Information Asymmetry and Earning Management in Taiwanese Tech Industry

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Abstract

The article is examined if earnings management is positive related to information asymmetry in different environments. Moreover, I tried to understand the differences in cultural and business factors between the East and the West. The results insight the human-being's nature that holding information may have "value" since information asymmetry can benefit those firms that make earnings management. Compared with other literatures, information asymmetry in Taiwan seems "higher" than that in the West so that Taiwanese managers may affect more on their firms' stock prices.

Key Words：earnings management, information asymmetry.

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台灣高科技產業之資訊不對稱與盈餘管理

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摘 要

本文檢驗在不同企業環境下「盈餘管理」與「資訊不對稱」是否仍呈正向相關，並進一步探討在東西文化不同下該關係的差異性。研究結果發現在資訊不對稱下，儘管企業環境不同，持有資訊者（企業）因具有資訊優勢，採取盈餘管理策略將獲益更多。本文驗證在台灣高科技產業下該利益之大小，並對照西方實證文獻後推論：台灣高科技產業經理人對企業股價的影響力可能較歐美經理人爲大。

關鍵詞：盈餘管理、資訊不對稱

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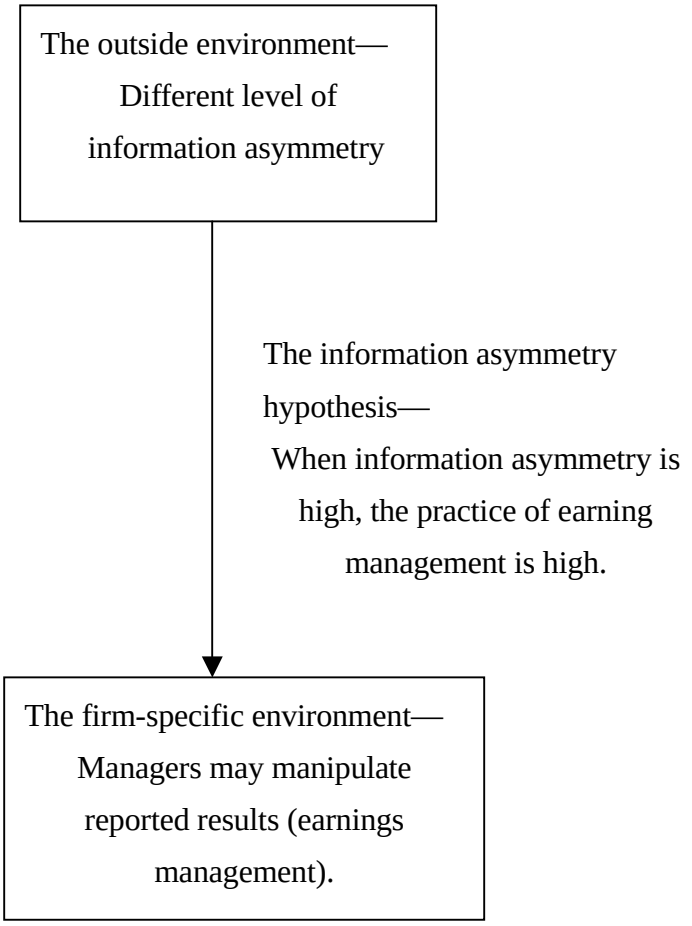
I、Introduction

There is too much information available in the financial market. Much information in the firm level is included in the earning and dividend announcements. One of the most important topics in this field is that the management in the firm level might be manipulating the public expectation by it announcements. It's called "the signaling hypothesis" that demonstrated mangers can release their respect about the firm's future by "signaling" in the market, using some actions like earning announcements, dividend announcements, repurchase, merger, etc. If the managers know he/she can effect investors' expectation to "control" the market, they might do something more to benefit themselves. One condition that mentions this topic in corporate finance is "window of opportunity".

