherwise, then the findings will be consistent with the argument of Ball, Robin and Wu (2000) that the Chinese family business model hampers the application of Anglo-American influenced GAAP.

1.3 Empirical findings

My first finding is that the comparatively low measures of timeliness and conservatism for Taiwan are similar to that of the four Asian countries (Hong Kong, Malaysia, Singapore and Thailand) studied in Ball, Robin and Wu (2000) as opposed to the higher measures of the common-law countries (Australia, Canada, U.K. and U.S.) studied in Ball, Kothari and Robin (2000). Given that Taiwan follows U.S. GAAP, this result should be interesting to the SEC.

My second finding suggests that the accounting earnings of firms with high family ownership are more timely for bad news and less timely for good

news than those of firms with low family ownership in Taiwan. Given that shareholders' litigation against managers or auditors is rare, one possible explanation for this observation is that high family ownership firms have a governance structure that more closely disciplines their managers so that the accounting standards are "properly" applied. However, there are alternative explanations as well. It could be that these Taiwanese family-controlled listed companies simply do not want to broadcast their wealth in fear of government intervention or to attract new entrants or to give suppliers/customers data that would allow them to improve their bargaining position.

Whether it is the governance story or the contracting story or the political cost story that explains the empirical results is beyond the scope of this dissertation. Nevertheless, the main finding of the second research question suggests that the Chinese family business model is not the primary cause of the "improper" application of GAAP. Consequently, I conjecture that the lack of a shareholder litigation infrastructure has the primary effect on the "proper" or "improper" application of GAAP.

1.4 Tests of external/internal validity of the research

I first study the same research question using the same research design as in Ball, Robin and Wu (2000). That research question is stated in

the title of section 1.2.1: will the implementation of common standards in different institutional settings provide an equivalent usefulness? Ball, Robin and Wu (2000) study four Asian countries with Anglo-American influenced GAAP and the Chinese family business model, while I study Taiwan with American influenced GAAP and the Chinese family business model.

However, some distinctions do exist. As mentioned earlier, Taiwanese GAAP can be viewed almost as a contemporaneous subset of U.S. GAAP. Furthermore, even though it takes Taiwanese standard setters some time to keep up with the U.S. standards, the practitioners and the companies might anticipate the changes in the standards and act accordingly. In other words, practices lead standard-setting [e.g. Ball, Kothari and Robin (2000)]. Hence, the lag between Taiwanese GAAP and the U.S. GAAP may not be serious (see section 6.3.3 for details). Also, the Taiwanese stock market is assumed to be as efficient as the U.S. stock market.

Thus, if I find different measurement of timeliness or conservatism between U.S. and Taiwan, it is reasonable to attribute the differences in the usefulness of accounting to the institutional differences, such as the Chinese family business model or the lack of shareholder litigation infrastructure. In contrast, the GAAP of the four Asian countries studied in Ball, Robin and Wu (2000) are Anglo-American influenced GAAP. It is unclear how those GAAP differ from or resemble the U.K. or the U.S. GAAP because they do not disentangle the "Anglo" and the "American". Moreover, it is unlikely that

the efficiency of the Thailand or the Malaysian stock market is at par with the common law countries.[8] Consequently, because my research has better internal validity than Ball, Robin and Wu (2000), I can more confidently infer that applying the same GAAP to another country with distinctly different institutional features does not result in achieving equivalent usefulness. However, I only study Taiwanese companies listed in Taiwan, so there is limited external validity.

With respect to the International Accounting Standards (IAS) harmonization issue, IOSCO has recommended that its members allow firms to use IAS in cross-border offerings or listings commencing in the second half of 2000 [IASC].[9] Given that the core IAS are relatively new, it is difficult to identify and to ascertain the usefulness of the IAS to the shareholders due to data limitations. Furthermore, cross-border offerings or listings are not the best venue to conduct accounting earnings' usefulness analyses. Such settings involve at least two differing legal environments and institutional features. Any inferences about the usefulness of IAS are questionable.

Prior research indicates that the IAS are very similar to Anglo-American GAAP [e.g. Harris and Muller III (1999), Ball, Kothari and Robin (2000)]. The conclusion of the International Comparison Project of the

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[8]Ball, Robin and Wu (2000) defend the validity of their study by arguing that, given the research design of long window tests, the market efficiency issue is of less concern.

FASB, however, suggests that the International Accounting Standards differ quite substantially from the U.S. GAAP [FASB (1999)]. Whether the IAS and the U.S. accounting standards are similar or different, the SEC, the FASB and academic researchers have always maintained that U.S. accounting standards are more value relevant than the International Accounting Standards [e.g. FASB (1999), Pownall and Schipper (1999), Harris and Muller III (1999)].

Taiwanese accounting and auditing standards follows the U.S. standards. If applying the same standards to another country can achieve the same level of usefulness, then I would expect the measurement of usefulness of Taiwanese earnings to be similar to that of the U.S. Since my findings suggest otherwise, and because the U.S. accounting standards are more value relevant than the International Accounting Standards, I argue that applying a less value relevant set of the International Accounting Standards to Taiwan should have even less usefulness.

My empirical findings imply that shareholders' litigation is an important determinant of the usefulness of accounting earnings. La Porta, Lopez-de-Silanes, Shleifer and Vishny (2000a) describe the differences in shareholder protection laws and the effectiveness of their enforcement across countries. They argue that investor protection is crucial because, in many countries, expropriation of minority shareholders and creditors by the controlling

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[9]There are 94 security market regulators around the world that are the ordinary members of

shareholders is extensive. Considering that shareholders' litigation against managers or auditors is rare in Taiwan, my findings further substantiate the argument of Ball, Robin and Wu (2000) that the lack of a worldwide enforcement mechanism for IAS "is testimony to the insufficiency of formal standards in determining accounting information."

1.5 Organization of the dissertation

The remainder of the dissertation is organized as follows. Chapter 2 reviews the prior literature relevant to this dissertation. In Chapter 3, some selected institutional features of Taiwan are described. Chapter 4 develops the hypotheses. Chapter 5 describes sample selection and reports the descriptive statistics. Chapter 6 presents methodology and reports the empirical results. Finally, Chapter 7 presents a summary and conclusions, as well as suggestions for future extensions.

IOSCO (source: http://www.nyse.com).

Chapter 2: LITERATURE REVIEW

2.1 Overview

There are three sections in this literature review chapter—international standards harmonization, ownership structure and corporate governance, and the Taiwanese security market. The objective of the first part of this dissertation is to study whether accounting harmonization is effective in different business environments.

In section 2.2, I start by reviewing the relevant literature on the earnings response coefficient (ERC)—studies that show the usefulness of U.S. accounting earnings information to U.S. capital market participants, the usefulness of foreign earnings to foreign markets, as well as the usefulness of foreign earnings reconciliation to the U.S. market. Next, I review papers that look at the effects of different institutional settings on the information content of different countries' earnings. Finally, I review Ball, Robin and Wu (2000) who examine the effect of applying Anglo-American GAAP to four Asian countries.

Section 2.3 focuses on selected theories and related empirical papers addressing the area of agency costs. The goal here is to address the second research question by developing the analysis of the value-relevance of accounting earnings of family-controlled and non-family controlled Taiwanese

firms listed in the Taiwan Stock Exchange. Analyses on corporate governance and family businesses are provided.

Section 2.4 reviews prior literature to outline the advantages of using Taiwan as an experimental setting for testing the harmonization issue.

2.2 International accounting standards harmonization

For the past 30 years, academic research in accounting has devoted substantial efforts to advance our understanding of the earnings-return relationship [Brown (1996), Kothari (2000)]. As an extension, many studies of international accounting issues have utilized similar models as a starting point to facilitate analyses in other countries. I begin by reviewing the literature showing the value relevance of U.S. earnings.

2.2.1 The value relevance of U.S. earnings

To further our understanding of how market participants use data to value securities, Fama (1965) notes that "in an efficient market, on the average, competition among rational, profit-maximizing participants will cause the full effects of new information on intrinsic values to be reflected instantaneously in actual prices." In particular, semi-strong form tests of

efficient markets models are concerned with whether current stock prices "fully reflect" all publicly available information.

Ball and Brown (1968) assume the efficient market hypothesis to ascertain the information content of earnings. They examine the listed companies' security return behavior in the period 12-months before and 6-months after the month of preliminary annual earnings announcements in *The Wall Street Journal* between 1957-1965. Ball and Brown state "...an observed revision of stock prices associated with the release of the income report would thus provide evidence that the information reflected in income numbers is useful" and conclude that most of the information in earnings is conveyed to the market by other sources prior to the announcement.

Market participants use other sources of data to form expectations about the firm's future earnings/dividends [e.g. Ball and Brown (1968), Beaver (1968), Beaver, Lambert and Morse (1980)]. Consequently, not every penny of the reported earnings is a surprise. Thus, we need some earnings expectation models to capture the unexpected portion of the reported earnings for informativeness analysis.

Ball and Watts (1972) indicate that the time-series properties of annual earnings are well approximated by a random walk.[10] On the other hand, Brooks and Buckmaster (1976), Beaver and Morse (1978), Beaver, Clarke and Wright (1979) suggest that the assumption of earnings following

a martingale process is not appropriate.[11] More recently, Fama and French (2000) show that profitability, as well as earnings, is mean reverting. Moreover, we do not have a viable economic explanation for why the time-series property of annual earnings should behave like a random walk. One plausible argument for earnings to behave as random walk is that product markets are so competitive that any deviation from a normal rate of cash return on an investment is immediately competed away through entry and exit [Watts and Zimmerman (1986)].

One way to have a better or more accurate earnings expectation model than earnings changes is to use analysts' forecasts. There is an extensive empirical literature on how analysts' forecasts improve the estimate of the earnings forecast. Brown and Rozeff (1978) document the superior accuracy of securities analysts' forecasts over time series forecasts. Brown, Griffin, Hagerman and Zmijewski (1987a and b) show that analysts' forecasts are more accurate and slightly more associated with stock returns than time series forecasts. On the other hand, O'Brien (1988) documents conflicting evidence.

With the earnings expectation models in place, researchers map earnings' time-series properties and discount rates onto changes in equity market values to study the earnings response coefficients (ERC) [e.g.,

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[10]Little (1962) and Little and Rayner (1966) are two earlier studies reaching a similar conclusion.

Kormendi and Lipe (1987)]. Earlier ERC studies show that a measurement error problem in the proxy for unexpected earnings biases the ERC downwards. To mitigate this problem, Collins and Kothari (1989) reverse-regress earnings changes on returns and a series of terms representing an interaction among returns and risk, growth, persistence, and interest rates. Their results indicate that earnings changes of the current year are partially captured in the prior year's returns. Moreover, the assumption that annual earnings follow a random walk time-series process is not appropriate in the presence of transitory earnings components. The change in earnings may be a poor proxy for unexpected earnings, as it assumes the entire earnings innovations are permanent, causing ERCs to be biased toward zero [Ali and Zarowin (1992)].

Easton and Harris (1991) investigate whether the level of earnings divided by price at the beginning of the return period is relevant for evaluating earnings-returns associations. They use multivariate regressions of returns on the current earnings level and the earnings change variables and find both coefficients are significantly different from zero; and, suggest that the role of the level variable is related to the presence of transitory components in earnings.

As noted earlier, investors use information other than just earnings to value securities. Thus, prices lead earnings because the information in the

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[11]See Brown (1993) which examines the large body of literature on the time-series

contemporaneous earnings was anticipated in prior periods. Therefore, the coefficient in the contemporaneous return-earnings regression is biased toward zero [Kothari and Sloan (1992)]. Kothari and Sloan (1992) suggest a regression model of a longer return period to include up to previous 4 years and contemporaneous earnings. Easton, Harris and Ohlson (1992) and Warfield and Wild (1992) report results of estimating contemporaneous return-earnings models in which both returns and earnings measurement windows are allowed to vary. Expanding the measurement window mitigates both errors-in-variable and omitted variable problems that arise because of prices leading earnings and increases R^2s dramatically.

Collins, Kothari, Shanken and Sloan (1994) empirically test whether the low contemporaneous return-earnings association is due primarily to earnings' lack of timeliness or noise in earnings. They lessen the error-in-variable problem by including future return as an independent variable—future return correlates with the new information in future growth and acts to remove the error of earnings expectations econometrically. Overall, they demonstrate that earnings' lack of timeliness is an important contributor to the low contemporaneous return-earnings association. However, similar support is not found for the noise-in-earnings hypothesis.

With most of the literature cited above, Baruch Lev reminds us that the inferences are limited. Lev (1989) summarizes the empirical results of

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properties of earnings.

papers on value relevance of earnings published in the *Journal of Accounting and Economics, Journal of Accounting Research* and *the Accounting Review* from 1980 to 1987. He criticizes the low explanatory power (R^2 <0.05) attributed to the low information content (quality) of reported earnings and other financial variables. In answering the challenge posed by Lev (1989), Hayn (1995) assesses the effect of loss cases on the return-earnings relation. She extends the argument of Berger, Ofek and Swary (1996) to show that shareholders have an option to liquidate the firm if the performance is not good. Therefore, if earnings fall below a threshold level, the valuation of the firm is constant. If earnings are above the threshold, then valuation is proportional to earnings. Her results show that when only profitable firm-years are considered, stock price movements are much more strongly linked to current period earnings—almost a tripling of both the one-year earnings response coefficient and the explanatory power of annual earnings with respect to contemporaneous returns.

Following Hayn's (1995) line of argument, Burgstahler and Dichev (1997) develop an option-style model of equity valuation that incorporates the capitalized value of the firm's expected earnings and the value of the firm's adaptation option (the value of the firms' resources that can be adapted to alternative uses). They predict and show that the value of equity is a convex function of both expected earnings and book value. They further suggest that valuation research should incorporate both earnings and balance

sheet measures of value, using a specification which allows the coefficients to vary with the ratio of earnings to book value.

Basu (1997) re-examines the conservatism principle in accounting and its effects on reported financial statements. He interprets conservatism as the rule to "anticipate no profits but anticipate all losses". In other words, there is the tendency of accountants to "require a higher degree of verification for recognizing good news (as gains) than bad news (as losses) in the financial statements".[12] He provides a consistent accounting theory-based explanation that ties previous empirical results [e.g. Brooks and Buckmaster (1976), Hayn (1995)] together. The relation between earnings and annual stock returns varies according to the nature of the news for the year. His study shows that: (1) timeliness is asymmetrically greater for bad news than for good news, and earnings are more timely in reflecting bad news than cash flows; (2) negative earnings changes are less persistent than positive earnings changes; and (3) ERCs are higher for positive earnings changes than for negative earnings changes.

2.2.2 The information content of accounting numbers in different countries

[12]One probable motivation for accounting conservatism is the litigation risk for managers and auditors [e.g. Basu (1997), Ball, Kothari and Robin (2000), Basu, Hwang and Jan (2000 a, b) focus on auditors' litigation]. See Holthausen and Watts (2000) for detailed reviews.

Capital markets around the world differ in GAAP, audit quality and regulatory environments [e.g. Biddle and Saudagaran (1991), Frost and Pownall (1994)]. Alford, Jones, Leftwich and Zmijewski (1993) explore this point by comparing the information content and timeliness of accounting earnings of seventeen countries using the United States as a benchmark. They first conduct a Ball and Brown (1968) type of study using the Global Vantage database for the 1983-1990 period to address the international differences issue by controlling for industry, market value of the equity, and time. Their U.S. sample is partitioned into quintiles based on market capitalization. They match a foreign firm-year observation with a U.S. firm of the same industry and same year by randomly selecting 100 U.S. firms from the market capitalization quintile that each foreign firm falls in. They then randomly select from the 100 matched U.S. observations one U.S. observation for each foreign observation. A regression of 15-month stock returns on the contemporaneous level and change of earnings using this matched group design is estimated. They document that earnings reported in Australia, France, the Netherlands, and the UK are more timely and informative than U.S. accounting earnings, whereas the results for earnings reported in Belgium, Canada, Hong Kong, Ireland, Japan, Norway, South Africa, and Switzerland are inconclusive. They conclude that significant differences in the timeliness and information content of accounting earnings exist among different jurisdictions.

One of the difficulties of using the Ball and Brown (1968) methodology in these countries is that there are unique institutional features in each country that can be reflected in the GAAP and the institutional market conditions. Thus, a direct application of the U.S. ERC research methodology to test for the information content of the locally reported income might under-estimate foreign users' ability to extract value-relevant information. Harris, Lang and Möller (1994) illustrate this point. They compare the value relevance of accounting measures for the U.S. and the German firms matched on industry and firm size, and evaluate the incremental informativeness of earnings adjusted on the basis of a formula proposed by the German Institute of Financial Analysts. Contrary to the notion that German GAAP earnings are essentially meaningless, they find that the adjusted German GAAP numbers are significantly associated with stock price levels and returns. Moreover, they suggest that the explanatory power of earnings for returns in Germany is comparable to that of the United States.

Niskanen, Kinnumen and Kasanen (2000) examine the value relevance of earnings reported under Finnish Accounting Standards and their voluntarily disclosed reconciliations to the International Accounting Standards for the period of 1984 to 1992. Finland's stock market during this period that they study is interesting because Finland's stock market is segmented into restricted shares that are only available to domestic investors and

unrestricted shares that are available to both foreign and domestic investors. They find that the earnings generated from the Finnish GAAP are value relevant to both Finnish and foreign investors. Furthermore, they find that, after controlling for the Finnish GAAP earnings, the aggregate reconciliation of Finnish GAAP to IAS does not provide significant value relevance to either group of investors.

2.2.3 The information content of foreign GAAP to U.S. investors

The previous section looks at the value relevance of foreign GAAP in the foreign capital markets. But the SEC is set up to safeguard the interests of U.S. investors and creditors. Pownall and Schipper (1999) point out that the SEC would like to know how comparable foreign GAAP numbers are to U.S. GAAP numbers. Hypothetically, if we had foreign companies using foreign GAAP and only listed in the U.S. market, we could test for the value relevance of foreign GAAP numbers to U.S. investors. If foreign GAAP numbers were as informative as the U.S. numbers, then one could argue that harmonization of standards would not be needed.

To address the comparability issue, some researchers focus on the value relevance of the reconciliation of foreign GAAP reporting to the U.S. GAAP (Form 20-F) for U.S. investors. The U.S. SEC generally requires foreign registrants to submit financial information substantially similar to that

required of domestic companies. However, foreign registrants' financial statements do not have to be prepared in accordance with U.S. GAAP. If the foreign statements are presented in accordance with another comprehensive body of accounting principles, then they, if materially different, are required to be accompanied by a quantitative reconciliation to U.S. GAAP of net income, shareholders' equity and earnings per share [U.S. SEC (1995)].[13]

The research in this 20-F reconciliation area is large, but it provides mixed evidence on comparability. Researchers typically assume similarity among the underlying transactions for the reconciled items. They then measure the magnitude and frequency of differences to be the non-comparability. Furthermore, researchers test for a statistical association between levels and changes of earnings reconciled to U.S. GAAP and non-U.S. GAAP levels and changes of earnings to assess the value relevance of Form 20-F reconciliation data.

Amir, Harris and Venuti (1993) study the value relevance of U.S. versus non-U.S. GAAP numbers by using the 20-F reconciliation filing data of 336 non-Canadian foreign companies traded in the U.S. during 1981 to

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[13]According to Amir, Harris and Venuti (1993): "The 20-F is analogous to a 10-K filing for a U.S.-domiciled pubic company but allows the non-U.S. company to retain its domestic (non-U.S. GAAP) reporting... to U.S. shareholders... if the domestic statements are presented as the primary statements in a 20-F filing, then the company has two options for explaining the differences between domestic and U.S. GAAP. First,... Item 17 of Form 20-F. The earnings reconciliation must be in a tabular format beginning with the earnings as reported under its domestic GAAP with material income-increasing and income-decreasing items separately

1991.[14] They suggest that U.S. GAAP measurement is more value relevant than the aggregate measurements from the mix of non-U.S. GAAP. In a similar study, McQueen (1993) reports the mean aggregate reconciliations of incomes to be 1.15 percent of the market value of equity with a range between -15 percent and +13 percent. Her evidence is consistent with U.S. GAAP, on average, being more conservative. She also finds evidence that the reconciliation amounts are incrementally value-relevant to non-U.S. GAAP earnings although her result is not strong. More recently, Rees and Elgers (1997) extended the Amir, Harris and Venuti (1993) study by using retrospective reconciliations in the initial registrations with the SEC. Their findings suggest that some of the information content in the SEC-mandated disclosures comes from sources other than Form 20-F filings.

Amir et al. (1993) and McQueen (1993) exclude Canadian firms from their samples due to perceived similarities between U.S. and Canadian GAAP. But, Bandyopadhyay, Hanna and Richardson (1994) find that two-thirds of their sample (Canadian firms traded in the U.S. during 1983 to 1989) reported differences between the U.S. and Canadian net income averaging 2 percent of the market value of equity. However, they find no

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disclosed and ending with earnings based on U.S. GAAP. Alternatively,... Item 18...a firm must supply all information necessary to comply with U.S. GAAP,..."

[14]They use short event-window tests, returns association test and tests based on market-to-book ratios to show that the aggregate reconciliation of shareholder equity, earnings and their components are incrementally value relevant.

evidence that the U.S. GAAP reconciliation amounts are value-relevant to U.S. investors for their Canadian firm sample.

Chan and Seow (1996) examine the association between stock returns and foreign GAAP earnings versus earnings adjusted to US GAAP by using a sample of foreign firms with common stocks or American Depository Receipts traded in the U.S. exchanges. Their results show a higher adjusted R-squared for returns-earnings regressions using foreign GAAP earnings than those using earnings adjusted to the U.S. GAAP. They suggest that earnings based on foreign GAAP are more closely associated with contemporaneous stock returns than earnings reconciled to the U.S. GAAP.

Harris and Muller (1999) investigate the market valuation of earnings and book values prepared under IAS and U.S. GAAP. They find that the U.S. GAAP earnings reconciliation adjustment is value-relevant. They also find relatively small mean differences between the IAS and the U.S. GAAP net income and shareholders' equity using 89 observations from 31 firms from 13 countries for the period of 1992 to 1996. Their results are consistent with the current U.S. SEC position that, despite the relatively small differences, U.S. GAAP provides more useful information to the capital market.

