INFORMATION CONTENT OF PRO FORMA EARNINGS

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ABSTRACT

An increasing number of firms release "pro forma" earnings along with net income in their financial reports in the press. The pro forma earnings are defined by individual firms which are different from the net income defined under Generally Accepted Accounting Principles (GAAP). Lougee and Marquardt (2004) indicated that companies with less informative GAAP earnings were more likely to engage in reporting pro forma earnings than others. This study examines whether the pro forma earnings provide information to investors about future earnings in the Taiwanese stocks market. A condition of information asymmetry exists between investors and managers, and pro forma earnings are a way to disclose the latter's ideas about their firms' future profitability to investors. The quality of the financial information that is provided will impact investors' predictions about firms' future earnings, and so affect stock prices. The purpose of this study is thus to investigate the information content of pro forma earnings, and examine whether pro forma earnings can provide details of future earnings to the investors in the Taiwanese stock market. We collect 3,287 firm-year observations listed on the Taiwan Stock Exchange or Gre Tai Securities Market from 2008 to 2012, and our data is from the Taiwan Economic Journal (TEJ) database. Our results show that the disclosure of pro forma earnings can improve the association between current returns and future earnings. This implies that the disclosure of pro forma earnings reveals credible information, which is then incorporated into current returns.

Keywords: *Information content, Pro-forma earnings, Future earnings response coefficient, Stock prices*
JEL Classification: M41, R53

I.   INTRODUCTION

The financial forecast system in Taiwan has been implemented for many years, and it is thus of interest to examine if it can reduce information asymmetry, provide more transparent financial information and promote stable development of the capital market. A condition of information asymmetry naturally exists between managers and investors, but the former can reduce this releasing pro forma earnings information to the latter.

Purpose of Research

Aharony et al., (1980) stated that managers tend to release details of their firms' future prospects by conveying a variety of messages to markets. One of the most important messages is firm earnings. Lev and Penman (1990) found that the managers are more willing to release pro forma earnings when the operating performance of their companies is relatively good. This implies that firms with better operating performance tend to release details of their core earnings, which is very useful information for investors.

However, the U.S. Securities and Exchange Commission (SEC) considers pro forma earnings as a tool for management to mislead investors. The SEC thus has Regulation G to regulate the release of pro forma earnings, which requires companies to have reconciliation tables to adjust their pro forma earnings and GAAP earnings at the same time. Lin (2004) indicated that stock market investors seem to be able to adjust the information content of the earnings based on the focal management's earnings forecast attitude in the past. This implies that the management should honestly announce earnings forecasts to achieve the aim of better communication with investors. If investors suspect that the information they receive is not reliable, then this will be reflected in the stock prices.

Lougee and Marquardt (2004) indicated that pro forma earnings information is useful to investors. Companies with lower GAAP earnings content tend to disclose pro forma earnings. Firms that are more willing to release pro forma earnings are mainly in the high-tech industry and have significantly higher sales growth and earnings variability. There is also weak evidence that the companies with a higher leverage ratio and price-to-book value ratio are more likely to disclose pro forma earnings, as are those with a lack of earnings benchmarks.

Some companies are thus willing to disclose pro forma earnings information, while others are not, based on their own situations. If a firm's actual earnings are very different from its pro forma earnings, then its stock

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price may decrease. Companies which release pro forma earnings will thus suffer greater pressure from the stock market. However, pro forma earnings can improve the forecasting accuracy of investors, and so improve their decision-making. This study investigates whether companies with lower GAAP earnings are more inclined to disclose pro forma earnings or not.

II.   LITERATURE

Chen and Hsu (2008) stated that increasing the level of information disclosure can reduce information asymmetry. Managers can convey information to investors about their companies' performance using financial statements, financial forecasts, and the media. The main purpose of information disclosure is releasing details of the time, amount and certainty of future cash flows to investors. If the management communicates private information to investors, then this will reduce information asymmetry in the capital market.

However, the SEC has claimed that pro forma earnings are not only an important source of information to aid investor decision-making, but can also be a tool for misleading investors. Chen, DeFond and Park (2002) found that companies with lower information content are more willing to voluntarily disclose their balance sheets, supporting the earlier suggestions of Tasker (1998) and Lang and Lundholm (1993). Lougee and Marquardt (2004) proposed that if information is being disclosed to the public, then managers have a greater incentive to provide higher quality information.

This study is based on the work of Lougee and Marquardt (2004) in distinguishing the different characteristics of companies that have different level of willingness to disclose pro forma earnings. We expect that those companies who tend to disclose pro forma earnings have the less GAAP earnings content. This is stated in the following hypothesis:

H1: The companies who have the less GAAP earnings content have more willing to disclose the pro forma earnings than the other ones.