By the way, Dechow et al.（1995） argued that the hypothesis " all firms do not make earnings management" can not be rejected. Sloan（1996） demonstrated that the stock pattern seems investors "fixate" it on the current earnings, which contain cash components, discretionary accruals and non-discretionary accruals. Spiss and Affleck-Graves（1995）examined 1975-1989 firms' seasoned equity offers（SEO）sample and found managers took advantage of overvaluation in the market. Thus, we can infer that in the earning-announcing context, managers may manipulate reported results that called "earnings management". The managerial purpose can be assumed by the information asymmetry hypothesis—when information asymmetry is high, stakeholders do not have sufficient resources, incentives, or access to relevant information to monitor's actions, and thus gives rise to the practice of earnings management（Schipper, 1989; Warfield et al., 1995）. The managerial purpose under the different outside environment is as below:

Figure1　Simplified setting for the managerial purpose under the information asymmetry hypothesis



Following Richardson （2000） investigated the relationship between information asymmetry and earnings management, the data used in this paper is the high-tech industrial data in Taiwan.　The purpose is to find if the cultural difference is possible for the East and the West.　Since the Taiwanese high-tech industry is representative and full of growth among other industries, I choose it as the sample industry.

II、Theoretical Background And Literature Review

One indication of information usefulness is its ability to increase the precision of individuals' estimates of events of interest（FASB 1980; ljiri and Jaedicake 1966）.In this point, firm-specific information is useful if they increase the precision of investors' forecasts of future earnings. Lawrence D. Brown & Jerry C. Y. Han（1992）showed that when combined with the time-series properties of accounting earnings and prior research in analyst forecasts, Bayesian revisions suggested that year t earnings reports should increase the convergence of analysts' year t+1 earnings forecasts. B. J. Bushee & C. F. Noe（2000）also found that a firm's disclosure practices affect the composition of its institutional investor ownership and its stock return volatility. K. Daniel et al.（1998）proposed a theory of securities market under- and overreactions based on two well-known psychological biases: investor overconfidence and biased self-attribution. It is thus easy to suspect that the managers of a firm could announce incorrect information to change people's belief. That is why an American Express attorney said, "If you tell me that it's improper under all circumstances for management to want to smooth out their results, adjust the level of risk, or to smooth our reserves…. I will tell you, you don't understand the way American business is conducted."（Fortune, June 25, 1984, 58-61）

Healy（1985）, Perry and Williams（1994）, and DeFond & Jiambalvo（1994）are examples of empirical research suggesting that earnings management is common and important among firms. P. M. Dechow et al.（1995） also evaluated alternative accrual-based models for detecting earnings management, and found that a modified version of the model developed by Jones（1991）exhibited the most power in detecting earnings management. However, managers might not manipulate earning reports so easily because lots of rules and monitors exist. Such like what C. A. Botosan（1997）examined, for firms with a high analyst following, no evidence of an association between the disclosure level and cost of equity capital because the disclosure measure is limited to the annual report and may not provide a powerful

proxy for overall disclosure level, when analysts play a significant role in the communication process.

In empirical results, Paul K. Chaney & Craig M. Lewis（1995） showed that earnings management affects firm value when value-maximizing managers and investors are asymmetrically informed. In equilibrium, the strategic management of reported earnings influences investors' assessments of the market values of companies' shares. This information-asymmetric world can make a lot of stuffs by managers: Janice C. Y. How & John S. Howe（2001）investigated why firms include warrants in their IPOs. They found the empirical results matched the signaling hypothesis that managers chose to issue securities as a signaling mechanism in a market characterized by information asymmetry. And D. Aboody & B. Lev（2000）researched the sources of private information leading to information asymmetry and insider gains. They used R&D as a potential source of insider gains and indicated that insider gains in R&D-intensive firms are substantially larger than insider gains in firm without R&D. R&D is thus raising issues concerning the disclosure policy of the firm.

Since the disclosure environment is already rich under current U.S. reporting standards, we should find some other area, such like the Asian countries, where the disclosure environments are not quite clear and where information asymmetry occurs more easier between managers and outsiders. Christian Leuz & Robert E. Verrecchia（2000）studied German firms that have switched from the German to an international reporting regime（IAS or U.S. GAAP）and showed that the information asymmetry component behaved in the predicted direction compared to firms employing the German reporting regime. However, the sample countries they compared with each other is still the West countries. The purpose of this paper is thus to investigate how the association between information asymmetry and earnings management happens in the East developed countries, such like Taiwan, and to compare the results with other countries in different cultural environments.