2.2.4 The information content of earnings across different institutional settings

Bandyopadhyay, Hanna and Richardson (1994) argue that standard harmonization across Anglo-American regimes may not be really necessary because of the similarity of GAAP and institutional features. As Alford, Jones, Leftwich and Zmijewski (1993) have pointed out, the institutional features as well as GAAP differ across the world. Given that the IASC, as stated in its Constitution, has set the aim of the standards harmonization to be a set of one-world standards for institutions of all shapes and sizes, another important way to examine the harmonization issue is to look at the relation between GAAP and differing institutional features.

Ball, Kothari and Robin (2000) suggest that the demands for accounting information are different in many institutional contexts. Consequently, the variation in demands causes the properties of accounting (e.g. informativeness, value-relevance, conservatism, etc.) to vary internationally. Specifically, they argue that the need for timely and conservative accounting income is decreased in code-law countries (Germany, Japan, and France) because of comparatively stronger politicization of accounting standard setting and enforcement. On the other hand, common-law countries' (U.S., U.K., Canada and Australia) accounting standards evolved to meet the demands of contracting in the markets.[15]

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[15]As Ball, Kothari and Robin (2000) put it: "...under the 'shareholder' governance model that is typical of common-law countries, shareholders alone elect members of the government

Other things being equal, contracting and monitoring would be more effective if the economic losses from unsuccessful projects are incorporated in accounting income in a more timely fashion. They look at data for over 40,000 annual firm-year incomes reported during 1985-1995 for these seven countries and show that code-law income is substantially less timely and less conservative than common-law income using measures from Basu (1997).

Pope and Walker (1999) examine differences in the timeliness of income recognition between the U.S. and the U.K. GAAP financial reporting regime. They build on Basu (1997) to link current reported earnings and current and past changes in market value. Their evidence indicates that controlling for cross-jurisdictional classification differences affects comparisons of earnings timeliness and conservatism. Specifically, they show that the degree of conservatism displayed by ordinary earnings under the U.S. GAAP is higher than under the U.K. GAAP; however, the results reverse when examining earnings after extraordinary items. In other words, the classification of extraordinary items is more strict in the U.S. than in the U.K.[16] Furthermore, they present several ways of measuring conservatism in income recognition and suggest that when evaluating comparative conservatism, it is important to capture the early recognition of bad news and delayed reporting of good news in the research design.

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board, payouts are less closely linked to current period accounting income, and public disclosure is a more likely solution for the information asymmetric problem..."

Ali and Hwang (2000) report significant correlations between measures of the value relevance (R-squared statistics) of accounting information and five institutional features for sixteen of the countries in Alford et al. (1993).[17] The institutional features are bank-oriented (as opposed to market-oriented) financial systems, governmental (rather than private-sector) standards setting mechanisms, continental (versus British-American) countries, alignment of financial reporting and tax laws, and level of external audit fees. Their findings suggest dissimilar reporting environments produce predictably dissimilar reports.

Ball, Robin and Wu (2000) provide insights in addressing whether the same rules can be applied to different institutional settings to have comparable outcomes. They interpret "transparency" in financial statements as timely incorporation of economic income (the annual change in the market value of equity adjusted for net dividends) in accounting income with emphasis on negative economic income. In particular, they argue that the incentives of managers and auditors to follow the standards (institutional features) play an important role in determining the transparency of the financial statements.

To test their hypothesis, Ball, Robin and Wu (2000) study four Asian countries (Hong Kong, Malaysia, Singapore and Thailand) with Anglo-

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[16]They show that there is little difference between U.S. net income and U.S. ordinary income while there is much difference between the U.K. numbers.

American influenced GAAP.[18] A unique feature of these countries is that the underlying business institutions are dominated by family groups of Chinese origin. This business model relies heavily on personal networking (*guanxi*) which revolves around informal relationships (see section 3.6).

Ball, Robin and Wu (2000) adopt Basu's (1997) framework in showing accounting earnings' asymmetric timeliness in reflecting economic incomes (more timely for bad news than for good news). They find that reported incomes of companies in those four Asian countries lack timeliness and conservatism in comparison to firms in either the common-law countries or code-law countries studied in Ball, Kothari and Robin (2000). Ball, Robin and Wu (2000) offer "...one possible explanation is that monitoring of both loan agreements and corporate management is more likely to be achieved by private rather than public communication, thereby reducing the demand for asymmetric timeliness of accounting earnings in incorporating economic losses." They caution that even though the general perception of the Anglo-American influenced standards of the four Asian countries is that they are of high quality, because of the underlying institutional differences, the bottom-line transparency is not. Users of those financial statements, and global

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[17]South Africa is included in the sample of Alford et al. (1993) but not in Ali and Hwang (2000).

[18]According to Ball, Robin and Wu (2000), "Anglo-American GAAP was developed in and is oriented to the demands of users in countries with market-oriented institutions, and which emphasizes financial statement 'transparency'."

investors in particular, might be fooled into thinking that disclosure from any country is of high quality when a one-world standard is applied.

2.3 On ownership structure and corporate governance

Berle and Means (1932) conclude that the modern corporation is characterized by an inefficient corporate governance structure because ownership is separated from control of the firm. Inefficiency occurs because the separation of powers prevents owners from having direct and complete monitoring over managers' decisions. The managers' actions have direct impact on the value of the firm while the owners bear the risks. Jensen and Meckling (1976) argue that, "if both parties to the relationship are utility maximizers, there is good reason to believe that the agent will not always act in the best interest of the principal." Thus, governance is inefficient due to agency costs that occur when managers choose other activities over profit maximization, resulting in lower profit for owners.

However, Jensen and Meckling (1976) believe that the inefficiency that results from this separation is mitigated. In their example, additional owners who buy shares in the firm of an owner-manager discount a share's value to account for agency costs. The inefficiency described by Berle and Mean (1932) that results from diversification of the firm is borne by the owner-manager who trades off his/her ability to invest in non-profit

maximizing goals with the lower value of his/her firm's shares. In this case, the governance structure of a public corporation is not inefficient because the shareholders do not bear the agency costs; the originator of the costs does. In addition, Jensen and Meckling (1976) suggest that the principal can limit divergence from his/her interest, either by establishing appropriate incentives for the agent or by incurring monitoring costs designed to limit the aberrant activities of the agent. Fama (1980) and Fama and Jensen (1983a, 1983b) indicate that the board of directors is an important part of the firm's governance mechanism and that the board of directors can reduce agency costs by monitoring the actions of management.

Warfield, Wild and Wild (1995) show the level of managerial ownership affects the informativeness of earnings and the magnitude of discretionary accounting accrual adjustments. They suggest that, regarding the correlation between the ownership and the informativeness of accounting information, the smaller the percentage of shares owned by the management, the higher the likelihood for impairment of the "faithful determination of accounting numbers". In other words, they predict that the informativeness of the accounting numbers is positively associated with the level of managerial ownership. They also predict that the demand for accounting-based constraints is higher as managerial ownership declines. Accordingly, managers are expected to respond to the contractual environment in their self-interest—including the selection and application of

accounting procedures. This phenomenon suggests a contracting explanation for reported accounting numbers and implies that the accounting used to determine contractual requirements is not necessarily the most relevant in conveying the economic status of the firm.

In contrast to managers of public companies, managers in family-managed firms have expectations of a continuing relationship with the firm and claims on its profits and, therefore, are subject to different and perhaps more effective rewards and sanctions than managers in the other firms [Pollak (1985)]. Both types of firms can reward successful managers with salary increases and promotions, but performance is often difficult to assess, and managers may be able to manipulate needed investments at the expense of the long-run objectives of the firm. Because family managers expect a continuing relationship with the firm, they are less tempted to sacrifice long-run advantages for short-run gains [Harvey (1999)].

Bushman, Chen, Engel and Smith (2000) investigate how governance systems of large public U.S. corporations (784 firms in the Fortune 1000) vary with the properties of accounting numbers. The property of earnings that they consider is timeliness, defined in Ball, Kothari and Robin (2000) as the extent to which current earnings incorporate current economic income. The governance systems include board composition, stockholdings of inside and outside directors, ownership concentration, and the structure of executive compensation. The properties of accounting numbers (timeliness

metrics) are captured in a composite of the slope coefficient of the reverse regression as well as explanatory power (R^2) of ERC regression and reverse regression. They show a significant negative relation between timeliness metrics and subsequent costly corporate governance structures.

Fan and Wong (2000) examine the ownership structure of seven East Asian economies, Hong Kong, Indonesia, South Korea, Malaysia, Singapore, Taiwan and Thailand, to show how ownership structure affects the informativeness of accounting earnings. They find that in East Asia, the ultimate owner's voting rights and the divergence of cashflow rights and voting rights have a negative effect on the informativeness of earnings as measured by the earning-return relation.

2.4 Research on the Taiwanese stock market

2.4.1 Tests of market efficiency

The Taiwanese stock market has historically been the most volatile market in Asia. The extremely large volume of trading on TAIEX, for the most part, comes from relatively naïve individual investors. There are about 5 million brokerage accounts as of the end of 1997—an average of one account per family [TAIEX (1998)]. This leads some journalists to argue that excessive speculation and irrationality drive the volatility [e.g. Mark (1992),

Cheesman (1996)]. Titman and Wei (1999) examine the behavior of Taiwanese stock returns between 1978 to 1991. Their results disagree with the excess speculation conjectured by the popular press, and suggest that Taiwan's security market is weak-form efficient.

Chu (1991) examines whether the Taiwanese market exhibits Fama's weak-form of market efficiency. He assumes that Taiwanese stock returns follow a random walk model for the period of 1980 to 1988. He shows that the evidence of weak-form market efficiency is weaker for the Taiwanese market than that for the U.S. market because there is a higher percentage of companies with statistically significant non-zero daily autocorrelation than in the U.S. market[19]. He attributes the weaker evidence primarily to the artificial daily price change limit.[20] Nevertheless, Chu indicates that the evidence is consistent with the weak form efficient market hypothesis for the Taiwanese stock market. He points out that the significant non-zero serial correlation becomes negligible for a longer interval of stock returns.

Shen and Wang (1998) further support Chu's findings about the daily price change limit. They examine the Taiwanese daily stock price movements between 1988 to 1995 to look at the effect of daily serial correlation caused by the price change limit. They find a positive price-limit effect and a negative volume effect on daily autocorrelation.

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[19]During the past 40 years, the Efficient Market Hypothesis has been one of the most studied topics in the financial research. One issue is the time-series anomalies of U.S. stock returns, which shows that the returns may not be independently and identically distributed.

2.4.2 Tests of time-series properties of earnings

Bao, Bao and Firth (1996) investigate the time series behavior of earnings per share data of Taiwanese firms for the period 1972 to 1985. They show that a majority of firms had a positive autocorrelation coefficient for lag 1; and the autocorrelations are close to zero for the first differences series. They further show that none of the means of the first differences series are significantly different from zero. This finding suggests that the random walk process without a drift term for the annual earnings data is the appropriate model for Taiwanese companies.

2.4.3 The value relevance of earnings

Chu (1991) investigates the association between accounting earnings and stock returns in both Taiwan's stock market and the U.S. stock market for the period of 1983-1988. Assuming accounting earnings (income before extraordinary items) follows a random walk, he reports regressions between cumulative abnormal returns and earnings changes (a proxy for unexpected earnings).[21] The pooled R^2 value of Taiwan's stock market is 2.5 percent (0.22 percent for the U.S.); for each year, the R^2 varies within a range of

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[20]See section 3.5 Trading system.

0.29% to 11.8%. Furthermore, the R^2 and the ERC of Taiwan's market are higher than those of the U.S. market in the test period, which according to Chu, may be due to either a higher growth rate or an inferior informational environment in Taiwan.

[21] A random walk with 5% growth is also tested.

Chapter 3: SELECTED INSTITUTIONAL FEATURES OF TAIWAN

3.1 General description

Taiwan is located at the heart of East Asia and, in terms of landmass, is about the combined size of Massachusetts, Rhode Island and Connecticut (approximately 14,000 square miles). The Taiwanese economy has developed rapidly during the past 50 years with an average annual nominal growth rate of 8.5%. Per capita income has risen from US$ 196 in 1952 to US$ 14,500 in 1999 [Government Information Office (GIO) (1999)]. The high growth rate is the result of an export oriented economic strategy [e.g. Park (1990)].

With a population of about 22 million (0.4% of the world population) in 1997, the GNP is US$ 285 billion (1% of the world). The total trade volume of US$ 236.5 billion in 1997 was about 2% of the total world trade figure. Imports were recorded at US$ 114.4 billion and exports at US$ 122.1 billion, ranking 15th and 14th, respectively [GIO (1999)]. At present, the nation's mainstream industries are heavy machinery, chemicals, and technology-intensive industries. Particularly, the development of the information industry has been quite impressive; Taiwan currently ranks third in the world in terms of dollar amount of output. Based on the progress of

economic development, Taiwan now lies somewhere between the advanced industrial countries and the developing countries.

3.2 Security market and regulator

The Taiwan Stock Exchange (TAIEX) was incorporated in 1961, and shareholders include government, financial institutions, and companies. It is the only stock exchange in Taiwan. More recently, an option market was opened for trading in August of 1997 [SFC (1997)]. At the end of 1997, there were 404 companies listed in TAIEX with a combined capitalization of NT$ 9402.3 billion (about US$ 300 billion), making Taiwan the third largest stock market in Asia in terms of total market capitalization after Japan and Hong Kong. Prior to 1983, the Taiwanese securities market was closed to foreign investment. Indirect foreign investment in the TAIEX was permitted after 1983 with the issuance of the Taiwan Fund, and later on, the Formosa Fund and Taipei Fund. As of the end of 1997, total foreign investment in the TAIEX (net asset value of all such overseas funds) was US$ 5.5 billion [TAIEX (1998)].

The Taiwanese Securities and Futures Commission (SFC), formerly known as the Taiwanese Securities and Exchange Commission (SEC), was founded in 1960 to imitate the functions of the U.S. Securities and Exchange Commission. The SFC regulates the Taiwanese capital markets

with the stated foremost objective of protecting the public investors' interests [SEC (1968)]. In addition to regulating TAIEX, the SFC, with the authority of the Ministry of Finance, oversees public accountants through the "Criteria Governing Approval for Certified Public Accountants to Audit and Certify Financial Reports of Public Companies" [SEC (1983)].

3.3 Accounting disclosure practices

According to the "Criteria for Preparation of Financial Reports by Listed Companies" of the Securities and Exchange Commission of the Ministry of Finance, the SFC and the TAIEX require both publicly held companies and securities brokerage firms to provide investors with "...complete and timely disclosure of financial statements and business reports of all listed companies" [SEC (1991)]. Listed companies with December 31 fiscal year-ends publish annual reports no later than April 30.[22] Around the same time (late April), the first quarterly unaudited results are also made public. The semi-annual audited report is due by the end of August; the third quarter report by the end of October. Monthly revenue figures are made public by the tenth of each following month. If a listed company fails to make public its financial statements within the time limit,

[22]Most firms disclose their fiscal year results in the major newspapers (e.g. *Commercial Times*, *Economic Daily*) in late January, February or March.

TAIEX will report to the SFC and receive an authorization to suspend trading followed by a public announcement [TAIEX (1997)].

Listed companies' financial reports have to be jointly audited and certified by more than two practicing certified public accountants of a public accounting firm. Furthermore, unless otherwise provided in the laws or regulations, a certified public accountant must audit and certify the financial reports of public companies in accordance with the Generally Accepted Auditing Standards (GAAS) prescribed by the Auditing Criteria Committee of the Accounting Research and Development Foundation of the Republic of China (Taiwan) [SEC (1983)].

The Accounting Research and Development Foundation establishes the Taiwanese accounting principles in the form of Financial Accounting Standards Bulletins. Conformity between financial and tax reporting is not required [Lai (1996)]. When the FASB pronounces a new accounting standard, members of the Accounting Research and Development Foundation convene to decide whether or when to adopt the latest U.S. standard. Thus, Taiwanese GAAP can be viewed as close to a subset of the contemporaneous U.S. GAAP. The Accounting Research and Development Foundation also issues Technical Bulletins to clarify accounting issues and to keep up with the U.S. standards.

Although the Accounting Research and Development Foundation tries to keep Taiwanese GAAP to the pace of the U.S. GAAP, they are not yet up

to date with the FASB Statements of Financial Accounting Standards 121, 125 and 133 [Hung (2000)]. In other words, there is a time lag between a FASB pronouncement and an Accounting Research and Development Foundation pronouncement. Furthermore, as described in the next four paragraphs, some differences do exist between Taiwanese and the U.S. GAAP [Lai (1996), Hung (2000)].

For example, fixed assets (including land and natural resources) may be revalued. Land is normally carried at cost. The government announces values for land as the basis of property tax at July 1st of each year. Enterprises are allowed to restate land values in accordance with the government-announced value by the Taiwanese financial accounting standards and accounting rules.[23]

Buildings are carried at cost less depreciation. However, if the general wholesale price index has risen by more than 25 percent since the purchase or previous revaluation, the building may be revalued in accordance with the price index if prior approval has been obtained from the Ministry of Finance. The condition for revaluation of plant and machinery is the same as for buildings. Reserve for land value incremental tax represents a tax payable to the government and is classified as a long-term liability. The appraisal

[23]Approximately 7% of the firm-year observations have non-zero land revaluation.

increment of land value after deductions of the reserve for land value incremental tax is accumulated as capital reserve.[24]

As for business combination, only the Purchase method is allowed and Goodwill is amortized over no more than 20 years.

Furthermore, Company Law requires that a company set aside as a legal reserve 10 percent of its net income after tax each year, less losses of prior years, if any, until the reserve equals the total capital of the company. The legal reserve will be used exclusively to cover corporate losses and may not be used for any other purpose.

Nevertheless, despite these differences, several researchers emphasize a strong similarity between Taiwanese GAAP and the U.S. GAAP. For example, Bao, Bao and Firth (1996) state that "...Taiwanese Generally Accepted Accounting Principles follow those of the U.S." Ho and Chang (1994) maintain "the Taiwanese accounting and auditing profession *strictly* adheres to the GAAP, GAAS, and other regulations and standards promulgated in the United States" (emphasis added). Also, Chu (1991) reports that in Taiwan the "...structure of accounting regulation and principles is based on the Generally Accepted Accounting Principles (GAAP) of AICPA and FASB in the U.S."

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[24]The revaluation of buildings, plant or machinery happens rarely. If the revaluation occurs, the credit goes directly to capital reserve; there is no income statement effect.

3.4 Listing prerequisite

To better protect the investing public, the Taiwanese Securities and Exchange Law dictates that each company meets certain financial and operational conditions to qualify for listing with TAIEX.[25] The staff of the TAIEX is responsible for screening the firms that are applying for new listings as prescribed by the laws.

A preliminary application must first be submitted, through an underwriter, to TAIEX stating the intention of being listed on TAIEX. Then, the applicant must go through a two-year observation period. During this period, the TAIEX staff reviews monthly to see if the listing requirements have been met.

For a general application, a minimum of five years of incorporation is required. The amount of net assets for the most recent two fiscal years must be no less than NT$ 300 million. The average of the two most recent annual operating incomes and pre-tax incomes has to exceed 6% of the net assets. Each of the five most recent annual operating incomes, as well as pre-tax incomes, must be no less than 3% of net assets. Furthermore, the applicant must show earnings growth. The number of name-bearing shareholders must be no less than one thousand. The number of shareholders with 1,000 - 50,000 shares must not be less than five

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[25]Source: Taiwan Stock Exchange, 1999, "Listing Criteria".

hundred; and the total number of shares they hold must be 20% or greater of the total issued shares (or at least 10 million shares).[26]

Two months prior to the end of that two-year observation period, TAIEX decides whether to issue an approval letter after reviewing the financial reports and underwriter evaluation report. Once the approval letter is received, the applicant has 60 days to submit the formal application for listing. After the formal application is received, public opinions are solicited and the "Screening Committee for Listing" of the TAIEX meets to decide whether the applicant is eligible to be listed or not. The approved listing application is then taken to the Board of TAIEX, and final approval is sought from the Securities and Futures Commission.

3.5 Trading system

The TAIEX operates as a purely order-driven market.[27] Beginning in September of 1988, all equity shares are traded through the Computer-Assisted Trading System. The Fully Automated Securities Trading system began operations in November of 1991 and is still being used. An investor must first open an account with a broker. Subsequently, the investor can

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[26]For application as a technology-based company, the applicant must first be certified as a technology-based company by the Ministry of Economic Affairs. The net asset requirement is at least NT$ 200 million. If there is negative income, the projected net worth of the year of application should not be less than two-thirds of the net assets of the most recent fiscal year.

place only limit orders either in person, by phone, fax or via the Internet. The orders can be entered to the computer system half an hour before the trading session starts.[28] The standard unit of trade is 1,000 shares of par value NT$ 10 per share. All outstanding orders are automatically canceled at the conclusion of a trading day.

The order is processed and executed by the principle of first-in first-out, but a higher limit price buy order takes precedence over lower limit price buy order; and lower limit price sell order takes precedence over higher limit price sell order.[29] The priority of same-price orders is determined by their entering time stamps, or they are sequenced randomly by computer if the order is entered before the market opens. The up/down tick varies with the price of the security.[30] Securities Transaction Tax is 0.3% levied on the sell side of each transaction.[31] Trading costs in Taiwan are low for small

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[27]Source: Article 54, 57, 58 and 59 of the TAIEX (2000) "Operational Rules of the Taiwan Stock Exchange Corporation."

[28]The trading runs from 9:00 a.m. to 12:00 p.m., Monday through Saturday (but the market is closed on the 2nd and 4th Saturdays of each month).

[29]This system is unlike the American stock markets, which depend on market makers for price setting and to provide liquidity. For example, multiple dealers in the National Association of Security Dealer Automated Quotation system or specialists in the New York Stock Exchange and the American Stock Exchange assume a pivotal role in providing liquidity to the market.

[30]Tick size is NT$0.01 when price is less then NT$5, NT$0.05 when price is between NT$5 and NT$15, NT$0.1 for price between NT$15 to NT$50, NT$0.5 for NT$50 to NT$150, NT$1 for NT$150 to NT$1000, and when the price is above NT$1000, the tick size is NT$5.