III、Research design and sample data

Research design

Lev （1988） argues that observable measures of market liquidity can be used to identify the perceived level of information asymmetry facing participants in equity markets. Recent theoretical work on the bid-ask spread asserts that the dealer should widen the bid-ask spread when he or she suspects that the information advantage possessed by informed traders has increased. Thus, the dealer's spread can be employed to test for an increase in information asymmetry prior to an anticipated information event. I do not use the deviation in analysts' forecasts in this paper because there are not many forecasting institutions in Taiwan. For a single earning data there might be less five analysts' forecasting to investigate a reasonable deviation.

The modified Jones model suggested by P. M. Dechow et al.（1995）is applied for earnings management and all variables are deflated by the beginning-of-period total assets. The model employed in the paper is as follows:

$$E(AC)_t = \alpha_0 + \alpha_1(\Delta REV_t - \Delta REC_t) + \alpha_2(PPE_t)$$

Where

$E(AC)_t$ = Expected normal accrual;
ΔREV_t = Net revenues in year t less net revenues in year t-1;
ΔREC_t = Net receivables in year t less net receivables in year t-1;
PPE_t = Property plant and equipment at time t.

There are time-series and cross-sectional methods to estimate two alternative measures of earnings management in literatures. The time-series method is used to estimate the parameters by the historical data, and predicts the level of expected accruals. The cross-sectional method is used which compares the expected level of

accruals for the firms in the sample with others in the same industry of the test period. Consistent with previous studies of earnings management （Healy, 1985; Jones, 1991）, the accounting accrual（ AC_t ） is computed as:

$$AC_t = （\Delta CA_t - \Delta CL_t - \Delta Cash_t + \Delta STD_t - Dep_t）$$

Where

ΔCA_t = Change in current assets;
ΔCL_t = Change in current liabilities;
$\Delta Cash_t$ = Change in cash and cash equivalents;
ΔSTD_t = Change in debt included in current liabilities;
Dep_t = Depreciation and amortization expense.

Since the hypothesis does not rely on the direction of the managerial accrual, but rather on the magnitude of the accrual adjustments, the dependent variable is based on the absolute value of the managed accrual （$\left|MAA_i\right|$） as follow:

$$\left|MAA_i\right| = \left|AC_i - E(AC_i)\right|$$

Vernon J Richardson（2000） used both methods to estimate the statistics. He also used the closing bid-ask quotes for the last trading of June for each year of the sample as a proxy for the market liquidity. However, I used the average monthly closing bid-ask quotes available for each year. The adjusted proxy may fit the hypothesis since the information asymmetric condition of the firm occurs during the period of time.

Except for the hypothesis, one incentive for managing earnings is to reduce political costs. Zmijewski and Hagerman（1981）suggest that political costs increase with firm size and with firm risk. Managers of large and/or high-risk firms have greater incentives to reduce these political costs. Thus firm-size, sales growth, and

the volatility of underlying cash flows are used as proxies for a firm's size and risk. Follow Richardson(2000)I hypothesize that earnings management is increasing with the level of firm risk and the volatility of underlying cash flows. The key point is that the sign of the relationship between the level of information asymmetry and earnings management should be positive.

Thus the empirical model is derived below:

$$\left|MAA_i\right| = \beta_0 + \beta_1 BIDASK_i + \beta_2 CFVAR_i + \beta_3 SIZE_i + \beta_4 GROWTH_i + \varepsilon_i$$

Where

$\left|MAA_i\right|$ = The mean managed accrual using the cross-sectional approach;

$BIDASK_i$ = The mean monthly bid-ask spread scaled by the average of the bid-ask prices;

$CFVAR_i$ = The standard deviation of operating cash flows over the test period divided by the average operating cash flows over the test period;

$SIZE_i$ = Natural log of the mean market capitalization for firm i over the test period;

$GROWTH_i$ = Net revenues at the end of the test period less net revenues at the beginning of the test period scaled by net revenues at the beginning of the period.

Sample data

There are 279 firms 11,868 monthly bid-ask spread data available in the TEJ database. The data used in the testing model is identified from the TEJ that provide the closing bid-ask prices from August 1994 to September 2003. I use the firm-specific data that also represent in the Taiwanese stock market. Due to the limitation of the stock-market participants, the results might apply primarily to large

firms. However, when combined with accounting data, there are more than 180 firm-specific data disappeared because of matching. The reason is that some firms have no asset data such like “plants & equipments”, while others have no bid-ask data available to be matched. Thus there are only 89 firms that are available from January 1995 to December 2000 in the final sample. For the purpose concerns and the data limit, also, I delete one of the variables-- the standard deviation of operating cash flows （ $CFVAR_i$ ）. It might be fine since the variable is represented for the risk of the firm, while the “growth” variable （net revenues at the end of the test period less net revenues at the beginning of the test period scaled by net revenues at the beginning of the period.） is the same. The focus of this paper is to examine whether the results are the same as Richardson （2000）, and thus the sign of the mean monthly bid-ask spread （ $BIDASK_i$ ） is very important.