[31]Capital gain was exempted from tax since January 1, 1990. During the period of 1980 to 1988, no capital gain tax was levied. 1989 was the only year when capital gain tax of 15 percent was levied. At the end of 1989, the Legislative Yuan (law making body) voted down the capital gain tax [Chu (1991)].

investors.[32] The round-trip trading cost is 0.585% for transactions as little as US$ 400.

The daily price fluctuation limit of stocks is set at 7% of the closing price of the preceding trading day. The purpose of the limits was to prevent stocks from excessive volatility and to protect investors by limiting potential daily losses to a maximum. Price limits can be adjusted up or down several times according to market conditions by the SFC and the TAIEX.

3.6 Family business model

3.6.1 General Description

The Taiwanese economy is among the most densely networked and highly productive economies in the world. Pack (1992) suggests three significant features of the Taiwanese economy that contribute to its rapid growth: (1) rapid shifts in sectoral structures that create new investments, (2) high levels of education, and (3) the importance of small enterprises. Entrepreneurship in a small-firm economy rather than management in a large-firm economy is the source of Taiwan's dynamic form of capitalism.

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[32]The commission rate is a sliding scale with respect to trading volume: 0.1425% for trading under NT$10 million; 0.1325% for NT$10-50 million; 0.12% for NT$50-100 million; 0.11% for NT$100-150 million and 0.1% for trading over NT$150 million.

Hamilton (1997) uses the analogy of a gold rush effect to describe the Taiwanese industrial structure. In a gold rush, many people get into a stampede to find gold. Some people do strike it rich in the mines. Those who make the most money are the ones who supply miners with goods and services they need to search for gold. The export segment of the Taiwanese economy, comprised mainly of small and medium-sized firms, represents those who want to strike it rich by manufacturing products for global markets. Entrepreneurs search for products that will "hit it big" in the export arena, and when one person finds such a product and it becomes known, many others rush into the same area of production. Examples include textiles, plastic goods, footwear, and computers. So common is this rush into the same area of production that the Taiwanese call this sort of competition "a swarm of bees". On the other hand, the domestic segment (the suppliers to the miners) of the Taiwanese economy consists of state enterprises, companies from developed countries, and large domestic family business groups.

Given the "gold rush" industrial conditions, the predominant form of business institution is the family business. The rationale for this link is that in a "gold rush", the speed of making key decisions is important to the gold diggers' success. As Haley, Tan and Haley (1998) point out "...the overseas Chinese managers, unlike their counterparts in Korea and Japan, have tremendous capabilities for radical action. Because of most companies'

authoritarian natures, individuals with sufficient stature can make and implement decisions blazingly fast."

Thus, the majority ownership and control of businesses or business-group firms are in the hands of core family members and heads of households. Business groups usually start with some core firms established by the founders; these firms are then followed by opportunistic (finding gold) expansion into the same or other lines of endeavor. The strategy of expansion is to start new firms rather than to enlarge the size of the original firm. This investment pattern leads to an unusually wide spread of product lines within groups and results in business groups being largely composed of a series of medium-sized firms. One explanation for this behavior lies in Chinese family values: the family assets are predominantly divided among male heirs (splitting of family). Splitting a series of medium sized firms amongst heirs is preferred to having family members fight for control of one large enterprise [e.g. Haley, Tan and Haley (1998)].

It is quite common that majority ownership is closely-held within the family circle. Besides family ownership, most businesses also include a second type of ownership, the *guanxi* ownership [Hamilton (1997)]. *Guanxi* is the art of transforming a set of networks into a web—the process of appealing to any shared common bond (e.g., same school, same town,) between persons. However, the Chinese do not classify all possible relationships as *guanxi*. Instead, *guanxi* is a term conventionally reserved for

certain sets of ties that are bound by norms of reciprocity or *quid pro quo*. This type of personal network enables entrepreneurs to mobilize a wide range of people for investments or for political purposes. Thus, most family firms have some number of unrelated shareholders, while most non-family enterprises tend to be dominated by several family blocks [Hamilton (1997)].

3.6.2 The differences between Chinese and Western business networks

The Harvard old-boy network seems to mirror the Chinese family business network. Both networking mechanisms value personal relationship or common bonds between individuals. Nevertheless, Haley, Tan and Haley (1998) identify the following five distinctive general characteristics of Chinese family business networks: discontinuity, "hierarchical and dyadic ties", "uprightness", "contextual morality" and "flexible boundaries". They elaborate on these five characteristics and provide some comparison between Chinese and Western business networks, as follows:

> Discontinuity means that, unlike Westerners, the Chinese do not distinguish between work-related, family-related and socially-related networks, all of which fuse together for them.
>
> Confucius defines five relationships of ethical duty: (1) Sovereign and Minister; (2) Father and Son; (3) Husband and Wife; (4) Elder brother and Younger brother; and, (5) Friends. The relationships within the business networks, approximate dyadic and directional relations within Confucian families—the relationships' superior members define the relationships.

Individuals have direct relationships with all the networks' members.

Uprightness involves the ability and willingness to perform all the expected behaviors at the appropriate times and in the appropriate fashions. In the West, trust arises when people gain reputations for doing what they said they would do. In the Chinese sense, trust has two elements: the first involves the same concept of trust as that the West employs; the second, involves uprightness. Uprightness constitutes an important behavioral ideal, and without it, complete trust in the Chinese sense cannot exist.

Among the overseas Chinese, ethical standards vary with business relationship. Longer and better-established relationships with equals or superiors entail higher standards than shorter, fleeting relationships with inferiors. Western companies should also remember relationships' personal natures among the Overseas Chinese. Many Western companies rotate executives through Asian subsidiaries and offices. However, their incoming executives do not automatically inherit the outgoing executives' goodwill and strong relationships, or indeed their opponents. Companies do not own franchises of trust and uprightness in Asia -- individuals do.

Among the overseas Chinese, the networks' boundaries have flexibility and vary with circumstances much more so than they do among Western networks. Chinese networks exhibit very personal, though relatively low-strength ties of loyalty. Individuals' personal networks expand and contract with their relative successes (as personal contacts do for Westerners); individuals' networks for business projects vary with partners, locality and the projects' natures. A plethora of circumstantial factors (too many to enumerate) may affect the precise make-up of any individual's business network in any one instance.

In sum, the Confucian emphasis on personal relationships, with the historical lack of institutional support from government agencies, reinforced the overseas Chinese emphasis on personal relationships. As Haley, Tan and

Haley (1998) suggest, the difference between Chinese and Western business networks regarding the personal relationship is probably more a matter of degree than of a structural difference.

Chapter 4: HYPOTHESES DEVELOPMENT

4.1 The harmonization issue

There are many papers documenting the value relevance of accounting earnings in the U.S. for the past 30 years [e.g. Bernard (1989), Kothari (2000)]. The findings provide evidence that the U.S. accounting data is useful to U.S. capital market participants.

Alford, Jones, Leftwich and Zmijewski (1993) extend these research methodologies to non-U.S. companies listed in their domestic markets. The idea of Alford et al. is to see whether there is different value-relevance in different national GAAP. They carefully match industry and size of companies of different countries to facilitate comparison of value-relevance of GAAP of different countries. One criticism is that the empirical results are sensitive to the matching design [e.g. Harrison, Tomassini and Dietrich (1983), Murray (1983)]. Moreover, the resulting inference is questionable because we do not know whether it is the differences in GAAP, the differences in the capital markets, or the differences of institutional features that are associated with the different value-relevance of each countries' GAAP. In short, more than two research dials are turned in Alford, Jones, Leftwich and Zmijewski (1993) so that the inferences are weaker.

Nevertheless, Alford, Jones, Leftwich and Zmijewski (1993) acknowledge that the differences in institutional features are associated with different value-relevance of each nation's GAAP. Ali and Hwang (2000) extend this point. They document and suggest dissimilar reporting environments produce predictably dissimilar reports.

A logical extension of Ali and Hwang (2000) is to test whether "same" GAAP can be applied to dissimilar environments. As documented earlier, the Taiwanese accounting environment is similar to the U.S. Taiwanese companies report under Taiwanese GAAP, which follows U.S. GAAP, for the most part. Taiwanese GAAS is almost identical to the U.S. GAAS. The Taiwanese affiliates of the U.S. Big Five auditing firms audit the Taiwanese listed companies. Yet, the Taiwanese business environment differs from the U.S. business environment. Taiwan thus presents us with a unique setting to test whether basically the same GAAP can be applicable to a different business environment.

A priori, the capital market has to be of semi-strong form of efficiency (all publicly available information is impounded in price quickly and unbiased) for meaningful inference of earnings' value relevance [e.g. Fama (1970)]. Chordia and Swaminathan (2000) suggest that trading volume plays a major role in the speed with which price adjusts to information for the U.S. market. Using the findings of Titman and Wei (1999) and Shen and Wang (1998)

along with the high trading volume of TAIEX, I assume that the Taiwanese capital market is semi-strong efficient.

I start by investigating the value relevance of earnings in Taiwan. Although this has been tested before by Chu (1991), my data covers a more recent time period and the research methodologies are different.[33] The first hypothesis is to show that Taiwanese accounting earnings are value relevant in the pricing decision of Taiwanese investors (all hypotheses are stated in alternative form). If the Taiwanese GAAP net income is value relevant, then one can argue that applying U.S. accounting standards to Taiwan is useful to communicate the business outcomes for Taiwanese investors. A failure to find this association would suggest that the application of U.S. GAAP is not informative for Taiwan.

Hypothesis 1: There is a positive association between earnings levels, earnings changes and stock market returns for Taiwanese firms reporting in Taiwan.

Chu (1991) regresses changes of ordinary income on cumulative abnormal returns to study the ERC for both the Taiwanese and U.S. stock markets. He suggests that the positive difference between the Taiwanese

[33]Chu (1991) regresses the changes in ordinary income on Cumulative Abnormal Return (CAR) for the period of 1983 to 1988.

and the U.S. ERC is attributed to the institutional differences and inferior information environment in Taiwan.

Alford, Jones, Leftwich and Zmijewski (1993) provide cross-country comparisons of value relevance of accounting earnings using a long window association test. The results are descriptive—different countries with different value relevance of accounting earnings. They suggest that that differences may be because of the varying characteristics of investors across capital markets.

It is well documented that the likelihood for naïve investors to be functionally fixated on earnings is greater than that for sophisticated institutional investors [e.g. Hand (1990)]. One major characteristic of the Taiwanese stock market is that there is a large proportion of the investing public comprised of "naïve investors" [e.g. Titman and Wei (1999)]. Thus, I would argue that the naïve investors' functional fixation on earnings would be a possible explanation if I find that Taiwanese ERC to be greater than the U.S. ERC.

Moreover, Taiwanese companies compete intensively in the international product markets. This condition suggests that the Taiwanese earnings are more likely to follow a random walk process. Consequently, the random walk model is considered to be a better earnings expectation model for Taiwan than for the U.S. and the error-in-variable problem is expected to be less severe for Taiwan than for U.S. in the ERC study.

Following the previous argument, as well as the conclusion of Chu (1991) and Alford, Jones, Leftwich and Zmijewski (1993), I expect differences in the value relevance measurement between U.S. and Taiwan. Specifically, I hypothesize the following:

Hypothesis 2: Taiwan's ERC is larger than the U.S. ERC and the explanatory power of Taiwan's ERC regression is larger than that of the U.S. ERC regression.

The Taiwanese option market began in August, 1997, and the Taiwanese analysts' activities are not as sophisticated as those of the U.S. [e.g. Chu (1991), Chang, Khanna and Palepu (2000)]. Skinner (1990) documents that the information content of firms' accounting earnings releases is lower, on average, after exchange-traded options are listed on their stocks. He reasons that options provide investors with a more cost-effective tool for trading on information, so that more private information is produced about these firms after options listing. Thus, from the perspective of sophistication of analysts' forecasting activities and the existence of option markets in the U.S., I argue that the effect of prices leading earnings is more prominent in the U.S. than in Taiwan. In other words, the

anticipation in prior periods of the information in the contemporaneous earnings is more evident in the U.S. than in Taiwan.[34]

On the other hand, Jacobson and Aaker (1993) hypothesize that greater information asymmetries with respect to long-term business performance induce the U.S. stock market participants to attach greater importance to current-term results than their foreign (Japanese) counterparts. They suggest that larger information asymmetries in the U.S. may be creating incentives for a short-run management style detrimental to long-term competitiveness.

In contrast to managers of public companies, managers in family-managed firms have expectations of a continuing relationship with the firm and claims on its profits and, therefore, are subject to different and perhaps more effective rewards and sanctions than managers in the other firms [Pollak (1985)]. Both types of firms can reward successful managers with salary increases and promotions, but performance is often difficult to assess and managers may be able to manipulate needed investments at the expense of the long-run objectives of the firm. Because family managers expect a continuing relationship with the firm, they are less tempted to sacrifice long-run advantages for short-run gains [Harvey (1999)]. From the perspective of the prevalence of family business in Taiwan as opposed to the U.S.' diffused

[34] I examine the period of 1991 to 1996 when there is no option market in Taiwan. It would be an interesting test to see whether there is a difference in ERC with respect to pre-and post-option market.

ownership of firms, I expect that more information in contemporaneous earnings was anticipated in prior periods in Taiwan than in the U.S.

Kothari and Sloan (1992) suggest a regression model of a longer return period, to include up to the previous 4 years, and contemporaneous earnings. Expanding the measurement window mitigates the omitted variable problems that arise because of prices leading earnings and increases the R^2s dramatically. Because of the conflicting arguments of which country has more price-leading-earnings effects (analysts' sophistication and the option market favoring the U.S. and the family business model suggesting Taiwan), the prediction of the coefficient and R^2 for the Kothari and Sloan (1992) regression specification is unclear and the empirical finding can only be descriptive.

The third hypothesis is the main hypothesis in the first part of this dissertation. The first and second hypotheses seek to establish the usefulness of Taiwanese earnings by exploring the value relevance aspect in the accounting literature. This third hypothesis sets out to explore two other metrics of the usefulness of earnings—timeliness and conservatism. Timeliness and conservatism look at the asymmetric treatments of accounting earnings to reflect negative economic income ("bad news") relative to positive economic income ("good news"), where economic income is defined as changes in the market value of equity plus net dividend [Basu (1997)].

Basu (1997) and Ball, Kothari and Robin (2000) suggest that conservatism is, for the most part, induced by shareholders' litigation against managers and auditors. Ball, Robin and Wu (2000) argue that, in addition to very few shareholders' lawsuits, the Chinese family business model reduces the incentive for the preparers to disclose timely information with respect to negative economic income relative to positive economic income. Although Taiwan's GAAP follows the U.S. GAAP, there are few lawsuits brought against management or the auditors in Taiwan. Based on these institutional differences, I apply the argument of Ball, Robin and Wu (2000) and hypothesize the following:

Hypothesis 3a: The relationship between the Taiwanese reported earnings and the asymmetrical timeliness for bad news and good news is closer to that of the four Asian countries (Hong Kong, Singapore, Malaysia and Thailand) reported in Ball, Robin and Wu (2000) than to that of the common-law countries (U.S. U.K. Australia and Canada) found in Ball, Kothari and Robin (2000).

Hypothesis 3b: The relationship between the Taiwanese reported earnings and the asymmetrical treatment of timeliness for bad news and good news is less prominent than the

asymmetrical timeliness for bad news and good news of the U.S.

If the findings for Hypothesis 3a suggest that Taiwanese reported earnings exhibit characteristics of timeliness and conservatism more similar to the four Asian countries in Ball, Robin and Wu (2000), then one can argue that, as suggested by Ball, Robin and Wu, the differences in the institutional features overpower the intended effect of transparency of standards harmonization. On the other hand, if I find that Taiwan behaves more like the common-law countries than the four Asian countries, then one can argue that U.S. GAAP overpowers the institutional differences. The argument for Hypothesis 3b is the same as the argument for Hypothesis 3a.

4.2 Tests of the family business model and accounting earnings informativeness

Warfield, Wild and Wild (1995) document that more managerial ownership is associated with greater earnings informativeness in the U.S. Fan and Wong (2000) examine the ownership structure of seven East Asian economies, Hong Kong, Indonesia, South Korea, Malaysia, Singapore, Taiwan and Thailand, to show how ownership structure affects the informativeness of accounting earnings. They argue that, in East Asian

corporations, the high concentration of ownership nullifies the principal-agent problem between owners and managers as well as the related role of accounting-based managerial contracts. However, they further argue that the expropriation incentives of a firm's controlling owner would have a negative impact on the informativeness of accounting earnings in East Asia. Specifically, they find that in East Asia, the ultimate owner's voting rights and the divergence of cashflow rights and voting rights have a negative effect on the informativeness of earnings as measured by the earnings-returns relation. Following the argument of Jensen and Meckling (1976), the owner-manager of firms with low ownership should have a higher incentive to misappropriate firms' resources to their own benefits. Along with the findings of Fan and Wong (2000), I investigate the effect of family ownership on the value-relevance of earnings.

Hypothesis 4a: The ERC of firms with high family ownership is larger than the ERC of firms with low family in Taiwan.

Ball, Robin and Wu (2000) compare the slope coefficient and the explanatory power of Basu's (1997) regression among Asian, code-law, and common-law countries. They attribute their findings to the lack of shareholders' litigation environment and to the Chinese family business model that hampers the application of accounting standards. However, the

question of whether the lack of shareholders' litigation, the predominance of the Chinese family business model, or both, cause the "improper" application of GAAP remains unanswered.

One of the institutional differences between Taiwan and the U.S. is the fact that large integrated families control the bulk of the public companies in Taiwan [Claessens, Djankov and Lang (2000)]. In light of the argument of Ball, Robin and Wu (2000) that the Chinese family business model hampers the application of GAAP, I investigate how family ownership affects the quality of accounting earnings.

Hypothesis 4b: The reported earnings of Taiwanese companies with high family ownership are less timely for bad news and less conservative for good news than the reported earnings of firms with low family ownership.

If the empirical results do not reject the hypothesis, then my findings will be consistent with the argument of Ball, Robin and Wu (2000). On the other hand, if the high family ownership firms' reported earnings reflect bad news more quickly than good news relative to low family ownership firms, then I argue that the "improper" application of GAAP results from a lack of litigation infrastructure.

Chapter 5: DATA AND DESCRIPTIVE STATISTICS

5.1 Data, variable determination and sample selection

5.1.1 The Taiwan sample

In order for a firm to be in the sample, I have to be able to obtain selected accounting information, stock price data, and the percentage of outstanding shares represented (or owned) by the board of directors from the *Taiwan Economic Journal* Data Bank.[35] The data, from the *Taiwan Economic Journal*, includes every listed firm in the Taiwan Stock Exchange for the years 1991 to 1996. Accounting information required includes operating income (OPI), ordinary income (OI), net income (NI), and the book value of equity (BV). Stock price data includes outstanding shares, daily stock prices, cash dividends, and trading volume.

Each month, members of the board of directors of TAIEX listed companies (and their immediate relatives) are required to report the number of shares they own or represent to the SFC.[36] The *Taiwan Economic Journal* compiles the information and reports the share percentages. Each director's (or related person's) name is followed by a shareholders' name that the

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[35] *Taiwan Economic Journal* Data Bank: 10th Floor, 173 Section 2, Chang-An East Road, Taipei, Taiwan, R.O.C. Tel: 886-2-2752-9777 Fax: 886-2-2777-1436.

[36] Related persons are family members of the directors who own shares of the company.

director/related person is representing, as well as the percentage of shares in the *Taiwan Economic Journal* data set (see Table 1).

The prices are adjusted for stock splits and stock dividends by the *Taiwan Economic Journal*. I calculate the change in each of the three income specifications and then divide it by the beginning period price. Return (RET) is the annual buy and hold with dividend return (price 3 months after the year-end plus net dividend, minus price 9 months before the year-end, divided by the price 9 months before year-end).[37] The trading volume (in millions of shares) that I report later on in Table 3 and Table 4 is the trading volume for December.

Board ownership (BOARD) is defined as the sum of the percentage of shares each director represents (or owns) as of December. I further identify family ownership from the board ownership data set. If the shareholder's name is a bank, government agency, foreign company, or venture capital fund, then I classify it as non-family (NONFAM). If the shareholder's name is the same as the director's name, then I call this observation "individual" and classify it in the family owner group (FAM). If the shareholder's name is a foundation or a holding company, then I also classify it as family. The most difficult classification is when the shareholder's name is a corporation.

[37]The deadline for the listed companies to summit the annual reports to the SFC and the TAIEX is April 30. Thus, the annual return cumulating period should be an April-to-April year. However, most firms make public their prior year income and dividend information in February and March in major newspapers.

Given the prevalence of cross holding shares among friends and families (*guanxi* ownership), I classify corporation shareholder as family.

I exclude banks (company identification number (COID): 2801 to 2827) from the sample because they are subject to different monitoring processes. Almost all of the TAIEX listed firms use December 31 as their fiscal year end, except three firms: Standard Food Corporation (COID: 1227), Yang-Ming Transport Corporation (2609) and China Steel Corporation (2002).[38] In order to ensure comparable return accumulation periods for all firms, I exclude those three non-December fiscal year-end firms from the sample.

Finally, the two extreme percentiles of each variable (ΔOPI, ΔODI, ΔNI, RET, BOARD, FAM and NONFAM) are excluded. Also, each firm/year with missing value for any variable is excluded, giving the same observation set for the various variables and models estimated.[39] The rationale for removing the outliers is to eliminate observations potentially with errors or with extreme values due to scaling. The disadvantage is that potentially informative observations are deleted, and there is the danger of an incorrect

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[38]According to article 5 of the "Criteria for Preparation of Financial Reports Listed Company", fiscal year should be calendar year. However, since the primary shareholders of Yang-Ming Maritime Corporation and China Steel Corporation are government agencies (Ministry of Transportation and Ministry of Economic Affairs), they are exempted and follow the June 30 fiscal year end like all other government agencies.

[39]The TEJ data set is very complete in the sense that there are fewer missing values for each variable. A missing value usually occurs when there is accounting information for a firm but no stock price information. This happens when firms provide accounting information before they are listed for trading. Furthermore, I observe no missing values for ownership data when I merge it with the accounting and price data set.

inference. Nevertheless, under no circumstances were observations deleted because of perceived exceptional relation between dependent and independent variables, or among the independent variables. Thus, the statistical analysis should be without biases.[40]

5.1.2 The U.S. sample

The sample is selected from the period 1989-1996 using the following criteria: (1) annual earnings (operating income after depreciation (data #173), ordinary income (data #18), and net income (data #172)) are available on the 1999 COMPUSTAT Annual Industrial and Research files; (2) monthly return, market capitalization and shares outstanding are available on the Center for Security Prices (CRSP) NYSE/AMEX/NASDAQ Monthly files. I include firms in the COMPUSTAT Research file in the sample to reduce survivor bias.[41]

I calculate the change in accounting income (all three specifications) and then divide it by the beginning period market value. Return (RET) is the twelve months (March to March) buy and hold with dividend return, calculated by compounding one plus monthly return for twelve months and then subtracting one. Observations falling in the top or bottom 1 percent of

[40]Retaining the outliers does not affect any major conclusions.
[41]Three different accounting income specifications are used in order to be consistent with the Taiwan sample and also for robustness check.

earnings deflated by price or returns in each calendar year are excluded to reduce the effects of outliers on the regression results.

5.2 Sample description

5.2.1 Taiwan sample

Table 2 provides the descriptive statistics of the Taiwanese sample for operating income, ordinary income, net income, the book value of equity, the market value of equity, returns, percentages of shares owned by board of directors and percentage shares of family ownership. There are 1,334 firm-year observations in the sample. Out of these, there are 144 observations for 1991, 181 observations for 1992, 214 for 1993, 240 for 1994, 270 for 1995 and 285 observations for 1996.

Panel A, of Table 2, reports descriptive statistics for operating income. The mean is NT$ 403 million and the range is from NT$ 336 million in 1996 to NT$ 492 million in 1995. The minimum operating income is negative NT$ 1.15 billion and the maximum is NT$ 8.84 billion. Panel B reports descriptive statistics for ordinary income. The mean is NT$ 419 million and the range is from NT$ 274 million in 1991 to NT$ 526 million in 1994. The minimum ordinary income is negative NT$ 1.46 billion and the maximum is NT$ 8.02 billion. Panel C reports descriptive statistics for net income. The

average net income is NT$ 417 million. Mean net income ranges from NT$ 273 million in 1991 to NT$ 518 million in 1994. The minimum is negative NT$ 1.46 billion and the maximum is NT$ 8.02 billion.

Since Taiwanese GAAP is very similar to the U.S. GAAP, in light of Pope and Walker (1999), ordinary income should be fairly close to net income.[42] The statistics in Panel B and Panel C illustrate this point.

Panel D reports the descriptive statistics for the book value of equity. The average book value for the pooled data is NT$ 4.9 billion. The minimum book value is NT$ 250 million and the maximum is NT$ 50 billion. The average market value for the pooled data is NT$ 12.3 billion, with a minimum of NT$ 1.06 billion and a maximum of NT$ 168.5 billion (Panel E). The mean return equals 13.15 percent and the range is from a negative 24 percent in 1995 to 65 percent in 1996. The maximum annual return for a stock is 218 percent in 1994. The minimum return for a stock is negative 59 percent (Panel F).

Panel G, of Table 2, reports the percentage of outstanding shares represented or owned by the board of directors of each company. The mean is 25.8 percent and the range is from 24.9 percent in 1996 to 26.4 percent in 1992. The standard deviation is 13.6 percent. The maximum is 70.5

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[42]Pope and Walker (1999) indicate that controlling for cross-jurisdictional classification of income differences affects comparisons of earnings timeliness and conservatism. They show that because of stricter classification of extraordinary items, U.S. ordinary income is much closer to net income as opposed to the U.K. income numbers. (See section 2.2.4. for details). Thus, I include the net income variable for the robustness check.

percent and the minimum is 6 percent. Panel H reports the percentage of shares of family ownership. The mean is 26.2 percent and the range is from 23.5 percent in 1991 to 27.3 percent in 1995. The standard deviation for the pooled sample is 15.2 percent. The maximum is 75 percent and the minimum is 0 percent. The average percentage of the boards' or families' ownership of shares does not vary much from one year to another.

The next two tables (Tables 3 and 4) report the descriptive statistics of family ownership as a percentage of the total shares outstanding (FAM), net income (NI), market value of equity (MV), annual march-to-march stock return (RET), and December's trading volume when I partition the Taiwanese sample based on family ownership. The partitioning is made to create an equal number of observations in each portfolio (2 and 3 groups). The objective of Tables 3 and 4 is to show the cut-off point of the partitioning scheme, as well as the characteristics of these firms' income, market value, returns, and trading volume. Most of the Taiwanese firms start out as family-controlled firms (with very few exceptions such as privatized state enterprises or foreign companies). But for whatever social-economic reasons, some families' shares become diluted.

I first partition the Taiwanese sample into 2 groups, high versus low ownership, each with equal number of observations (Table 3). I then partition the sample into 3 groups also with equal number of observations:

high, medium and low ownership (Table 4). The goal of partitioning is to see whether the inferences are sensitive to the grouping method or not.

Table 3, Panel A, reports descriptive statistics for family ownership. The means for the lower ownership group and the higher ownership group are about 13 and 38 percent. The cut-off point, i.e., the maximum family ownership in rank low and the minimum family ownership in rank high, is approximately at 24 percent of total shares outstanding. The mean net income (Panel B) is larger for rank low from 1994 to 1996; for rank high, from 1991 to 1993. The average market value (Panel C) is larger for rank low from 1993 to 1996; for rank high, from 1991 to 1992. As for returns, rank low has higher average return for 1993,1994 and 1996, while rank high has higher average return for 1991, 1992 and 1995 (Panel D). In panel E, the average trading volume is consistently larger for rank low than for rank high. This observation in panel E is not surprising. As the high family ownership firms have lesser "free floating" shares available for the Taiwanese investing public to trade, the average trading volume is expected to be lower for these high family ownership firms.

Table 4 reports descriptive statistics of the same variables (FAM, NI, MV, and RET) as reported in Table 3 for sample partitioned into three groups with an equal number of observations. The first cut-off point, i.e., the maximum family ownership in rank low and the minimum family ownership in rank medium, is approximately at 17 percent of total shares outstanding.

The second cut-off point, i.e., the maximum family ownership in rank medium and the minimum family ownership in rank high is approximately at 31.5 percent of total share outstanding. The means for the lowest ownership, the middle group and the highest ownership group are about 10, 24 and 44 percent respectively. The mean net income (Panel B) is the largest for rank low from 1994 to 1996; for rank high, from 1991 to 1993. The average market value (Panel C) is the largest for rank low from 1993 to 1996; for rank high, from 1991 to 1992. As for returns (Panel D), rank low has the highest returns for 1993 and 1994, while it suffers the biggest loss in 1992 and 1995. Thus, the relation is not monotonic with the ownership partitions for net income, market value or return. Nevertheless, in panel E, the average trading volume is also consistently larger for rank low than for rank medium, and is consistently larger for rank medium than for rank high.

Table 5 reports descriptive statistics for the pooled Taiwanese sample of the percentage of shares represented or owned by the board of directors and related persons based on the ownership classification described in Table 1. The main purpose of presenting this table is to highlight that a majority of the board members are individuals who own a significant amount of shares outstanding (family owners). Panel A includes the first four categories that fall under the family ownership group. There are 3,083 observations for shareholders' names as names of a corporation. The average is 2.27 percent and the median is 0.01 percent. The next category is when the

shareholders' names are names of a holding company (1,829 observations). The average is 2.73 percent and the median is 0.12 percent. Most of the observations (17,315 out of the total of 23,784 observations) fall into the category of "Individual" when the shareholders' names are the same as the board members' or their related persons' name. The average ownership is 1.29 percent and the median is 0.23 percent. The last category in the family ownership group is when the shareholders' names are names of foundations (341 observations). The average is 1.62 percent and the median is 0.05 percent.

Panel B of Table 5 reports the next four categories that fall under the non-family ownership group. There are 354 observations for shareholders' name as names of a government agency. The average is 4.96 percent and the median is 0 percent. One reason for the median to be zero is that when the percentage of ownership of government agencies is large enough for more than one board directorship, the percentage of ownership by the first board member who represents the government agency is reported as the percentage of shares owned by that government agency and the percentage of ownership by the next board member who represents the government agency is reported as zero. The next category is when the shareholders' names are names of a foreign company (613 observations). The average is 4.84 percent and the median is also 0 percent. This situation is the same as for the government category. When the shareholders' names are names of

banks, the number of observations is 76. The average is 2.99 percent and the median is 2.78 percent. The last category in the non-family ownership group is when the shareholders' names are names of venture capital funds (173 observations). The average is 2.98 percent and the median is 1.18 percent.

Table 6 provides the descriptive statistics of the 144 non initial-public-offering (IPO) companies for operating income, ordinary income, net income, market value, returns, percentages of shares owned by the board of directors, and the percentage of shares of family ownership. The rationale for reporting the information is that these non-IPO firms are used as a sensitivity test to see whether the value-relevance of accounting income and accounting conservatism is different for non-IPO firms in the later section. In comparison to the statistics for the full sample as reported in Table 2, there are not much differences.

5.2.2 The U.S. sample

Table 7 provides the descriptive statistics of the U.S. sample for the same period of 1991 to 1996 for operating income, ordinary income, net income, market value, and returns. There are 17,634 firm-year observations in the sample. Out of these, there are 2,698 observations for 1991, 2,698

observations for 1992, 2,713 for 1993, 3,159 for 1994, 3,119 for 1995 and 3,241 observations for 1996.

Panel A of Table 7 reports descriptive statistics for operating income (COMPUSTAT data #173). The mean is US$ 200 million, ranging from US$ 158 million in 1991 to US$ 247 million in 1996. The minimum operating income is negative US$ 1.35 billion and the maximum is US$ 24 billion. Panel B reports descriptive statistics for ordinary income (#18). The mean is US$ 86 million, ranging from US$ 56 million in 1991 to US$ 117 million in 1996. The minimum ordinary income is negative US$ 8 billion and the maximum is US$ 7.5 billion. Panel C reports descriptive statistics for net income (#172). The average net income for the pooled data set is US$ 79 million. Mean net income ranges from US$ 36 million in 1992 to US$ 117 million in 1996. The minimum is negative NT$ 23.5 billion and the maximum is US$ 7.5 billion.

The average market value for the pooled data is US$ 1.6 billion with a minimum of US$ 0.38 million and a maximum of US$ 206 billion (Panel D). Return is the annual buy-and hold return calculated by: the price 3 months after the year-end plus net dividend, minus the price 9 months before the year-end, divided by the price 9 months before year-end. The mean return equals 16.46 percent, ranging from 8.84 percent in 1993 to 23.25 percent in 1995. Finally, the maximum return for a stock is 200 percent and the minimum return is negative 80 percent (Panel E).

Chapter 6: METHODOLOGY, RESULTS AND ROBUSTNESS TESTS

6.1 Methodology

One method to demonstrate the usefulness of accounting earnings is to run a regression model of stock returns on the contemporaneous level and change of earnings to infer informativeness [e.g. Easton and Harris (1991), Alford, Jones, Leftwich and Zmijewski (1993)].

To justify my model specification for Taiwanese securities, I follow Chu (1991) and Bao, Bao and Firth (1996) by assuming the Taiwanese earnings follow a random walk. Brown, Griffin, Hagerman and Zmijewski (1987a and b) suggest that analysts' forecasts are superior to time-series earnings expectation models. Chang, Khanna and Palepu (2000) study the effect of family groups on analysts' forecast accuracy for fifteen emerging markets in Asia and Latin America. They suggest that the analysts' forecasts accuracy is lower for Asian emerging countries (including Taiwan) in comparison to the developed countries. Furthermore, Brown and Higgins (1999) point out that there are problems with the Taiwanese analysts' forecasts data in the I/B/E/S data set, and they choose not to include Taiwan

in their study.[43] Thus, I maintain a random walk model for time series earnings expectation in Taiwan.

A multiple regression of returns on the current earnings level and the earnings change variables is used to show the usefulness of Taiwanese accounting earnings. Return is the March-to-March buy-and hold with dividend return. Earnings variables (Operating Income, Ordinary Income and Net Income) are scaled by the beginning period price to control for heteroskedasticity [Christie (1987)]. The rationale for including these three different earnings specifications in testing the hypotheses is as follows. Chu (1991) uses both the operating income and the ordinary income in his Taiwan/U.S. comparison. To be consistent with Chu (1991), I also look at those two earnings specifications. However, Alford, Jones, Leftwich and Zmijewski (1993) use net income as earnings specification for their tests. Again, to be consistent with the prior literature, I also include net income as an earnings specification in testing the hypotheses. The empirical model for testing Hypotheses 1 and 2:

$$R_{it} = \alpha_t + \beta_{1t}\,[X_{it}/P_{it-1}] + \beta_{2t}\,[\Delta X_{it}/P_{it-1}] + \varepsilon_{it} \qquad [1]$$

[43]According to Brown and Higgins (1999): "In the early years of the international data, I/B/E/S's source of the actual earnings numbers was the analysts who submitted the forecasts. With the exception of Taiwan, I/B/E/S has obtained actual earnings numbers from independent sources."

where R_{it} (the March-to-March buy-and-hold with dividend return) is the price three months after the year-end plus net dividends, minus the price nine months before the year-end ,divided by the price nine months before year-end. The specifications of the reported annual earnings, X_{it}, are: operating income, ordinary income and net income. The scalar, P_{it-1}, is the stock price at the beginning of the period. The error term, ε_{it}, is the white noise with $N(0,\sigma^2)$.

Hypothesis 2 compares the value relevance of earnings between the U.S. and Taiwan. Considering that the U.S. and Taiwanese economies are at different stages of development, it is difficult to interpret the results from a direct comparison of the regression coefficients and adjusted R^2s. Alford, Jones, Leftwich and Zmijewski (1993) acknowledge the difficulties in cross-countries comparisons and construct matching pairs based on industry, market capitalization and time in the research design. However, prior research has found that results from matching-pairs analyses are sensitive to the matched procedure [e.g. Harrison, Tomassini and Dietrich (1983), Murray (1983)]. Since the objective of Hypothesis 2 is to highlight the difference or the similarity of the value relevance of earnings between the U.S. and Taiwan, while maintaining that the two GAAP are very similar, the construction of matching pairs for the test is not deemed to be necessary.

Following Hypothesis 2, I examine the prices-lead-earnings effect on the ERC regression using the Kothari and Sloan (1992) and the Jacobson and

Aaker (1993) specifications on both the Taiwanese and the U.S. samples. As mentioned in section 4.1, the empirical findings here are just descriptive. The empirical model for testing the lead-lag structure of prices and earnings, according to Kothari and Sloan (1992) is:

$$[P_{jt}/P_{jt-2}] = \alpha_t + \beta_{1t}\,[X_{jt}/P_{jt-2}] + \varepsilon_{jt} \qquad [2]$$

where P_{jt}/P_{jt-2} is the price three months after the year-end plus net dividends (current and lag), minus the price twenty-one months before the year-end ,divided by the price twenty-one months before year-end. The specification of the reported annual earnings, X_{jt}, is ordinary income. The scalar, P_{jt-2}, is the stock price at the beginning of the period. The error term, ε_{jt}, is the white noise with $N(0,\sigma^2)$.

The model used by Jacobson and Aaker (1993) is:

$$R_{jt,jt-\tau} = \alpha_t + \beta_{1t} * Performance\ Measure_{jt} + \varepsilon_{jt} \qquad [3]$$

where $R_{jt,jt-\tau}$ is the price three months after the year-end plus net dividends, minus the price twenty-one months before the year-end ,divided by the price twenty-one months before year-end. The performance measures are (1) Sales growth and (2) Return on Investment (ROI). The error term, ε_{jt}, is the white noise with $N(0,\sigma^2)$.

Ball, Kothari and Robin (2000), Pope and Walker (1999) as well as Ball, Robin and Wu (2000), use the timeliness of reflecting economic income in accounting income [Basu (1997)] to be a gauge of earnings' quality across different countries. To show that accounting earnings reflect more quickly the negative economic income (bad news) than positive economic income (good news), Basu (1997) regresses earnings level, scaled by price, on a dummy variable (bad news = 1, zero otherwise), security returns, and an interaction term of a dummy variable and returns. Thus, the empirical model for testing Hypotheses 3a and 3b with respect to timeliness and conservatism is as follows:

Pooled sample:

$$X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it} + \varepsilon_{it} \qquad [4]$$

Positive and negative return sample:

$$X_{it} / P_{it-1} = \alpha_0 + \beta_0 R_{it} + \varepsilon_{it} \qquad [5]$$

where the specifications of the reported annual earnings, X_{it}, are: operating income, ordinary income, and net income. The scalar, P_{it-1}, is the stock price at the beginning of the period. R_{it} is the March-to-March buy-and-hold with dividend annual return. The dummy variable, DR_{it}, equals 0 when the return

is positive and equals 1 when the return is negative. The error term, ε_{jt}, is the white noise with $N(0,\sigma^2)$.

The rationale for using these earnings specifications is as follows. Pope and Walker (1999) indicate that the results of cross-border comparisons of earning timeliness and conservatism are sensitive to the classification of extraordinary items. Given that the Taiwanese GAAP generally follows the U.S. GAAP, I expect no difference for the classification of extraordinary items. In other words, the results of the Taiwan/U.S. comparison should not be sensitive to different earnings specification. Thus, I include these three earnings specifications as a robustness check.

To address Hypotheses 4a and 4b, I examine the relationship between family ownership and the timeliness of accounting earnings. I am not aware of any theory or formal model that indicates a functional form of the relationship between family ownership and the timeliness of accounting earnings. Thus, I partition the sample by family ownership variables into two (high versus low family ownership) and three (high, medium and low family ownership) groups to investigate whether the Chinese family business model has any effect on the value relevance or accounting conservatism of firms' earnings.[44]

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[44] I have tried a linear model putting the percentage of ownership or the rank variable of the percentage of ownership of each firm. The results indicate that higher family ownership is

6.2 Empirical results:

6.2.1. The empirical results of testing Hypothesis 1

Table 8 reports the regression results of the annual buy-and-hold returns on deflated earnings levels and changes for the Taiwanese companies for Hypothesis 1. The result is consistent with the hypothesis that the Taiwanese accounting income numbers are value relevant to the investors.

Panel A uses the definition of income as operating income. The slope coefficient for the earnings levels is 1.92 and is significant to the 0.01 level for the pooled regression, while the slope coefficient for earnings changes is −0.15 and is not statistically significant.[45] The adjusted R^2 for the pooled regression is 2.01 percent. For regression results by each year, the coefficients are not significant and the adjusted R^2 is only 0.74 percent in 1996. However, for 1994, the adjusted R^2 is 24.99 percent. The slope coefficient for the earnings levels is 2.01, and the slope coefficient for earnings changes is 4.94 and is statistically significant to the 0.01 level in 1994. For 1993, the adjusted R^2 is 10.69 percent. The slope coefficient for

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positively correlated with more timely disclosure of bad news but are not statistically significant.

[45] I report t-statistics for almost all of the regressions for both the Taiwan and the U.S. sample to show the significance level. However, I am concerned about heterosckedaticity in this value-relevance regression for Taiwan in particular; therefore, I report the White (1980) t-statistics for the regression results in Table 8.

the earnings levels is 1.47 and is significant to the 0.01 level, and the slope coefficient for earnings changes is 2.12 and is also statistically significant to the 0.01 level in 1993. The adjusted R^2 for the 1991 and 1992 regressions are 2.09 and 7.75 respectively.

Panel B of Table 8 is for ordinary income. The slope coefficient for the earnings levels is 3.14 and is significant to the 0.01 level for the pooled regression, while the slope coefficient for earnings changes is 0.41 and is not statistically significant. The adjusted R^2 for the pooled regression is 6.65 percent. For regression results by year, the adjusted R^2 is 3.41 percent in 1996. The slope coefficient of earnings levels is 2.34 and is significant to the 0.01 level, but the coefficient for earnings changes is 0.19 and is not statistically significant. However, for 1994, the adjusted R^2 is 24.21 percent. The slope coefficient for the earnings levels is 2.12 and is significant to the 0.01 level, and the slope coefficient for earnings changes is 4.72 and is also statistically significant to the 0.01 level in 1994. For 1993, the adjusted R^2 is 18.55 percent. The slope coefficient for the earnings levels is 2.33 and is significant to the 0.01 level, and the slope coefficient for earnings changes is 2.28 and is also statistically significant to the 0.01 level in 1993. The adjusted R^2 for the 1991 and 1992 regressions are 4.51 and 10.84 respectively.[46]

[46]The regression results for using the Net Income as the earnings specification are similar to that of the ordinary income.

It is a little surprising to see that the earnings changes variable is not quite as statistically significant as the earnings levels variable for the Taiwan sample. However, on the by year basis, the results are similar to the Table 3 of Easton and Harris (1991)—for some years both variables are significant and for other years only the earnings levels are significant. One possible argument is that the industrial environment in Taiwan is so competitive that the firms' earnings streams are more of a transitory nature. Furthermore, compare these statistics to that of the panel D of Table 14, the Taiwanese numbers appear to be quite similar to those of the four Asian countries. Thus, from the statistics, there is a positive association between accounting earnings and stock returns in Taiwan. I argue that the Taiwanese accounting earnings are useful for investors in valuing securities.

6.2.2 The empirical results of testing Hypothesis 2

The empirical results do not support the second hypothesis that Taiwan's ERC is larger than the U.S. ERC and the explanatory power of Taiwan's ERC regression is larger than that of the U.S. ERC regression. This result is different from the results reported in Chu (1991). Chu (1991) finds that both the ERC and the R^2 for his Taiwan sample are larger than for his U.S. sample and he concludes that it is probably due to the inferior information environment in Taiwan. Even though my results and the

conclusion of this hypothesis differ from Chu (1991), it is quite possible that it is because of different testing period. My testing period covers a more recent time span and that the information environment in Taiwan has improved dramatically during these times.

Table 9 reports the regression results of annual returns on deflated earnings levels and earnings changes for the U.S. firms (firms that are in both the COMPUSTAT Annual Industrial and Research files as well as CRSP NYSE/AMEX/NASDAQ Monthly files). This data requirement from both COMPUSTAT and CRSP causes a selection bias towards large firms, limiting the generalizability of the results.