IV、Empirical results and discussion

The descriptive statistics for the data sample from 1995 to 2000 are in table 2. Richardson （2000） withdraws all observations below the 1st and above the 99th percentile of observations to control for the possible influence of extreme observations. But the available sample data in this paper is not withdrawn.

Table 2　Descriptive statistics of the variables in the sample

Variable	N	Mean	Median	Maximum	Minimum	Std. Dev.
$\lvert MAA_i \rvert$	89	0.1303	0.1201	0.3804	0.0301	0.0589
$BIDASK_i$	89	1.0333	0.9944	2.5292	0.7503	0.2399
$SIZE_i$	89	9.6821	9.4819	13.5742	7.1441	1.3220
$GROWTH_i$	89	0.3443	0.2668	2.9407	-0.1250	0.3755

The results of the OLS regression of the relationship between information asymmetry and earnings management is shown in table 3. And the correlation among the independent variables is shown in table 4.

Table 3 Regression results of the relationship between information asymmetry （ $BIDASK_i$ ） and earnings management

Multivariate regression with $|MAA_i|$ as dependent variable

$$|MAA_i| = \beta_0 + \beta_1 BIDASK_i + \beta_2 SIZE_i + \beta_3 GROWTH_i$$

	β_0	β_1	β_2	β_3	R^2	N
Predicted sign		+	?	+		
Coef.	0.18357	-0.05531	-0.00319	0.10117	0.3011	89
t-statistic	3.46***	-2.24**	-0.72	6.06***		

Note: The listed R^2 is the adjusted R^2.

* Significant at the 0.1 levels.

** Significant at the 0.05 levels.

*** Significant at the 0.01 levels.

Variable Definitions

$|MAA_i|$ = The mean managed accrual using the cross-sectional approach;

$BIDASK_i$ = The mean monthly bid-ask spread scaled by the average of the bid-ask prices;

$SIZE_i$ = Natural log of the mean market capitalization for firm I over the test period;

$GROWTH_i$ = Net revenues at the end of the test period less net revenues at the beginning of the test period scaled by net revenues at the beginning of the period.

Table 4.Correlation of the variables in the sample

Variable	$BIDASK_i$	$SIZE_i$	$GROWTH_i$
$BIDASK_i$	1	0.2864	-0.4550
$SIZE_i$	0.2864	1	-0.4213
$GROWTH_i$	-0.4550	-0.4213	1

Compared with the empirical results of Richardson （2000）, table 5 represents the difference between the East and the West:

Table 5.The difference between Richardson（2000）and the paper

Difference	Richardson （2000）	The paper
Coef. Of $BIDASK_i$	0.620*	-0.05531**
Sign of the correlation between $SIZE_i$ and $BIDASK_i$	—	+
Sign of the correlation between $SIZE_i$ and $GROWTH_i$	+	—

* Significant at the 0.1 levels.

** Significant at the 0.05 levels.

*** Significant at the 0.01 levels.

Based on R. La Porta （2000）, the stronger minority shareholders' right should be associated with higher dividend payout, and the legal environment measures the shareholders' right. Thus, if the outside shareholders' right is weak in Taiwan, it infers that the public might monitor the managers of the firm more weakly than what happens in the West. When the information asymmetry is high, inside managers can "feel free" to do anything that is easier than "earnings management", especially for the situation that the minority shareholders do not care about what happens in earnings. It might be one of the most different characteristics of the minority shareholders between the East and the West.

V、Conclusion and Future Research

This paper is examined whether the relationship between information asymmetry and earnings management is the same between different managerial environments, and compared with Richardson （2000）. The results infer that the

relationship between information asymmetry and earnings management might changes in different countries that based on different characteristics of the shareholders' right. Instead of this relationship, the relationships between size and growth of the firm and between size and information asymmetry could be more identified in different countries.

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