Panel A of Table 9 uses the definition of income as the operating income. The slope coefficient for the earnings levels is 0.24 and is significant to the 0.01 level, and the slope coefficient for earnings changes is 0.56 and is also statistically significant to the 0.01 level. The adjusted R^2 for the pooled regression is 6.99 percent. For regression results by year, the coefficients are all significant to the 0.01 level, and the adjusted R^2 ranges from 4.46 percent in 1994 to 9.58 percent in 1991. Panel B of Table 9 is for ordinary income. The slope coefficient for the earnings levels is 0.32 and is significant to the 0.01 level, and the slope coefficient for earnings changes is 0.29 and is also statistically significant to the 0.01 level for the pooled regression. The adjusted R^2 for the pooled regression is 5.25 percent. For regression results by year, the slope coefficients of earnings levels and

earnings changes are all statistically significant to the 0.01 level. The adjusted R^2 ranges from 2.57 percent in 1993 to 7.49 percent in 1992. These regression results are comparable to the results reported in the Table 3 of Easton and Harris (1991).

Comparing Table 8 and Table 9, the coefficient for the deflated earnings levels (both earnings specifications) for the Taiwanese firms is considerably larger than that for the U.S. sample. The coefficient for the deflated earning changes for the Taiwanese firms is about the same as that for the U.S. sample. As for the adjusted R^2, the 2.01 for the Taiwan sample is clearly smaller than the 6.99 for the U.S. sample for operating income. However, for ordinary income specifications, the adjusted R^2s for both countries are about the same. Furthermore, both the coefficients and the adjusted R^2 for the Taiwanese sample vary considerably from year to year. The coefficients and the adjusted R^2s for the U.S. sample appear to be much more stable. Thus, the conclusion of Chu (1991) that the Taiwanese ERC is greater than the U.S. ERC may be sensitive to the time period studied.

The next two tables (Table 10 and Table 11) investigate the lead-lag structure of the earnings-return relationship. As discussed in section 4.1, the motivation for this part of the research is to highlight the information environments by documenting the prices-lead-earnings effects in both Taiwan and the U.S. Since there are conflicting arguments with respect to

which country has more prominent prices-lead-earnings effect, the reported results in the next two tables are only descriptive.

Table 10 reports the empirical results of running a regression of annual return or a two-year return on deflated earnings levels for both the Taiwanese sample and the U.S. sample. This table is meant to duplicate the Kothari and Sloan (1992) test of showing the lead-lag structure of the returns/earnings relationship. However, because I only have 6 years of time-series data, it is not possible to run ERC at the individual firm level as in Kothari and Sloan (1992). I run the aggregate pooled regression for two different return aggregate periods (one year and two years) instead.

For the Taiwanese sample (N = 1334 for the one year and N = 753 for the two years), the slope coefficient for the earnings levels is 3.39 (significant) and the adjusted R^2 is 6.61 percent when the return aggregate period is one year. The slope coefficient becomes 7.11 (significant) and the adjusted R^2 is 31.03 percent when the return aggregate period is two years. This suggests that prices lead earnings and that the errors-in-variables problem is somewhat mitigated with the two-year return aggregation period. As for the U.S. sample (N = 20741), the slope coefficient for the earnings levels is 0.53 (significant) and the adjusted R^2 is 3.87 percent when the return aggregate period is one year. The slope coefficient becomes 1.93 (significant) and the adjusted R^2 is 10.83 percent when the return aggregate

period is two years. From this result, I argue that the price-lead-earnings effect is even more severe in Taiwan than in the U.S.

Table 11 reports the empirical results of stock return on ROI. This table is a duplicate of Table 4 of the Jacobson and Aaker (1993) specification. The main difference, in terms of model specification, between this table and the previous one is that the scalar for the earnings is different. For Table 10, I use lagged price to deflate the earnings, while in the case of ROI in Table 11, the deflator is the book value of equity. Jacobson and Aaker (1993) defend the choice of these specifications by stating that "the variety of accounting measures of performance have value to the extent that they yield information with respect to economic rate of return." I follow their specifications in order to be consistent for comparison purpose.

Panel A, of Table 11, reports the two earnings specifications and sales growth for the Taiwanese sample. The numbers in the fourth column, the ratios, are 4.24, 2.78, and 7.85. The corresponding numbers in Panel B are 2.40, 2.34, and 3.43 for the U.S. sample. While 4.24 is about 1.77 times larger than 2.40, the ratios for ordinary income are similar for both the Taiwanese and the U.S. samples. However, for the sales growth variable, 7.85 for Taiwan is more than twice of the 3.43 for the U.S. sample. This suggests that the information regarding sales growth has been captured much earlier in the share prices in Taiwan than in the U.S.

These observations are consistent with the argument of Jacobson and Aaker (1993) that when capital providers are more closely linked with the management, the information about firms' future performances is more likely to be captured in share prices earlier. Given that many Taiwanese public listed companies are still controlled by family ownership, the empirical results presented in Table 10 and Table 11 are not surprising.

6.2.3. The empirical results of testing Hypothesis 3

The next four tables (Table 12 to Table 15) present the empirical results of testing Hypotheses 3a and 3b. Table 12 reports the asymmetric treatment of "good news" and "bad news" in the accounting incomes of the Taiwanese sample. The firm/year observations are divided into "good news" and "bad news" samples based on whether the annual buy-and-hold return is greater than or less than zero. Table 13 and Table 14 are reproduced from Table 1 and Table 2 of Ball, Robin and Wu (2000) to show the asymmetric treatment of "good news" and "bad news" in the accounting incomes of the four Asian countries, common-law countries, and code-law countries. Table 15 reports the asymmetric treatment of "good news" and "bad news" in the accounting incomes of the U.S. sample.

These empirical results are consistent with the hypotheses that the relationship between Taiwanese reported earnings and the asymmetrical

timeliness for bad news and good news is closer to the four Asian countries than that of the common-law countries. The empirical results are also consistent with the hypothesis that the relationship between the Taiwanese reported earnings and the asymmetrical treatment of timeliness for bad news and good news is less prominent than the asymmetrical timeliness for bad news and good news of the U.S. I reach this conclusion by examining the magnitude of the regression coefficients and the sensitivities of earnings responding to bad news and good news.

Table 12 reports the regression results of annual earnings (OPI, and ODI) deflated by the beginning-of-period price on contemporaneous annual returns. Panel A is for operating income. Dummy variables capture the intercept and slope effects for the negative return sample. The coefficient for "good news", β_0, is equal to 0.004 and is not statistically significant. The interactive slope coefficient, β_1, which measures the difference in sensitivity of earnings to "good news" and "bad news" is equal to 0.03 and is statistically significant to the 0.01 level. In other words, the operating income is about 8.5 times (8.5 = (0.004 + 0.030)/C.004) as sensitive to "bad news" as it is to "good news". The adjusted R^2 for the pooled regression is 2.91 percent. Panel B of Table 12 reports the regression results for ordinary income. The coefficient for "good news", β_0, is equal to 0.011 and is statistically significant. The interactive slope coefficient, β_1, is equal to 0.032 and is also statistically significant to the 0.01 level. In other words,

the ordinary income is about 4 times as sensitive to "bad news" as it is to "good news". The adjusted R^2 for the pooled regression is 7.74 percent.[47]

These observations show that the operating income is more sensitive to bad news than ordinary income. This is not surprising because a firm's operating income is related to its day-to-day operation and is supposed to be more related to the permanent component of earnings. On the other hand, companies ordinary incomes contain more transitory component of earnings; therefore, ordinary income is less sensitive to a firm's economic income than it's operating income.

Table 13 presents selected descriptive statistics of the number of observations, returns, net income for the four Asian countries, the common-law countries, and the code-law countries studied in Ball, Robin and Wu (2000). There are significantly fewer observations for the Asian countries than for the common-law countries or the code-law countries.

Panel A of Table 14 shows the different degrees of accounting conservatism in the four Asian countries, the common-law countries, and the code-law countries. Ordinary income is the earning specification used in these tests. As the table shows, ordinary income is only about 1.5 times more sensitive to bad news than it is to good news for the Hong Kong sample. The interactive slope coefficient is equal to 0.00 for the Malaysia sample. Ordinary income is about 2 times more sensitive to bad news than it

[47]Again, the regression results for using the Net Income as the earnings specification are

is to good news for the Singapore sample. The interactive slope coefficient is equal to -0.01 for the Thailand sample. On the other hand, ordinary income is much more sensitive to bad news than it is to good news for the common-law countries.

Table 15 reports the empirical results for the U.S. sample regarding Hypothesis 3b. The results are consistent with the hypothesis that the relationship between Taiwanese reported earnings and the asymmetrical treatment of timeliness for bad news and good news is less prominent than the asymmetrical timeliness for bad news and good news in the U.S.

In Panel A of Table 15, operating income, the coefficient for the "good news", β_0, is equal to 0.041 and is statistically significant. The interactive slope coefficient, β_1, is equal to 0.258 and is also statistically significant to the 0.01 level. In other words, the operating income is approximately 8 times as sensitive to "bad news" as it is to "good news". The adjusted R^2 for the pooled regression is 5.73 percent. Comparing the U.S. sensitivity of 8 times number with the Taiwanese sensitivity of 8.5 times, one might be tempted to reject the hypothesis. However, in Panel B, ordinary income, the coefficient β_0 is equal to 0.000 and is not statistically significant. The interactive slope coefficient, β_1, is equal to 0.405 and is statistically significant to the 0.01 level. Consequently, ordinary income is much more sensitive to "bad news" than it is to "good news". The adjusted R^2 for the

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similar to that of the ordinary income.

pooled regression is 9.7 percent. Comparing the results in Panels B of Table 15 and Table 12, I conclude that these findings are consistent with Hypothesis 3b that the asymmetric treatment of timeliness for bad news and good news is less prominent for Taiwan than for the U.S.

6.2.4. The empirical results of testing Hypothesis 4

Table 16 reports the empirical results for Hypothesis 4a. The regression results of contemporaneous annual returns on deflated annual earnings (OPI, and ODI) levels and changes are presented. Both panels, A and B, report the results of the two sample partitioning schemes—a high vs. low ownership partition, and a high, medium and low ownership partition. The results do not show that the ERC of firms with high family ownership is larger than the ERC of firms with low family ownership.

Panel A of Table 16 is for operating income. In the first partitioning scheme, the slope coefficient for the earnings levels, β_{1t}, is 2.03 and is significant to the 0.01 level, while the slope coefficient for earnings changes, β_{2t}, is 0.19 and is not statistically significant for the rank low sample. The adjusted R^2 is 2.71 percent. The slope coefficient β_{1t} is 2.27 (significant) and β_{2t}, is −1.23 (significant) for the rank high sample. The adjusted R^2 is 1.8 percent. In the second partitioning scheme, the slope coefficient β_{1t} is 1.62 (significant) and β_{2t} is 0.29 (not significant) for rank low. The adjusted

R^2 is 2.09 percent. The slope coefficient β_{1t} is 3.25 (significant) and β_{2t}, is -0.72 (not significant) for rank medium. The adjusted R^2 is 4.45 percent. The slope coefficient β_{1t} is 1.44 (significant) and β_{2t}, is -1.24 (not significant) for rank high. The adjusted R^2 is only 0.48 percent. Clearly, the value relevance of earnings is the highest for the medium group firms and the lowest for the high family ownership firms. These results are not consistent with the hypothesis.

Panel B of Table 16 is for ordinary income. Similar to panel A, the value relevance of earnings is the highest for the medium group firms and the lowest for the high family ownership firms. These results are also not consistent with the hypothesis. These empirical results reported in Table 16 seem to contradict the empirical results of Fan and Wong (2000). However, they are able to separate corporate control and cashflow rights in their sample while I am not able to do so. They indicate that "firms with controlling owners who maintain high voting rights and a large cash-vote divergence report less informative earnings." It is possible that those firms with "large cash-vote divergence" are driving my results. Nevertheless, I maintain that it is extremely difficult, if not impossible, to disentangle the control from the cashflow ownership right for the Taiwanese companies.

Table 17 reports the empirical results pertaining to Hypothesis 4b, concerning whether the reported earnings of Taiwanese companies with high family ownership are less timely for bad news and less conservative for good

news than earnings of firms with low family ownership. Like the previous hypothesis, I report the results for both the operating income and the ordinary income. The results do not support the hypothesis. In other words, the reported earnings of Taiwanese companies with high family ownership have more asymmetric treatment of good news versus bad news than earnings of firms with low family ownership.

The regression results of annual earnings deflated by the beginning-of-period price on contemporaneous annual returns are presented. Both panels, A and B, report the results of the two sample partitioning schemes—a high vs. low ownership partition, and a high, medium and low ownership partition. As stated earlier, the rationale for employing these partitioned schemes is that I am not aware of a theory on the functional form of the relationship between family ownership and the asymmetric treatment of good news and bad news.

Panel A is for operating income. In the first partitioning scheme, high versus low family ownership, the coefficient for "good news", β_0, is equal to 0.009 and is not statistically significant for the low family ownership group. The interactive slope coefficient, β_1, is equal to 0.021 and is also not statistically significant for the low family ownership group. Thus, operating income is just about 3 times as sensitive to "bad news" as it is to "good news" for the low family ownership group. The adjusted R^2 for the pooled

regression is 2.96 percent. This result is similar to what Ball, Robin and Wu (2000) have observed for the four Asian countries.

On the other hand, β_0 is equal to -0.001 and is not statistically significant for the high family ownership group. The interactive slope coefficient, β_1, is equal to 0.037 and is statistically significant for the high family ownership group. This means that the operating income is about 36 times as sensitive to "bad news" as it is to "good news" for the high family ownership group. Judging from this result, the high family ownership group firms have more asymmetric treatment of good news versus bad news in their operating income than the low family ownership group does.

In the second partitioning scheme of Panel A, the high, medium and low family ownership partition, the results are consistent with the first partitioning scheme and are as follows. The coefficient β_0 is equal to 0.007 and is not statistically significant for the low family ownership group. The interactive slope coefficient, β_1, is equal to -0.002 and is also not statistically significant for the low family ownership group. Thus, operating income is just about 0.7 times as sensitive to "bad news" as it is to "good news" for the low family ownership group. Next, β_0 is equal to 0.012 for the medium family ownership group. The interactive slope coefficient, β_1, is equal to 0.046 and is statistically significant for the medium family ownership group. This means that operating income is about 5 times as sensitive to "bad news" as it is to "good news" for the medium family

ownership group. Finally, β_0 is equal to -0.008 for the high family ownership group. The interactive slope coefficient, β_1, is equal to 0.041 and is statistically significant for the high family ownership group. This means that operating income is more than 5 times as sensitive to "bad news" as it is to "good news" for the high family ownership group. Judging from this result, the high family ownership group firms have more asymmetric treatment of good news versus bad news in their operating income than the medium family ownership group does. Likewise, the medium family ownership group firms have more asymmetric treatment of good news versus bad news in their operating income than the low family ownership group does.

The result for the ordinary income specification is reported in Panel B of Table 17. In the first partitioning scheme, high versus low family ownership, β_0 is equal to 0.016 (significant) and β_1 is equal to 0.028 (not significant) for the low family ownership group. Ordinary income is about 2.5 times as sensitive to "bad news" as it is to "good news" for the low family ownership group. On the other hand, β_0 is equal to 0.006 and is not statistically significant for the high family ownership group. The interactive slope coefficient, β_1, is equal to 0.035 and is statistically significant for the high family ownership group. This means that ordinary income is about 7 times as sensitive to "bad news" as it is to "good news" for the high family ownership group. Thus, the high family ownership group firms have more

asymmetric treatment of good news versus bad news in their ordinary income than the low family ownership group does.

In the second partitioning scheme of Panel B, the results are similar to the first partitioning scheme. The coefficient β_0 is equal to 0.015 (significant) and β_1 is equal to 0.013 (not statistically significant) for the low family ownership group. Thus, ordinary income is a little bit less than 2 times as sensitive to "bad news" as it is to "good news" for the low family ownership group. Next, β_0 is equal to 0.020 (significant) for the medium family ownership group. The interactive slope coefficient, β_1, is equal to 0.029 and is not statistically significant for the medium family ownership group. This means that ordinary income is about 2.5 times as sensitive to "bad news" as it is to "good news" for the medium family ownership group. Finally, β_0 is equal to -0.002 and is not statistically significant for the high family ownership group. The interactive slope coefficient, β_1, is equal to 0.047 and is statistically significant for the high family ownership group. Therefore, ordinary income should be more than 50 times as sensitive to "bad news" as it is to "good news" for the high family ownership group. Judging from this result, the high family ownership group firms have much more asymmetric treatment of good news versus bad news in their ordinary income than the medium family ownership group does. However, the medium family ownership group firms have only a little bit more asymmetric

treatment of good news versus bad news in their ordinary income than the low family ownership group does.

Chow tests are further performed to determine whether the slope coefficients of the reverse regressions generated according to the ranks of family ownership are statistically different across ranks. The Chow tests are executed for both the "good news" and "bad news" samples. Here, the hypothesis of an increased in reporting conservatism when family ownership increases is formally tested.

When the sample is divided into 2 categories (low and high family ownership), results show that the slope coefficients in both the categories are statistically different (at 5% level) for the "bad news" sample. Subsequent sensitivity tests show that these findings hold for both operating and ordinary income. As for the "good news" sample, non-significant findings are found for all the three income specifications.[49]

Further, the one-tail tests are carried out to check whether the slope coefficients of high family ownerships are statistically greater than the low ownerships (for the "bad news" sample). Here, significant result is found only for operating income.

As robustness check, similar tests are carried out when sample is divided into 3 ranks (low, medium and high family ownerships). Slope coefficients are tested between low and medium, followed by medium and

high ownership firms. In the low to medium family ownerships comparisons, slope coefficients for the medium family ownerships' firms are found to be statistically greater than the low family ownerships (at 5% level). As for the medium to high comparisons, similar trend of results are documented but at 1% level of confidence.

In sum, these results support the hypothesis that increased in family ownerships is associated with an increase in reporting conservatism. And, the empirical results reported in Table 17 clearly indicate that firms with high family ownership report bad news much quicker than good news as opposed to firms with low family ownership. Furthermore, the results reported in Table 16 may not be as surprising if we consider that the high family ownership firms are more conservative in reporting good news and; therefore, their earnings are less informative than those firms with low family ownership.

6.3. Robustness tests:

6.3.1 Tests on firms that are present in the entire sample period (non-IPO firms)

[48]The results for using the Net Income as the earnings specification are similar to that of the ordinary income.

Perry and Williams (1994) provide evidence of manipulation of discretionary accruals in the predicted direction in the year preceding the public announcement of management's intention to bid for control of the company. The same intuition applies to firms that are initial-public-offerings (IPO) firms. As mentioned in section 3.4, companies have to satisfy a long list of prerequisites to become listed in TAIEX. Thus, I run the same ERC regressions and the Basu (1997) reverse regressions with only firms that are present throughout the entire sample periods (144 non-IPO firms) in TAIEX. The results are reported from Table 18 to Table 20.

The empirical results for the non-IPO firms are similar to the pooled sample. This suggests that the results and conclusions are robust for the IPO firms and the non-IPO firms.

Table 18 reports the regression results of annual buy-and-hold returns on deflated earnings levels and changes for the Taiwanese non-IPO companies. These results are similar to those presented in Table 8 for the full sample suggesting that the results are robust to non-IPO firms.

Table 19 reports the empirical results for the non-IPO sample regarding the relationship between reported earnings and the asymmetrical treatment of timeliness for bad news and good news. This table is parallel to a combination of Table 12 and Table 16 for the whole Taiwanese sample. I present the regression results for the operating income specification in Panel A. The first two lines (coefficients and t-statistics) are for the whole non-

IPO sample of 144 firms. The next ten lines are for the partitioning schemes of 2 or 3 groups based on family ownership as described earlier. In Panel A, operating income, the coefficient for "good news", β_0, is equal to 0.005 and is not statistically significant for the whole non-IPO sample. The interactive slope coefficient, β_1, is equal to 0.034 and is statistically significant. Thus, operating income is approximately 10 times as sensitive to "bad news" as it is to "good news". Compared to Panel A of Table 12, the result is almost the same. Furthermore, similar conclusions can be drawn by comparing Table 12 and Table 19 line by line.[49]

6.3.2 On the time-lag between Taiwanese and U.S. GAAP

The initial comparison between the U.S. and Taiwan is to look at the regression results of the same time period (1991 to 1996). As mentioned in section 3.3, the Accounting Research and Development Foundation establishes Taiwanese accounting principles by keeping pace with new FASB pronouncements. Thus, Taiwanese GAAP can be viewed as a subset of the contemporaneous U.S. GAAP. In other words, there is a time lag between a FASB pronouncement and an Accounting Research and Development Foundation pronouncement.

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[49] I also rank the non-IPO firms based on their 1991 ownership data and then partition them into groups. Since the family ownership does not change much over the years, the schemes yield very similar results.

To facilitate a comparison between the U.S. and Taiwan, I also compare the regression results of the Taiwan sample (1991 to 1996) with the results of the lagged U.S. sample (1990 to 1995, and 1989 to 1994).

In Panel A of Table 20, operating income, β_0 is equal to 0.026 (statistically significant) and β_1 is equal to 0.277 (statistically significant). In other words, operating income is approximately 13 times as sensitive to "bad news" as it is to "good news". The adjusted R^2 for the pooled regression is 5.4 percent. In Panel B, ordinary income, β_0 is equal to negative 0.007 and is not statistically significant. However, β_1 is equal to 0.438 and is statistically significant to the 0.01 level. Consequently, ordinary income is much more sensitive to "bad news" than it is to "good news". The adjusted R^2 for the pooled regression is 10.5 percent. The empirical results reported in Table 21 yield similar results.

Thus, the results are robust with respect to this test. Tables 20 and 21 shows that the measurement of asymmetric treatment of good news versus bad news is similar throughout the two aggregation periods, 1990-1995 and 1989-1994, respectively. More importantly, in comparing Tables 20 and 21 to Table 15, there are no significant differences. Therefore, the conclusion drawn for Hypothesis 3b is robust with respect to this point.

6.3.3 The return period and the removal of market-wide effect

The annual return aggregating periods of December-to-December and April-to-April are used in the ERC regressions and the reverse regression of Basu (1997). The results are robust to the return aggregating period. The equal-weighted and value-weighted market adjusted returns are also used in testing the reverse regressions. The results are robust to these return specifications.

Table 22 reports the results of using the equal-weighted and value-weighted market adjusted returns in the reverse regression for both the operating income and ordinary income specifications for the Taiwan and the U.S. samples. Panels A to B are for the Taiwanese sample. Taiwanese earnings are about 3 times as sensitive to "bad news" as they are to "good news". Panels C to D are for the U.S. sample. U.S. earnings are probably at least 30 times as sensitive to "bad news" as they are to "good news". Moreover, the magnitude of the coefficient β_1 for the U.S. sample is also at least 30 times greater than that of the Taiwanese sample. These results are generally comparable to the results reported in Table 12 and Table 15 and are also consistent with Hypothesis 3b.

Chapter 7: CONCLUSIONS AND FUTURE EXTENSION

7.1 Summary and conclusions

Institutional features and Generally Accepted Accounting Principles vary across the world. According to the IASC's constitution, the foremost objective of harmonization is to have a single set of high quality and transparent GAAP to help participants in the world's capital markets make economic decisions. In other words, the goal of harmonization of standards is designed to achieve a similar usefulness in accounting earnings across the world.

The IASC's stated objective is subject to empirical examination. Thus, the first part of this dissertation set out to ascertain whether harmonization of accounting standards could achieve equivalent usefulness, using Taiwan as the experimental setting. One aspect of the usefulness of accounting earnings is "transparency". The interpretation of "transparency" in the financial statements given by Ball, Robin and Wu (2000) is adopted for the empirical tests. That is, "transparency" is the timely incorporation of economic income—the annual change in the market value of equity adjusted for net dividends—in accounting income.

There are several advantages in using Taiwan to examine the harmonization issue. First, Taiwanese accounting and auditing standards

generally follow the U.S. standards, and the U.S. Big Five auditing firms' Taiwanese affiliates audit listed companies. Second, it is reasonable to assume that the TAIEX is efficient. Third, Taiwanese family businesses and socio-economic settings differ from those of the U.S. and very few lawsuits have been filed against corporate management or auditors from shareholders in Taiwan.

If the U.S. accounting and auditing standards can be applied to the Taiwanese setting and achieved similar level of usefulness, then I would expect the measurement of usefulness of Taiwanese earnings to be similar to that of the U.S. However, my empirical results show that Taiwanese accounting exhibits characteristics of conservatism and timeliness similar to the Asian countries (Hong Kong, Malaysia, Singapore and Thailand) as opposed to the U.S. Since prior research indicates that the International Accounting Standards are very similar to Anglo-American GAAP, these empirical results do not, per se, support the notion that applying a set of IAS to different countries can achieve similar usefulness across borders.

Basu (1997) suggests that the more timely recognition of bad news than good news in the U.S. is enforced, to a large extent, by shareholder litigation. In contrast, Taiwan experiences comparatively little litigation. Ball, Robin and Wu (2000) raise the possibility that the prevalence of the Chinese family business model hampers the application of accounting standards.

In the second part of this dissertation, I investigate the impacts of share ownership of large shareholding families on earnings properties in Taiwan. The empirical results suggest that the accounting earnings of firms with high family ownership are timelier for bad news and more conservative for good news than those of firms with low family ownership in Taiwan. This finding suggests that the Chinese family business model is not the primary cause of the "improper", or the not-so-conservative, application of GAAP. Consequently, I would conjecture that the lack of a shareholder litigation infrastructure has a bigger effect on the "proper" application of GAAP.

My empirical findings imply that shareholders' litigation is a more important determinant of the usefulness of accounting earnings than the quality of the standards, per se. La Porta, Lopez-de-Silanes, Shleifer and Vishny (2000a) describe the differences in shareholder protection laws and the effectiveness of their enforcement across countries; they argue that investor protection is crucial because, in many countries, expropriation of minority shareholders and creditors by the controlling shareholders is extensive. Considering that shareholders' litigation against managers and/or auditors is rare in Taiwan, my findings are consistent with the argument of Ball, Robin and Wu (2000) that the fact that the "International Accounting Standards Committee...possesses no worldwide enforcement mechanism...is

testimony to the insufficiency of formal standards in determining accounting information."

As Ball, Robin and Wu conclude, "...if there is an 'Asian model' in accounting...timely financial statement incorporation of economic income—including economic losses—is not part of it." They caution that even though the general perception of the Anglo-American influenced standards of the four Asian countries is of high quality, because of the underlying institutional differences, the bottom-line transparency is not. Users of those financial statements, and global investors in particular, might be fooled into thinking that disclosure from any country is of high quality when a one-world standard is applied. My results are consistent with these claims.

This paper contributes to two lines of literature. First, it provides an empirical examination of international accounting standards harmonization. And, second, it adds to the accounting literature in institutional features and accounting informativeness.

7.2 Future Extensions

The first extension of this dissertation is to look at the family ownership and the asymmetric treatment of good news versus bad news in earnings for the four Asian countries studied in Ball, Robin and Wu (2000).

If the results are the same as in this dissertation, then the inferences from this dissertation would certainly be strengthened.

The question of why the accounting of the high family ownership firms (proxy for family firms) exhibits timeliness for bad news and conservatism for good news is most interesting, but it is beyond the scope of this dissertation. I think there are several possible explanations.

One alternative is suggested in Warfield, Wild and Wild (1995). They suggest that the accounting used to determine contractual requirements is not necessarily the most relevant in conveying the economic status of the firm.

Pollak (1985) suggests that family managers are subject to different and perhaps more effective rewards and sanctions than managers in a diffused ownership firm. Thus, other things being equal, managers of family firms are less likely to misapply GAAP for the sake of their own compensation or consumption agenda.

Another possible explanation is from the corporate governance perspective. La Porta, Lopez-de-Silanes, Shleifer, and Vishny (2000 b) present a theory of the consequences of corporate ownership for corporate valuation in different legal regimes and document that better shareholder protection is associated with higher valuation of corporate assets. Coombes and Watson (2000) survey global institutional investors and find that they are willing to pay a higher premium for better board governance in Asia than

in U.S. or in Europe. They attribute this lower premium for better board governance in the U.S. and in Europe to better accounting systems.

Shleifer and Vishny (1998) suggest that, in the absence of shareholders litigation, shareholders have to be large (e.g. large shareholders, takeovers, or large creditors with more powerful board control) to motivate concerted actions to discipline management. As of today, mutual funds' managers are not allowed to sit on the board of directors of any listed company in Taiwan. Proxy fights do occur from time to time, but they are usually fights among large shareholding families. In sum, I expect the major source of corporate governance in Taiwan to be supplied by the members of large shareholding families who sit on the boards of directors.

Bushman, Chen, Engel and Smith (2000) report a significant negative relation between timeliness metrics and subsequent costly corporate governance structures. They argue that if firms' accounting numbers do a relatively poor job of capturing current value relevant information, the financial accounting system is less effective in satisfying the governance demands of directors and shareholders. Under such a setting, they predict large shareholdings of individual outside investors are required to improve the firms' governance in the U.S.

Based on these points, I argue that firms with larger family ownership could monitor and discipline managers better and that their accounting earnings are more timely in reflecting bad news than good news.

Finally, one other possible argument is that these family firms, because they own the majority of the companies, lack incentives to signal a positive outlook. They may not want to show off their wealth. It is also possible that, given the competitive industrial conditions in Taiwan, family firms exercise more caution not to attract "a swarm of bees".

Table 1

An illustration of the classification of Family Ownership Versus Non-Family Ownership for the Taiwan sample.[1]

Shareholder's Name	Board Member's Name	Category	FAM Or NONFAM
Lin Wen-Shung	Lin Wen-Shung	Individual	FAM
Joyce Holding Company	Lin Hsin-Pei	Holding Company	FAM
Wu Huo-Shi Foundation	Wu Dong-Jing	Foundation	FAM
Tung-Yuan Corporation	Huang Mao-Shung	Corporation	FAM
Ministry of Economic Affair	Wu Hui-Ming	Government	NONFAM
Philip Electronic Corporation	Van Dyke	Foreign	NONFAM
Hua-Nan Commercial Bank	Liu Chin-Bao	Bank	NONFAM
Ho-Tung Venture	Huang Chen-Wang	Venture Capitalist	NONFAM

[1] Each month, members of the board of directors, their related persons and managers of the TAIEX listed companies are required to report the number of shares they own or represent to the SFC. Each person's name is preceded by the shareholders' name that person is representing in the Taiwan Economic Journal data set. If the shareholder's name is the same as the person's name, or if the shareholder's name is a foundation, a holding company or a corporation, then I classify it as FAM (family). If the shareholder's name is a government agency, a foreign company, a bank or a venture capital fund, then I classify it as NONFAM (non-family).

Table 2

The descriptive statistics for Operating Income (OPI), Ordinary Income (ODI), Net Income (NI), Book Value of Equity (BV), Market Value (MV), Return (RET), Percentages of Shares Represented by Board of Directors (OWN), and Percentages of Shares Represented by Family (FAM) used in cross-sectional and pooled regression analyses for the Taiwanese December fiscal year-end firms. OPI, ODI, NI, BV, and MV amounts in N.T.$ million; RET, OWN and FAM in percentage. Annual data from 1991-1996.[1]

Year	Mean	Std. Dev.	Min.	Med.	Max.
Panel A: Operating Income					
Pooled	403	860	-1,147	160	8,837
1996	336	871	-780	123	8,837
1995	492	897	-934	205	8,742
1994	467	912	-1,147	190	7,860
1993	362	808	-1,132	127	6,656
1992	390	824	-482	163	6,427
1991	340	788	-454	140	6,181
Panel B: Ordinary Income					
Pooled	419	909	-1,460	167	8,020
1996	427	1,009	-1,149	174	7,780
1995	484	992	-816	179	8,020
1994	526	984	-475	219	6,977
1993	361	791	-1,460	156	5,714
1992	349	783	-740	134	5,132
1991	274	672	-607	114	5,039
Panel C: Net Income					
Pooled	417	911	-1,460	165	8,020
1996	426	1,010	-1,149	174	7,780
1995	484	991	-816	183	8,020
1994	518	993	-1,366	204	6,978
1993	360	791	-1,460	153	5,713
1992	348	784	-740	135	5,132
1991	273	673	-607	114	5,039
Panel D: Book Value of Equity					
Pooled	4,906	6231	250	2,878	49,570
1996	5,811	7638	488	3,305	49,570
1995	5,342	6723	472	3,131	44,539
1994	4,893	6040	281	3,024	38,635
1993	4,480	5457	251	2,613	34,188
1992	4,476	5407	250	2,436	32,083
1991	3,495	3789	258	2,397	26,141

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Table 2 Continued

Year	Mean	Std. Dev.	Min.	Med.	Max.
Panel E: Market Value					
Pooled	12,258	16,450	1,061	7,154	168,458
1996	15,714	22,811	1,674	8,994	168,458
1995	9,863	13,761	1,072	5,391	104,053
1994	13,719	17,659	1,448	7,952	124,573
1993	11,151	13,911	1,289	6,658	108,780
1992	11,110	12,055	1,110	6,769	77,153
1991	10,569	9,784	1,061	7,543	72,228
Panel F: Stock Return					
Pooled	13.15	46.16	-58.91	0.94	217.97
1996	64.76	49.99	-41.14	52.68	216.46
1995	-23.78	17.28	-58.91	-26.66	63.59
1994	24.04	41.03	-57.97	13.97	217.97
1993	2.90	30.12	-51.55	-2.58	120.27
1992	-8.85	21.92	-51.21	-13.19	154.27
1991	4.94	25.46	-33.28	0.06	136.13
Panel G: Percentage Share Represented by Board Members					
Pooled	25.76	13.61	6.07	23.10	70.53
1996	24.90	13.22	6.09	23.24	70.44
1995	25.56	13.57	6.30	23.15	70.53
1994	25.74	13.97	6.10	22.96	70.43
1993	26.19	13.74	6.40	23.22	69.17
1992	26.40	13.93	6.07	23.07	65.79
1991	26.09	13.42	7.15	22.94	68.09
Panel H: Family Ownership					
Pooled	26.18	15.18	0	23.83	75
1996	26.45	15.43	0	24.49	72.26
1995	27.28	15.32	0	24.66	72.95
1994	26.57	15.27	0	24.26	73.45
1993	26.60	15.55	0	24.04	75
1992	25.20	14.99	0	22.38	71.67
1991	23.49	13.77	0.04	21.23	65.22

[1] There are 1334 firm-year observations in the whole sample: 144 for 1991, 181 for 1992, 214 for 1993, 240 for 1994, 270 for 1995 and 285 for 1996.

Table 3

The descriptive statistics, sample partitioned into two groups with equal number of observations based on the magnitude of family ownership for the Taiwan sample. For variables: Family Ownership (FAM), Net Income (NI), Market Value (MV), and Return (RET). FAM and RET are in percentage; MV and NI amount in NT$ million.[1, 2]

Year	Rank	Mean	Std. Dev.	Min.	Med.	Max.
		Panel A: Family Ownership				
1996	Low	13.90	5.92	0.00	14.12	23.74
	High	38.92	11.29	24.49	36.89	72.26
1995	Low	14.67	5.93	0.00	14.29	24.59
	High	39.89	10.75	24.73	38.60	72.95
1994	Low	13.93	5.70	0.00	13.63	24.19
	High	39.22	10.65	24.33	37.59	73.45
1993	Low	13.80	5.61	0.00	13.43	24.02
	High	39.52	10.99	24.06	37.75	75.00
1992	Low	13.13	5.44	0.00	13.69	22.20
	High	37.13	11.41	22.38	35.08	71.67
1991	Low	12.55	5.37	0.04	13.03	21.03
	High	34.44	10.51	21.43	31.41	65.22
		Panel B: Net Income				
1996	Low	497	1,283	-1,149	174	7,780
	High	356	628	-474	169	3,454
1995	Low	559	1,211	-394	186	8,020
	High	410	704	-816	179	3,584
1994	Low	563	1,175	-1,366	219	6,978
	High	473	772	-475	200	4,010
1993	Low	328	775	-1,460	130	3,728
	High	392	808	-552	179	5,714
1992	Low	259	666	-740	86	3,748
	High	436	880	-350	160	5,132
1991	Low	200	535	-607	99	3,473
	High	346	785	-361	130	5,039
		Panel C: Market Value				
1996	Low	18,254	27,964	1,674	9,752	168,458
	High	13,192	15,856	1,705	7,848	91,811
1995	Low	10,891	15,878	1,199	6,080	104,053
	High	8,835	11,221	1,072	4,922	66,096
1994	Low	15,086	20,665	1,448	8,297	124,573
	High	12,351	13,982	1,975	7,194	79,716

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Table 3 Continued

Year	Rank	Mean	Std. Dev.	Min.	Med.	Max.
1993	Low	11,156	13,259	1,289	6,740	85,516
	High	11,146	14,596	1,875	6,430	108,780
1992	Low	10,529	11,025	1,110	6,803	71,639
	High	11,686	13,030	2,127	6,769	77,153
1991	Low	10,154	7,297	1,061	8,105	37,036
	High	10,985	11,798	1,968	7,517	72,228
		Panel D: Stock Return				
1996	Low	0.66	0.51	-0.33	0.51	2.14
	High	0.64	0.49	-0.41	0.53	2.16
1995	Low	-0.26	0.17	-0.59	-0.26	0.64
	High	-0.22	0.17	-0.57	-0.26	0.53
1994	Low	0.32	0.46	-0.32	0.19	2.18
	High	0.16	0.34	-0.58	0.07	1.31
1993	Low	0.06	0.33	-0.46	0.00	1.20
	High	0.00	0.27	-0.52	-0.05	1.15
1992	Low	-0.12	0.16	-0.51	-0.14	0.39
	High	-0.06	0.26	-0.42	-0.11	1.54
1991	Low	0.04	0.27	-0.29	-0.05	1.36
	High	0.06	0.24	-0.33	0.02	1.06
		Panel E: Trading Volume				
1996	Low	3,796	5,678	27	1,997	36,949
	High	2,399	3,423	69	1,341	29,004
1995	Low	3,376	3,080	32	2,478	15,860
	High	1,947	1,937	26	1,318	9,720
1994	Low	7,760	12,196	93	4,158	101,125
	High	4,333	5,587	30	2,238	27,294
1993	Low	8,169	8,216	677	5,381	45,371
	High	5,022	5,228	74	3,328	40,801
1992	Low	756	861	26	488	5,972
	High	581	629	90	391	4,183
1991	Low	2,554	3,714	17	1,297	21,416
	High	1,466	1,664	107	1,069	12,830

[1] There are 1334 firm-year observations in the full sample: 144 for 1991, 181 for 1992, 214 for 1993, 240 for 1994, 270 for 1995 and 285 for 1996.

[2] The full sample is partitioned into 2 ranks (Low, High) with equal observations based on family ownership. Rank Low has firms with the lower family ownership and rank High has the higher family ownership in the sample.

Table 4

The descriptive statistics, sample partitioned into three groups with equal number of observations based on the magnitude of family ownership for the Taiwan sample. For variables: Family Ownership (FAM), Market Value (MV), Net Income (NI) and Return (RET). FAM and NI in percentage; MV and NI amount in NT$ million.[1, 2]

Year	Rank	Mean	Std. Dev.	Min.	Med.	Max.
		Panel A: Family Ownership				
1996	Low	10.69	4.32	0.00	11.21	16.90
	Medium	24.08	4.28	16.96	24.50	31.42
	High	44.81	9.48	31.70	42.66	72.26
1995	Low	11.40	4.28	0.00	12.19	17.32
	Medium	25.09	4.60	17.36	24.66	33.32
	High	45.34	8.97	33.47	44.15	72.95
1994	Low	10.81	4.05	0.00	11.54	16.49
	Medium	24.17	4.85	16.51	24.26	33.31
	High	44.74	8.59	33.80	42.98	73.45
1993	Low	10.67	4.00	0.00	11.74	16.76
	Medium	24.03	4.68	17.11	24.04	32.89
	High	45.32	8.84	33.05	45.18	75.00
1992	Low	10.32	4.38	0.00	11.27	16.31
	Medium	22.39	4.06	16.44	22.38	29.27
	High	42.94	9.80	29.32	41.01	71.67
1991	Low	9.80	4.30	0.04	11.20	15.20
	Medium	21.29	3.78	15.23	21.23	27.68
	High	39.39	9.47	27.81	38.21	65.22
		Panel B: Net Income				
1996	Low	442	1,097	-1,149	177	7,647
	Medium	437	1,158	-546	175	7,780
	High	399	725	-408	155	3,454
1995	Low	655	1,178	-394	261	5,887
	Medium	332	952	-816	133	8,020
	High	466	788	-505	190	3,584
1994	Low	586	1,072	-1,366	288	6,493
	Medium	396	1,003	-475	158	6,978
	High	571	897	-99	215	4,010
1993	Low	370	796	-1,460	189	3,728
	Medium	290	855	-496	94	5,714
	High	421	721	-552	180	3,389

Continued on next page

Table 4 Continued

Year	Rank	Mean	Std. Dev.	Min.	Med.	Max.
1992	Low	301	749	-740	80	3,748
	Medium	284	769	-543	135	5,132
	High	460	832	-206	188	3,928
1991	Low	230	579	-475	122	3,473
	Medium	200	489	-607	96	2,538
	High	390	886	-157	137	5,039
		Panel C: Market Value				
1996	Low	18,144	26,354	1,674	10,548	158,330
	Medium	14,516	22,983	1,705	7,821	168,458
	High	14,483	18,399	1,756	8,672	91,811
1995	Low	11,865	15,405	1,298	7,467	93,930
	Medium	7,714	12,411	1,072	4,322	104,053
	High	10,011	13,126	1,513	5,241	66,096
1994	Low	15,858	18,831	1,557	9,703	104,480
	Medium	11,903	17,858	1,448	7,844	124,573
	High	13,394	16,181	1,975	7,124	79,716
1993	Low	12,777	14,028	1,330	8,112	85,516
	Medium	9,010	14,502	1,289	5,624	108,780
	High	11,697	13,077	2,417	6,404	63,556
1992	Low	11,636	12,407	1,110	7,425	71,639
	Medium	9,570	11,742	1,516	6,290	77,153
	High	12,151	12,058	3,362	7,572	61,797
1991	Low	10,327	7,274	2,163	8,664	37,036
	Medium	9,540	8,190	1,061	6,794	44,813
	High	11,840	12,979	2,794	7,680	72,228
		Panel D: Stock Return				
1996	Low	0.60	0.42	-0.05	0.54	2.08
	Medium	0.67	0.57	-0.41	0.48	2.14
	High	0.67	0.50	-0.41	0.55	2.16
1995	Low	-0.26	0.16	-0.59	-0.26	0.16
	Medium	-0.25	0.18	-0.54	-0.27	0.64
	High	-0.20	0.18	-0.57	-0.21	0.53
1994	Low	0.34	0.45	-0.18	0.19	2.18
	Medium	0.21	0.43	-0.58	0.14	2.17
	High	0.16	0.32	-0.48	0.05	1.31

Continued on next page

Table 4 Continued

Year	Rank	Mean	Std. Dev.	Min.	Med.	Max.
		Panel D: Stock Return Continued				
1993	Low	0.08	0.34	-0.41	0.01	1.14
	Medium	0.01	0.29	-0.47	-0.05	1.20
	High	0.00	0.27	-0.52	-0.05	1.15
1992	Low	-0.12	0.16	-0.51	-0.15	0.39
	Medium	-0.11	0.19	-0.42	-0.12	0.40
	High	-0.04	0.28	-0.40	-0.10	1.54
1991	Low	0.03	0.30	-0.29	-0.07	1.36
	Medium	0.08	0.26	-0.33	0.05	1.06
	High	0.04	0.19	-0.33	0.03	0.53
		Panel E: Trading Volume				
1996	Low	3,901	5,766	27	2,002	36,949
	Medium	3,079	4,555	71	1,341	35,239
	High	2,297	3,488	69	1,429	29,004
1995	Low	3,782	3,305	32	2,605	15,860
	Medium	2,352	2,312	158	1,544	11,049
	High	1,850	1,784	26	1,326	9,720
1994	Low	8,584	13,896	93	4,627	101,125
	Medium	4,809	6,090	98	3,060	35,233
	High	4,746	6,327	30	2,193	27,294
1993	Low	9,617	9,225	677	6,691	45,371
	Medium	5,107	5,773	74	3,572	40,801
	High	5,084	4,290	622	3,766	23,431
1992	Low	833	996	26	498	5,972
	Medium	623	667	90	434	4,183
	High	548	507	96	394	2,476
1991	Low	2,546	3,892	294	1,247	21,416
	Medium	2,278	2,994	17	1,292	13,733
	High	1,205	889	107	944	4,307

[1] There are 1334 firm-year observations in the full sample: 144 for 1991, 181 for 1992, 214 for 1993, 240 for 1994, 270 for 1995 and 285 for 1996.

[2] The full sample is partitioned into 3 ranks (Low, Medium, High) with equal observations based on family ownership. Rank Low has firms with the lowest family ownership and rank High has the highest family ownership in the sample.

Table 5

The descriptive statistics of the percentage of shares owned or represented by the board of directors and related person based on ownership categories for the Taiwan sample; CORP (Corporation), HOLD (Holding Company), IND (Individual), FOUND (Foundation), GOV (Government Agency), FOREIGN (Foreign Company), BANK (Bank) and VC (Venture Capitalists).[1]

The following 4 categories in Panel A, CORP, HOLD, IND, and FOUND are classified as FAM (Family Ownership)

Categories	Year	N	Mean	Std. Dev.	Med	Max
		Panel A: FAM				
CORP	Pooled	3,083	2.27	6.08	0.01	47.66
	1996	674	2.34	6.11	0.01	42.27
	1995	598	2.38	6.40	0.01	43.59
	1994	562	2.22	6.18	0.01	43.59
	1993	493	2.26	6.09	0.01	47.66
	1992	413	2.26	5.96	0.04	44.12
	1991	343	2.07	5.36	0.05	39.68
HOLD	Pooled	1,829	2.73	5.77	0.12	41.54
	1996	417	2.63	5.36	0.20	35.08
	1995	356	2.83	5.94	0.12	37.20
	1994	326	2.64	5.77	0.10	41.54
	1993	284	2.89	5.85	0.13	33.47
	1992	258	2.69	5.91	0.12	33.47
	1991	188	2.79	6.06	0.12	37.59
IND	Pooled	17,315	1.29	2.78	0.23	49.54
	1996	3,665	1.30	2.86	0.19	49.54
	1995	4,196	1.15	2.64	0.15	35.62
	1994	3,635	1.15	2.59	0.17	41.17
	1993	2,773	1.33	2.86	0.25	43.74
	1992	1,731	1.65	3.12	0.50	43.74
	1991	1,315	1.60	2.81	0.48	27.62
FOUND	Pooled	341	1.62	4.35	0.05	23.28
	1996	77	1.58	4.09	0.00	23.24
	1995	69	1.63	4.23	0.06	23.24
	1994	70	1.48	4.14	0.04	23.24
	1993	59	1.51	4.37	0.06	23.28
	1992	44	1.80	4.96	0.02	23.28
	1991	22	2.22	5.21	0.14	23.28

Continued on next page

Table 5 Continued

The following 4 categories in Panel B, GOV, FOREIGN, BANK, and VC are classified as NONFAM (Non-Family Ownership)

Categories	Year	N	Mean	Std. Dev.	Med[1]	Max
		Panel B: NONFAM				
GOV	Pooled	354	4.96	10.00	0.00	43.44
	1996	84	4.54	9.55	0.00	43.33
	1995	63	5.66	10.99	0.00	43.33
	1994	63	4.54	9.60	0.00	43.33
	1993	48	5.07	10.08	0.00	43.33
	1992	49	5.31	10.07	0.00	43.44
	1991	47	4.84	10.24	0.00	43.44
FOREIGN	Pooled	613	4.84	9.80	0.00	51.00
	1996	92	5.09	9.17	0.00	51.00
	1995	109	5.10	9.93	0.00	51.00
	1994	108	5.07	10.21	0.00	51.00
	1993	99	5.21	10.56	0.00	51.00
	1992	109	4.13	9.09	0.00	51.00
	1991	96	4.50	9.90	0.00	51.00
BANK	Pooled	76	2.99	3.01	2.78	12.38
	1996	15	2.89	2.87	2.78	9.21
	1995	9	3.05	3.12	2.92	10.37
	1994	16	3.24	4.08	2.34	12.38
	1993	14	2.68	2.57	2.74	8.84
	1992	15	2.79	2.52	2.78	8.84
	1991	7	3.60	3.02	3.13	9.32
VC	Pooled	173	2.98	4.86	1.18	23.28
	1996	36	2.21	3.96	1.18	23.28
	1995	29	2.73	4.43	1.27	23.28
	1994	30	3.16	4.73	1.52	23.28
	1993	30	2.95	5.04	0.74	23.28
	1992	29	3.54	5.60	1.69	23.28
	1991	19	3.74	6.07	0.57	23.28

[1] The reason for median to be zero for both GOV and FOREIGN is that when the percentage of ownership of government agencies/foreign companies is large enough for more than one board of directorship, the percentage of ownership by the first board member who represents the shareholders is reported as the percentage of shares owned by that shareholders and the percentage of ownership by the next board member who represents the same shareholders is reported as zero.

Table 6

The descriptive statistics of 144 Non-IPO firms for Operating Income (OPI), Ordinary Income (ODI), Net Income (NI), Market Value (MV), Return (RET), and Percentages of Shares Represented by Board of Directors (OWN) and Family Ownership (FAM) used in cross-sectional and pooled regression analyses for the Taiwanese December fiscal year-end firms. OPI, ODI, NI, and MV amounts in N.T.$ million; RET, OWN and FAM are in percentage. Annual data from 1991-1996.

Year	Mean	Std. Dev.	Min.	Med.	Max.
Panel A: Operating Income					
Pooled	363	831	-1,132	145	8,837
1996	327	955	-780	77	8,837
1995	502	950	-206	260	8,742
1994	416	807	-256	213	7,860
1993	305	750	-1,132	123	6,656
1992	285	714	-482	113	6,427
1991	340	788	-455	140	6,181
Panel B: Ordinary Income					
Pooled	378	877	-928	155	8,020
1996	450	1,055	-546	179	7,780
1995	537	1,121	-397	195	8,020
1994	494	925	-475	234	6,978
1993	296	715	-928	131	5,714
1992	230	638	-740	105	5,132
1991	274	672	-607	114	5,039
Panel C: Net Income					
Pooled	378	878	-928	155	8,020
1996	448	1,056	-546	182	7,780
1995	537	1,120	-439	195	8,020
1994	499	930	-475	231	6,978
1993	295	715	-928	130	5,714
1992	229	639	-740	99	5,132
1991	273	673	-607	114	5,039

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Table 6 Continued

Year	Mean	Std. Dev.	Min.	Med.	Max.
		Panel D: Market Value			
Pooled	11,831	14,861	1,061	7,562	168,458
1996	16,587	22,419	1,835	10,297	168,458
1995	10,534	14,050	1,072	6,599	104,053
1994	13,822	16,588	1,448	8,870	124,573
1993	10,308	12,499	1,289	6,705	108,780
1992	9,560	9,709	1,110	6,750	77,153
1991	10,569	9,784	1,061	7,544	72,228
		Panel E: Stock Return			
Pooled	10.19	43.34	-58.91	-1.04	217.97
1996	62.12	48.98	-4.8	47.81	215.99
1995	-25.22	14.75	-58.91	-25.33	16
1994	31.36	45.09	-57.97	20.58	217.97
1993	2.55	29.26	-46.09	-4.81	120.27
1992	-10.75	22.28	-51.21	-13.66	154.27
1991	4.94	25.46	-33.28	0.06	136.13
		Panel F: Percentage Share Represented by Board Members			
Pooled	23.59	12.79	6.07	20.49	68.07
1996	21.46	11.83	6.09	17.66	51
1995	22.2	12.35	6.3	18.6	56.95
1994	22.88	12.65	6.1	20.14	58.33
1993	23.93	12.85	6.4	20.96	57.89
1992	24.76	13.14	6.07	21.72	65.79
1991	26.09	13.42	7.15	22.94	68.07
		Panel G: Family Ownership			
Pooled	22.28	13.09	0	19.45	65.22
1996	21.78	13.39	0	18.82	64.28
1995	21.71	12.47	0	18.8	57.86
1994	21.48	12.37	0	19.01	57.76
1993	22.31	12.91	0	20.1	58.09
1992	22.84	13.68	0	19.11	64.65
1991	23.49	13.77	0.04	21.23	65.22

Table 7

The descriptive statistics for Operating Income (OPI), Ordinary Income (ODI), Net Income (NI), Market Value (MV), Return (RET) used in cross-sectional and pooled regression analyses for the U.S. firms. OPI, ODI, NI and MV amounts in U.S. $ million; RET is in percentage. Annual data from 1991-1996.[1]

Year	Mean	Std. Dev.	Min.	Med.	Max.
		Panel A: Operating Income			
Pooled	200	768	-1,353	21	24,085
1996	247	959	-1,204	31	24,085
1995	229	887	-410	24	21,369
1994	195	754	-790	21	17,670
1993	190	676	-493	20	15,305
1992	167	604	-1,353	17	13,858
1991	158	584	-1,086	14	12,657
		Panel B: Ordinary Income			
Pooled	86	357	-7,987	9	7,510
1996	117	441	-816	14	7,510
1995	104	388	-627	11	6,933
1994	91	345	-2,105	9	5,915
1993	75	326	-7,987	8	5,280
1992	64	314	-6,865	6	4,939
1991	56	282	-4,992	5	5,600
		Panel C: Net Income			
Pooled	79	404	-23,498	9	7,510
1996	117	442	-816	14	7,510
1995	99	397	-2,312	10	6,881
1994	88	336	-2,156	9	5,308
1993	66	330	-8,101	7	5,280
1992	36	571	-23,498	5	4,939
1991	53	274	-4,453	5	5,600

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Table 7 Continued

Year	Mean	Std. Dev.	Min.	Med.	Max.
		Panel D: Market Value			
Pooled	1,620	6,208	0.38	197	205,895
1996	2,222	8,899	1.11	269	205,895
1995	1,643	5,661	0.84	204	90,195
1994	1,431	5,601	1.01	178	170,966
1993	1,595	4,933	0.70	220	82,133
1992	1,491	6,208	0.38	175	168,758
1991	1,247	4,403	0.54	149	72,657
		Panel E: Stock Return			
Pooled	16.46	40.62	-80.00	12.85	200.00
1996	18.62	38.31	-79.76	17.63	200.00
1995	23.25	39.73	-79.59	20.52	192.86
1994	11.35	37.07	-80.00	7.86	200.00
1993	8.84	37.60	-78.57	2.80	197.50
1992	17.93	43.86	-79.55	15.03	200.00
1991	18.21	45.72	-80.00	13.39	200.00

[1] There are 17634 firm-year observations in the whole sample: 2698 for 1991, 2698 for 1992, 2719 for 1993, 3159 for 1994, 3119 for 1995 and 3241 for 1996.

Table 8

Annual regressions of Annual Returns on Deflated Earnings Levels and Changes for the Taiwanese sample[1, 2]

Model: $R_{jt} = \alpha_t + \beta_{1t}[X_{jt}/P_{jt-1}] + \beta_{2t}[\Delta X_{jt}/P_{jt-1}] + \varepsilon_{jt}$

Year	α_t	β_{1t}	β_{2t}	Adj. R^2 (%)
	Panel A: Operating Income			
Pooled	0.08**	1.92**	-0.15	2.01
	(4.91)	(3.83)	(-0.37)	
1996	0.63**	0.84	0.51	0.74
	(17.40)	(1.01)	(1.19)	
1995	-0.27**	1.17**	-0.53	2.21
	(-16.81)	(2.69)	(-1.12)	
1994	0.11**	2.01*	4.94**	24.99
	(3.28)	(1.72)	(4.37)	
1993	-0.02	1.47**	2.12**	10.69
	(-0.74)	(2.21)	(2.45)	
1992	-0.13**	2.14**	-0.27	7.75
	(-6.64)	(3.38)	(-0.3)	
1991	0.03	0.86	0.35	2.09
	(1.01)	(0.97)	(0.50)	
	Panel B: Ordinary Income			
Pooled	0.05**	3.14**	0.41	6.65
	(3.19)	(5.54)	(0.84)	
1996	0.58**	2.34**	0.19	3.41
	(15.73)	(2.55)	(0.33)	
1995	-0.28**	1.68**	-0.99**	3.87
	(-16.86)	(3.72)	(-2.46)	
1994	0.08*	2.12*	4.72**	24.21
	(2.25)	(1.86)	(4.79)	
1993	-0.04*	2.33**	2.28**	18.55
	(-1.91)	(3.23)	(2.83)	
1992	-0.13**	2.58**	-0.31	10.84
	(-7.23)	(4.97)	(-0.48)	
1991	0.02	1.94**	0.07	4.51
	(0.61)	(2.55)	(0.14)	

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Table 8 Continued

White heteroskedasticity-consistent t-value are provided in parentheses [White (1980)].

* Significant at $0.01 \leq \alpha \leq 0.05$. ** Significant at $\alpha \leq 0.01$.

[1] Description of regression variables: R_{jt} is the annual March-to-March buy and hold with dividend return on a share of firm j (3 months after the year-end price plus net dividend minus 9 month before the year-end price divided by the 9 month before year-end price), X_{jt} is accounting earnings (operating, ordinary and net income) per share of firm *j* for period t, and P_{jt-1} is the price per share of firm *j* at time t-1.

[2] There are 1334 firm-year observations in the full sample: 144 for 1991, 181 for 1992, 214 for 1993, 240 for 1994, 270 for 1995 and 285 for 1996.

Table 9

Annual Regressions of Annual Returns on Deflated Earnings Levels and Changes for the U.S. Sample[1, 2]

Model: $R_{jt} = \alpha_t + \beta_{1t}[X_{jt}/P_{jt-1}] + \beta_{2t}[\Delta X_{jt}/P_{jt-1}] + \varepsilon_{jt}$

Year	α_t	β_{1t}	β_{2t}	Adj. R^2 (%)
	Panel A: Operating Income			
Pooled	0.12**	0.24**	0.56**	6.99
	(36.48)	(18.05)	(23.87)	
1996	0.13**	0.31**	0.65**	8.83
	(17.03)	(9.19)	(10.10)	
1995	0.20**	0.13**	0.58**	5.10
	(24.05)	(3.76)	(9.29)	
1994	0.09**	0.09**	0.55**	4.46
	(11.86)	(2.80)	(9.91)	
1993	0.06**	0.19**	0.52**	5.27
	(7.68)	(5.58)	(8.83)	
1992	0.13**	0.36**	0.61**	9.54
	(13.91)	(10.43)	(10.76)	
1991	0.14**	0.31**	0.55**	9.58
	(15.33)	(9.83)	(10.77)	
	Panel B: Ordinary Income			
Pooled	0.15**	0.32**	0.29**	5.25
	(50.42)	(17.35)	(14.93)	
1996	0.16**	0.50**	0.25**	7.25
	(23.28)	(10.17)	(4.52)	
1995	0.21**	0.33**	0.25**	4.50
	(29.71)	(7.03)	(5.22)	
1994	0.10**	0.26**	0.41**	6.52
	(14.48)	(6.27)	(9.31)	
1993	0.08**	0.18**	0.24**	2.57
	(11.63)	(4.24)	(5.12)	
1992	0.17**	0.37**	0.39**	7.49
	(20.80)	(8.01)	(7.75)	
1991	0.18**	0.29**	0.25**	4.41
	(21.25)	(6.33)	(5.20)	

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Table 9 Continued

(t-statistics are provided in parentheses)
* Significant at $0.01 \leq \alpha \leq 0.05$. ** Significant at $\alpha \leq 0.01$.
[1] Description of regression variables: R_{jt} is the annual buy and hold with dividend return on a share of firm j (3 months after the year-end price plus net dividend minus 9 month before the year-end price divided by the 9 month before year-end price), X_{jt} is accounting earnings (operating, ordinary and net income) per share of firm *j* for period t, and P_{jt-1} is the price per share of firm *j* at time t-1.
[2] There are 17631 firm-year observations in the full sample: 2695 for 1991, 2695 for 1992, 2716 for 1993, 3156 for 1994, 3116 for 1995 and 3238 for 1996.

Table 10

Regressions of Annual Return or Two-Year-Return on Deflated Earnings Levels (Ordinary Income) for the Taiwanese sample and the U.S. sample[1, 2]

Model: $R_{jt} = \alpha_t + \beta_{1t} [X_{jt}/P_{jt-1}] + \varepsilon_{jt}$

Return	α_t	β_{1t}	Adj. R^2 (%)
	Taiwan Sample		
One year	0.045**	3.39**	6.61
	(2.96)	(9.77)	
Two years	-0.10**	7.11**	31.03
	(-4.90)	(18.43)	
	U.S. Sample		
One year	0.15**	0.53**	3.87
	(46.59)	(25.94)	
Two years	0.24**	1.93**	10.83
	(43.95)	(45.00)	

(t-statistics are provided in parentheses)

* Significant at $0.01 \leq \alpha \leq 0.05$. ** Significant at $\alpha \leq 0.01$.

[1] Description of regression variables: R_{jt} is the annual buy and hold with dividend return on a share of firm j (3 months after the year-end price plus net dividend minus 9 month before the year-end price divided by the 9 month before year-end price) or the bi-annual buy and hold with dividend return on a share of firm j, X_{jt} is the ordinary earnings per share of firm *j* for period t, and P_{jt-1} is the price per share of firm *j* at time t-1.

[2] For the Taiwan sample, there are 1334 observations and 753 observations for the one-year return aggregation period and the two-years return aggregation period respectively. For the U.S. sample, there are 20741 observations for both the one-year return aggregation period and the two-years return aggregation period.

Table 11
Stock market response, varying the time interval, to ROI and Sales Growth.[1]
Model: $R_{i,t} = \alpha_0 + \beta_0 * \textit{Performance Measure}_{i,t} + \varepsilon_{i,t}$

Performance Measure	β_0 [$\tau = 1$]	β_0 [$\tau = 2$]	β_0 [$\tau = 2$]/β_0 [$\tau = 1$]
	Panel A: Taiwan Sample (N = 1028)		
ROI_{it} (OPI)	0.76**	3.22**	4.24
	(3.23)	(14.2)	
ROI_{it} (ODI)	1.32**	3.67**	2.78
	(5.62)	(16.5)	
$Growth_{it}$	0.07	0.55**	7.85
	(1.21)	(9.15)	
	Panel B: U.S. Sample (N = 17,200)		
ROI_{it} (OPI)	0.30**	0.72**	2.40
	(24.2)	(40.5)	
ROI_{it} (ODI)	0.38**	0.89**	2.34
	(30.1)	(42.3)	
$Growth_{it}$	0.21**	0.72**	3.43
	(18.2)	(31.8)	

[1] Variable definitions: ROI_{it} = return on investment (Accounting $Income_{it}$/$Asset_{it-1}$) where accounting income specifications are operating income (OPI), and ordinary income (ODI); $Growth_{it}$ = sales growth ($Sales_{it}$-$Sales_{it-1}$), and R_{it} = stock return ((($Market\ Value\ of\ Stock_t$ + $Dividends_t$)/$Market\ Value\ of\ Stock_{t-1}$)-1).

Table 12

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous annual returns for the Taiwanese sample (1991-1996).[1, 2]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$ ***for pooled sample;***

$X_{it} / P_{it-1} = \alpha_0 + \beta_0 R_{it}$ ***for positive and negative return sample;***

Panel A: Operating Income

α_0	α_1		β_0	β_1	Adj. R^2 %
0.031	-0.003		0.004	0.030	2.91
(15.689)	(-0.854)		(1.200)	(2.574)	
Positive			**Negative**		
α_0	β_0	Adj. R^2 %	α_0	β_0	Adj. R^2 %
0.031	0.004	-0.004	0.028	0.033	1.76
(14.062)	(0.987)		(12.453)	(3.549)	

Panel B: Ordinary Income

α_0	α_1		β_0	β_1	Adj. R^2 %
0.029	-0.003		0.011	0.032	7.74
(15.624)	(-1.022)		(3.791)	(2.967)	
Positive			**Negative**		
α_0	β_0	Adj. R^2 %	α_0	β_0	Adj. R^2 %
0.029	0.011	1.429	0.026	0.043	3.36
(14.143)	(3.304)		(11.998)	(4.840)	

[1] Number of firm/year observations = 1,334.

[2] X_{it} / P_{it-1} = earnings variable divided by the beginning period (March) price. DR = equals one if return R_{it} is negative and zero otherwise. R_{it} = March-to-March buy-and-hold security return inclusive of dividends.

Table 13
Sample Characteristics
[From Table 1 of Ball, Robin and Wu (2000)]

A: Descriptive Statistics:

	N	Returns			Net Income		
		μ	Med	σ	μ	Med	σ
HKG	867	18.9	11.5	44.6	11.4	10.3	8.9
MYS	768	19.0	1.9	59.5	4.8	4.6	3.4
SGP	615	15.4	2.0	46.9	4.5	4.1	4.2
THA	476	31.9	5.9	97.8	7.8	5.9	10.7
Common	40,870	13.0	8.2	43.4	3.3	6.4	16.2
Code	11,996	7.0	0.4	35.0	2.6	2.2	6.3
Asia	2,726	20.4	6.1	61.8	7.4	5.9	7.8

B. Observations by Fiscal Year End (Month):

	1	2	3	4	5	6	7	8	9	10	11	12	Total
HKG	6	8	287	7	0	124	23	6	37	0	0	369	867
MYS	59	2	68	20	4	152	10	13	29	12	0	399	768
SGP	4	0	71	0	0	61	4	17	54	1	0	403	615
THA	0	0	7	3	0	14	0	5	16	0	1	430	476
Total	69	10	433	30	4	351	37	41	136	13	1	1601	2726

C. Observations by year:

	84	85	86	87	88	89	90	91	92	93	94	95	96	Total
HKG	24	3	28	41	40	60	89	107	104	112	126	126	7	867
MYS	26	3	6	13	14	21	68	90	111	96	129	175	16	768
SGP	26	0	20	28	29	39	61	71	74	75	107	81	4	615
THA	0	0	0	2	8	55	77	89	73	65	57	50	0	476
Total	76	6	54	84	91	175	295	357	362	348	419	432	27	2726

Sample: 2,726 firm/years for the four Asian countries (Hong Kong, Malaysia, Singapore and Thailand) were selected from the Global Vantage Industrial/Commercial and Issue files over 1984-1996, using the following procedure. First, for each variable (see below) the two extreme percentiles of firm/year observations are eliminated. Second, all firm/years with missing values for stock returns and earnings variables are eliminated. Third, all firm/years from countries with less than 250 observations are eliminated, leaving four countries represented. These four countries were aggregated into category "Asia". The two benchmark countries are: (a) Common (Australia, Canada, UK and USA) and (b) Code (Germany, France and Japan).

Variables: R denotes securities return over the fiscal year; NI denotes annual earnings per share before extraordinary items deflated by beginning Of period price; N denotes the number of firm/year observations.

Table 14
Contemporaneous Association between Earnings and Returns: Various Specifications
[From Table 2 of Ball, Robin and Wu (2000)]

Panel A:	$NI = \beta_0 + \beta_1 RD + \beta_2 R + \beta_3 R*RD + \varepsilon$					
	β_2	$t(\beta 2)$	β_3	$t(\beta_3)$	*Adj.* R^2	*N*
HKG	0.07	4.70	0.04	1.54	11.91%	867
MYS	0.01	2.44	0.00	0.20	9.19%	768
SGP	0.01	1.29	0.01	1.00	7.15%	615
THA	0.02	1.71	-0.01	-0.70	0.96%	476
Common	0.00	-0.64	0.33	57.10	14.60%	40,870
Code	0.04	9.92	0.03	4.35	4.63%	11,996
Asia	0.02	4.07	0.00	0.08	4.48%	2726
Panel B:	$NI = \beta_0 + \beta_1 R + \varepsilon$ *(R≥0)*			$NI = \beta_0 + \beta_1 R + \varepsilon$ *(R<0)*		
	β_1	*Adj.* R^2	*N*	β_1	*Adj.* R^2	*N*
HKG	0.07	4.90%	367	0.11	5.27%	500
MYS	0.01	1.31%	289	0.01	0.39%	479
SGP	0.01	0.45%	261	0.03	0.80%	354
THA	0.02	2.22%	186	0.00	-0.34%	290
Common	0.00	0.00%	18,203	0.33	13.96%	22,667
Code	0.04	1.91%	5,309	0.06	2.16%	6,687
Asia	0.02	1.43%	1,108	0.02	0.32%	1,618
Panel C:	$R = \beta_0 + \beta_1 NI + \varepsilon$					
	β_1	$t(\beta_1)$	*Adj.* R^2	*N*		
HKG	1.50	10.84	11.86%	867		
MYS	3.85	7.90	7.41%	768		
SGP	2.07	6.38	6.07%	615		
THA	0.80	2.59	1.19%	476		
Common	0.71	58.23	7.66%	40,870		
Code	0.97	23.78	4.49%	11,996		
Asia	1.21	10.54	3.88%	2,726		

Continued on next page

Table 14 Continued
[From Table 2 of Ball, Robin and Wu (2000)]

Panel D:	$R = \beta_0 + \beta_1 NI + \beta_2 \Delta NI + \varepsilon$					
	β_1	$T(\beta_1)$	β_2	$t(\beta_2)$	*Adj.* R^2	*N*
HKG	1.40	8.25	0.10	0.59	10.31%	856
MYS	3.60	6.27	0.98	1.18	7.48%	761
SGP	2.08	5.50	0.08	0.18	5.99%	610
THA	0.68	1.87	1.17	4.12	4.96%	472
Common	0.72	52.16	0.29	24.24	9.72%	40,455
Code	0.88	19.77	0.28	6.53	4.77%	11,879
Asia	1.02	7.69	0.74	5.54	4.99%	2,699

Sample: 2,726 firm/years for the four Asian countries (Hong Kong, Malaysia, Singapore and Thailand) were selected from the Global Vantage Industrial/Commercial and Issue files over 1984-1996, using the following procedure. First, for each variable (see below) the two extreme percentiles of firm/year observations are eliminated. Second, all firm/years with missing values for stock returns and earnings variables are eliminated. Third, all firm/years from countries with less than 250 observations are eliminated, leaving four countries represented. These four countries were aggregated into category "Asia". The two benchmark countries are: (a) Common (Australia, Canada, UK and USA) and (b) Code (Germany, France and Japan).

Variables: R denotes holding-period securities returns including dividends over the fiscal year net of annual country mean return R_{it}; the proxy for bad news RD = 1 if R < 0 and = 0 otherwise; NI denotes annual earnings per share before extraordinary items deflated by beginning Of period price; ΔNI denotes a firm's first difference over time in NI; N denotes the number of firm/year observations.

Analysis: Statistics re from regressions using the pooled cross-section and time-series of firm/year observations for each country. Intercepts are not reported.

Table 15

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous annual returns for the U.S. sample (1991-1996).[1, 2]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$ ***for pooled sample;***
$X_{it} / P_{it-1} = \alpha_0 + \beta_0 R_{it}$ ***for positive and negative return sample;***

Rank	α_0	α_1		β_0	β_1	Adj. R^2 (%)
			Panel A: Operating Income			
All	0.150	-0.009		0.041	0.258	5.732
	(48.962)	(-1.648)		(6.599)	(15.330)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.152	0.038	0.293	0.141	0.299	6.663
	(47.390)	(5.908)		(33.116)	(20.656)	
			Panel B: Ordinary Income			
All	0.057	0.014		0.000	0.405	9.699
	(24.147)	(3.366)		(-0.046)	(30.969)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.060	-0.004	-0.001	0.072	0.405	12.366
	(27.465)	(-0.924)		(17.531)	(29.024)	

[1] N = 17,630 for the interaction regression; N = 11,546 for the good news regression; and, N = 5,962 for the bad news regression.

[2] X_{it} / P_{it-1} = earnings variable divided by the beginning period (March) price. DR = equals one if return R_{it} is negative and zero otherwise. R_{it} = March-to-March buy-and-hold security return inclusive of dividends.

Table 16

. Annual Regressions of Annual Returns on Deflated Earnings Levels and Changes Based on Rank Partition.[1, 2]

Model: $R_{jt} = \alpha_t + \beta_{1t}[X_{jt}/P_{jt-1}] + \beta_{2t}[\Delta X_{jt}/P_{jt-1}] + \varepsilon_{jt}$

Rank	α_t	β_{1t}	β_{2t}	Adj. R^2 (%)
	Panel A: Operating Income			
Low	0.09**	2.03**	0.19	2.71
	(4.27)	(3.88)	(0.49)	
High	0.05*	2.27**	-1.23*	1.80
	(2.13)	(3.77)	(-2.07)	
Low	0.09**	1.62**	0.29	2.09
	(3.63)	(2.77)	(0.75)	
Medium	0.05	3.25**	-0.72	4.45
	(1.59)	(4.28)	(-0.88)	
High	0.09**	1.44*	-1.24	0.48
	(2.81)	(1.89)	(-1.72)	
	Panel B: Ordinary Income			
Low	0.06**	3.39**	0.45	8.07
	(2.94)	(6.32)	(1.10)	
High	0.04	2.93**	0.28	4.98
	(1.58)	(4.81)	(0.51)	
Low	0.07**	2.78**	0.73	6.99
	(2.51)	(4.41)	(1.61)	
Medium	0.03	4.15**	0.22	10.26
	(1.19)	(5.97)	(0.34)	
High	0.06*	2.42**	-0.04	2.37
	(2.01)	(3.06)	(-0.06)	

(t-statistics are provided in parentheses)
Significant at $0.01 \leq \alpha \leq 0.05$. ** Significant at $\alpha \leq 0.01$.

[1] Description of regression variables: R_{jt} is the return on a share of firm j over the calendar year, X_{jt} is accounting earnings (operating, and ordinary income) per share of firm *j* for period t, and P_{jt-1} is the price per share of firm *j* at time t-1.

[2] There are 1334 firm-year observations in the full sample: 144 for 1991, 181 for 1992, 214 for 1993, 240 for 1994, 270 for 1995 and 285 for 1996. The full sample is partitioned into 2 ranks (Low, High) with equal observations based on family ownership. Low has firms with the lower family ownership and High has the higher family ownership. The full sample is partitioned into 3 ranks (Low, Medium, High). Low has firms with the lowest family ownership and High the highest family ownership.

Table 17

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous annual returns.[1, 2]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$

Rank	α_0	α_1	β_0	β_1	Adj. R^2 (%)
		Panel A: Operating Income			
Low	0.026	-0.002	0.009	0.021	2.96
	(8.543)	(-0.402)	(1.872)	(1.205)	
High	0.036	-0.003	-0.001	0.037	2.72
	(13.902)	(-0.735)	(-0.125)	(2.436)	
Low	0.029	-0.009	0.007	-0.002	2.27
	(7.403)	(-1.395)	(1.075)	(-0.090)	
Med.	0.025	0.006	0.012	0.046	5.24
	(7.536)	(1.101)	(2.438)	(2.315)	
High	0.039	-0.006	-0.008	0.041	2.35
	(12.695)	(-1.170)	(-1.628)	(2.199)	

	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
Low	0.026	0.008	0.449	0.024	0.029	1.01
	(7.670)	(1.586)		(7.028)	(2.079)	
High	0.036	-0.001	-0.282	0.033	0.037	2.38
	(12.415)	(-0.150)		(10.931)	(2.956)	
Low	0.029	0.007	-0.064	0.021	0.005	-0.42
	(6.373)	(0.926)		(5.281)	(0.300)	
Med.	0.026	0.012	1.635	0.032	0.058	4.40
	(7.144)	(2.181)		(7.110)	(3.322)	
High	0.039	-0.009	0.514	0.033	0.033	1.85
	(11.223)	(-1.484)		(9.555)	(2.215)	

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Table 17 Continued

Rank	α_0	α_1		β_0	β_1	Adj. R^2 (%)
			Panel B: Ordinary Income			
Low	0.025	-0.001		0.016	0.028	8.46
	(8.594)	(-0.286)		(3.759)	(1.728)	
High	0.033	-0.005		0.006	0.035	6.89
	(13.891)	(-1.172)		(1.502)	(2.501)	
Low	0.027	-0.005		0.015	0.013	6.73
	(7.514)	(-0.865)		(2.520)	(0.697)	
Med.	0.023	0.002		0.020	0.029	10.63
	(6.937)	(0.271)		(4.104)	(1.537)	
High	0.036	-0.006		-0.002	0.047	6.30
	(13.324)	(-1.406)		(-0.428)	(2.800)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
Low	0.025	0.016	2.733	0.023	0.044	3.04
	(7.731)	(3.231)		(7.292)	(3.354)	
High	0.033	0.006	0.219	0.028	0.041	3.36
	(12.685)	(1.328)		(9.877)	(3.470)	
Low	0.027	0.015	1.767	0.022	0.028	0.97
	(6.674)	(2.238)		(5.878)	(1.775)	
Med.	0.023	0.020	5.109	0.024	0.050	3.65
	(6.474)	(3.629)		(5.775)	(3.041)	
High	0.037	-0.002	-0.349	0.030	0.045	4.59
	(11.910)	(-0.437)		(9.546)	(3.310)	

[1] Total number of observations = 1,334. The full sample is partitioned into 2 ranks (Low, High) with equal observations based on family ownership. Low has firms with the lower family ownership and High has the higher family ownership. The full sample is partitioned into 3 ranks (Low, Medium, High). Low has firms with the lowest family ownership and High the highest family ownership.

[2] X_{it} / P_{it-1} = earnings variable divided by the beginning period (March) price. DR = equals one if return R_{it} is negative and zero otherwise. R_{it} = March-to-March buy-and-hold security return inclusive of dividends.

Table 18

Annual Regressions of Annual Returns on Deflated Earnings Levels and Changes for the Taiwanese Non-IPO Firms (N = 144).[1]

Model: $R_{jt} = \alpha_t + \beta_{1t}[X_{jt}/P_{jt-1}] + \beta_{2t}[\Delta X_{jt}/P_{jt-1}] + \varepsilon_{jt}$

Year	α_t	β_{1t}	β_{2t}	Adj. R^2 (%)
	Panel A: Operating Income			
Pooled	0.07**	1.39**	1.05*	2.91
	(3.68)	(2.81)	(2.06)	
1996	0.71**	-0.77	4.02**	8.84
	(12.93)	(-0.68)	(3.59)	
1995	-0.27**	0.80	-0.81	0.04
	(-14.15)	(1.42)	(-1.09)	
1994	0.16**	1.74	6.36**	29.96
	(3.44)	(1.56)	(5.79)	
1993	-0.01	0.95	2.98**	8.48
	(-0.25)	(1.46)	(2.67)	
1992	-0.12**	1.89**	2.63*	11.73
	(-5.78)	(3.01)	(2.41)	
1991	0.03	0.86	0.35	2.09
	(1.01)	(0.82)	(0.44)	
	Panel B: Ordinary Income			
Pooled	0.04**	2.43**	1.96**	10.23
	(2.36)	(5.06)	(4.52)	
1996	0.61**	0.53	3.49**	11.58
	(11.71)	(0.47)	(3.57)	
1995	-0.30**	1.66**	-1.47**	4.59
	(-14.91)	(2.88)	(-2.58)	
1994	0.13**	1.33	6.14**	27.14
	(2.71)	(1.15)	(5.80)	
1993	-0.04	1.96**	2.74**	18.52
	(-1.49)	(3.05)	(3.63)	
1992	-0.13**	2.38**	0.79	10.92
	(-6.75)	(3.79)	(0.98)	
1991	0.02	1.94*	0.07	4.52
	(0.61)	(1.86)	(0.11)	

(t-statistics are provided in parentheses)

* Significant at $0.01 \leq \alpha \leq 0.05$. ** Significant at $\alpha \leq 0.01$.

[1] Description of regression variables: R_{jt} is the return on a share of firm j over the calendar year, X_{jt} is accounting earnings (operating or ordinary) per share of firm *j* for period t, and P_{jt-1} is the price per share of firm *j* at time t-1.

Table 19

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous annual returns for Non-IPO firms (N = 144). The partition of family ownership is done at the whole sample level.[1, 2]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$

Rank	α_0	α_1	β_0	β_1	Adj. R^2 (%)
		Panel A: Operating Income			
All	0.027	-0.002	0.005	0.034	3.45
	(11.120)	(-0.579)	(1.190)	(2.346)	
Low	0.023	-0.001	0.009	0.021	2.35
	(5.904)	(-0.198)	(1.383)	(1.006)	
High	0.030	-0.002	0.002	0.047	4.31
	(9.980)	(-0.424)	(0.384)	(2.377)	
Low	0.020	0.001	0.017	0.009	3.49
	(4.165)	(0.092)	(2.203)	(0.361)	
Med.	0.025	0.004	0.006	0.061	4.56
	(5.639)	(0.634)	(0.848)	(2.501)	
High	0.035	-0.011	-0.008	0.024	2.66
	(9.923)	(-1.773)	(-1.210)	(1.008)	

	Positive			Negative		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.028	0.004	-0.03	0.025	0.039	2.38
	(9.718)	(0.937)		(9.488)	(3.390)	
Low	0.023	0.009	0.25	0.022	0.030	0.90
	(5.190)	(1.215)		(5.494)	(1.738)	
High	0.031	0.001	-0.46	0.028	0.049	4.73
	(8.586)	(0.189)		(8.496)	(3.352)	
Low	0.020	0.017	1.80	0.021	0.026	0.55
	(3.471)	(1.836)		(4.588)	(1.344)	
Med.	0.026	0.005	-0.45	0.029	0.067	5.81
	(5.272)	(0.647)		(5.907)	(3.191)	
High	0.035	-0.008	0.13	0.024	0.016	-0.13
	(8.505)	(-1.087)		(6.119)	(0.912)	

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Table 19 Continued

Rank	α_0	α_1	β_0	β_1	Adj. R^2 (%)
		Panel B: Ordinary Income			
All	0.026	-0.003	0.014	0.031	9.11
	(11.183)	(-0.860)	(3.683)	(2.288)	
Low	0.024	-0.003	0.018	0.018	8.81
	(6.784)	(-0.593)	(3.085)	(0.953)	
High	0.027	-0.003	0.012	0.045	9.03
	(8.928)	(-0.474)	(2.153)	(2.297)	
Low	0.021	-0.001	0.024	0.010	10.21
	(4.900)	(-0.109)	(3.488)	(0.433)	
Med.	0.023	0.003	0.021	0.050	12.01
	(5.353)	(0.491)	(2.958)	(2.121)	
High	0.032	-0.012	-0.003	0.029	5.78
	(9.442)	(-1.978)	(-0.462)	(1.269)	

	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.026	0.014	2.16	0.022	0.045	3.45
	(10.067)	(3.153)		(8.736)	(4.044)	
Low	0.024	0.018	3.47	0.021	0.035	1.66
	(6.211)	(2.825)		(5.444)	(2.180)	
High	0.028	0.011	0.90	0.025	0.057	5.86
	(7.897)	(1.707)		(7.120)	(3.719)	
Low	0.021	0.024	6.39	0.021	0.034	1.31
	(4.399)	(3.132)		(4.446)	(1.716)	
Med.	0.024	0.019	3.70	0.026	0.071	7.73
	(4.883)	(2.441)		(5.767)	(3.671)	
High	0.032	-0.003	-0.54	0.020	0.026	0.74
	(8.423)	(-0.465)		(4.902)	(1.409)	

[1] The total number of observations is 864.

[2] X_{it} / P_{it-1} = earnings variable divided by the beginning period (March) price. DR = equals one if return R_{it} is negative and zero otherwise. R_{it} = March-to-March buy-and-hold security return inclusive of dividends.

Table 20

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous annual returns of the U.S. sample (1990-1995).[1, 2]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$

Rank	α_0	α_1		β_0	β_1	Adj. R^2 (%)
			Panel A: Operating Income			
All	0.158	-0.013		0.026	0.277	5.396
	(47.896)	(-2.199)		(4.080)	(15.880)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.161	0.023	0.098	0.146	0.303	6.077
	(46.361)	(3.397)		(32.191)	(20.148)	
			Panel B: Ordinary Income			
All	0.056	0.019		-0.007	0.438	10.499
	(22.570)	(4.317)		(-1.414)	(33.243)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.060	-0.012	0.053	0.076	0.431	13.528
	(25.886)	(-2.583)		(18.285)	(31.308)	

[1] N= 17,154 for the interaction regression; N=10,756 for the good news regression; and, N= 6,258 for the bad news regression.

[2] X_{it} / P_{it-1} = earnings variable divided by the beginning period (March) price. DR = equals one if return R_{it} is negative and zero otherwise. R_{it} = March-to-March buy-and-hold security return inclusive of dividends.

Table 21

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous annual returns for the U.S. sample (1989-1994).[1, 2]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$

Rank	α_0	α_1		β_0	β_1	Adj. R^2 (%)
			Panel A: Operating Income			
All	0.160	-0.013		0.024	0.264	5.256
	(45.591)	(-2.141)		(3.505)	(15.571)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.163	0.021	0.071	0.148	0.289	5.552
	(43.592)	(2.813)		(33.287)	(20.283)	
			Panel B: Ordinary Income			
All	0.057	0.015		-0.010	0.409	10.406
	(21.520)	(3.316)		(-1.945)	(32.245)	
	Positive			**Negative**		
	α_0	β_0	Adj. R^2 (%)	α_0	β_0	Adj. R^2 (%)
All	0.060	-0.015	0.083	0.072	0.399	12.506
	(24.272)	(-3.015)		(18.155)	(31.604)	

[1] N = 16,867 for the interaction regression; N = 9,738 for the good news regression; and, N = 6,980 for the bad news regression.

[2] X_{it} / P_{it-1} = earnings variable divided by the beginning period (March) price. DR = equals one if return R_{it} is negative and zero otherwise. R_{it} = March-to-March buy-and-hold security return inclusive of dividends.

Table 22

Coefficients and adjusted R^2s (%) from pooled cross-sectional regressions, excluding outliers, of beginning-of-period price deflated earnings on contemporaneous market adjusted (equal weighted and value weighted) returns for both the Taiwan and the U.S. sample (1991-1996).[1]

Model: $X_{it} / P_{it-1} = \alpha_0 + \alpha_1 DR_{it} + \beta_0 R_{it} + \beta_1 R_{it} * DR_{it}$

Market RET	α_0	α_1	β_0	β_1	Adj. R^2 (%)
Panel A: Operating Income (The Taiwan sample)					
Eql. Weight	0.036	-0.011	0.004	0.013	6.015
	(19.185)	(-4.187)	(0.732)	(1.493)	
Val. Weight	0.038	-0.009	-0.001	0.022	5.134
	(17.865)	(-3.324)	(-0.208)	(2.604)	
Panel B: Ordinary Income (The Taiwan sample)					
Eql. Weight	0.033	-0.010	0.010	0.006	6.769
	(18.194)	(-3.979)	(1.945)	(0.650)	
Val. Weight	0.035	-0.010	0.005	0.010	5.497
	(17.082)	(-3.578)	(0.897)	(1.238)	
Panel C: Operating Income (The U.S. sample)					
Eql. Weight	0.173	-0.008	0.010	0.212	5.334
	(48.080)	(-1.616)	(1.244)	(16.693)	
Val. Weight	0.164	0.002	0.024	0.222	5.266
	(47.290)	(0.336)	(3.212)	(16.932)	
Panel D: Ordinary Income (The U.S. sample)					
Eql. Weight	0.070	0.014	-0.019	0.288	8.757
	(24.975)	(3.444)	(-3.123)	(29.178)	
Val. Weight	0.066	0.018	-0.020	0.313	8.576
	(24.597)	(4.573)	(-3.451)	(30.737)	

[1] Number of firm/year observations: 1,334 for the Taiwan sample; 17,630 for the U.S. sample; R_{it} is equal weighted or value weighted market adjusted return; $DR_{it} = 1$ when $R_{it} < 0$.

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