Kross (1982), Chambers and Penman (1984), and Bulkley and Herrerias (2005) indicated that when good (bad) news is disclosed then this results in positive (negative) abnormal returns on the stock market. The empirical results of Skinner (1994) and Kasznik and Lev (1995) showed that the release of bad news had a stronger influence in the stock market than good news. Gelb and Zarowin (2002) noted that more objective information disclosure could help the investors to predict the future earnings of firms. If the quality of information disclosure is greater, the earnings response coefficient is higher, as is the level of stock price informativeness. Lundholm and Myers (2002) found that information disclosure could lead future earnings to be reflected in current stock prices, and affect the expectations of investors. When the quality of information disclosure is greater, then the association between stock prices and future earnings is stronger.

Wu (1993) showed that the stock prices tend not to reflect the good news that companies release, because investors are less likely to trust this, while stock prices reflect bad news very quickly. Chiu (2011) also found that firms who voluntarily released earnings predictions had larger earnings response coefficients. This implies that voluntarily releasing earnings predictions can improve the association between future earnings and stock returns. The information content of earnings can be improved by voluntary earnings forecast disclosure, and stock prices can thus better reflect the future earnings. Moreover, managers can also affect the earnings expectations of investors by such disclosures.

Based on the literature outlined above, investors attitudes to the financial content of financial forecasts will be reflected in stock prices. This is stated in the following hypothesis:

H2: The disclosure of pro forma earnings will enhance the association between future earnings and current stock returns.

III.   METHODOLOGY

Model

This work investigates whether companies who have the less GAAP earnings content are more willing to disclose pro forma earnings than others, and thus we develop the empirical regression model (1) to test H1 based on Lougee and Marquardt (2004),

$$\Pr(PF) = \alpha_0 + \alpha_1 LNASSET + \alpha_2 INTANGIBLEI + \alpha_3 MB + \alpha_4 SALESGR + \alpha_5 SPECIALI + \alpha_6 NEGSUR$$

$$+ \alpha_7 LEVERAGE + \alpha_8 PROFIT + \alpha_9 LBORI + \alpha_{10} StdROA + \alpha_{11} StdROE + \varepsilon$$

Where,

Pr(PF): A dummy variable that takes on the value of one or zero. One means the company discloses pro forma earnings, while zero means it does not.

LNASSET: The average natural log of total assets over the previous five years to measure the firm's scale.

INTANGIBLEI: The intangible assets divided by total assets at the end of year to measure the intangible intensity.

MB: The market value to book value to measure the firm's growth.

SALESGR: The sales growth ratio to measure the firm's growth.

SPECIALI: The special items divided by total assets at the end of year to measure the special items.

NEGSUR: A dummy variable that takes the value of one or zero. One means that the focal year's earnings are lower than the previous year's, and zero means the opposite.

LEVERAGE: The average leverage ratio (total debts to total assets) over the previous five years to measure a firm's leverage.

PROFIT: The average return on equity (pretax earnings to total equity) over the previous five years to measure a firm's profitability.

LBORI: The average of total fixed assets to net sales revenue over the previous five years to measure a firm's labor-intensity.

StdROA: The standard deviation of return on total assets over the previous eight quarters to measure a firm's earnings volatility.

StdROE: The standard deviation of return on total equity over the previous five years to measure a firm's earnings volatility.

Firm Scale (LNASSET)

Gaber (1985) applied agency theory to explain the motivation of managers to voluntarily provide profit forecasts. He indicated that bigger companies face a greater agency cost, and thus the managers of these are more likely to voluntarily provide profit forecasts to address this issue. Similarly, Atiase (1985) hypothesized that the amount of predisclosure (i.e., non-accounting) information increases along with the capitalized value of the firm. As such, the amount of "unexpected" information conveyed to the market by actual earnings reports should be inversely related to firm capitalization, other things being equal. He found a much greater price adjustment to the quarterly earnings announcements of small vs. large firms. The findings of this earlier work strongly support the hypothesis that the sensitivity of unexpected stock price changes in response to earnings reports is inversely related to the capitalized value of firms. There is also a greater flow of non-accounting information for large vs. small firms between the releases of accounting reports.

Firm scale is one of the factors that impact pro forma earnings disclosure, but we do not predict the direction of this variable. We use the average natural log of total assets over the previous five years to measure firm scale.

Intangible Intensity (INTANGIBLEI)

Francis and Schipper (1999), Lev and Zarowin (1999), and Collins, Maydew, and Weiss (1997) claimed that the present principle fails to reflect enterprises' true value and performance, mainly due to the mismatching of costs with revenues in the accounting of intangibles. They noted the adverse informational consequences of the accounting treatment of intangibles. We thus expect that firms with high intangibles tend to disclose pro forma earnings. We take the intangible assets divided by total assets at the end of year to measure the intangible intensity.

Market-to-Book, Sales Growth (MB, SALESGR)

Myers (1977) stated that finance theory considers the financial ratios based on market values to be much more relevant than other measures. This does not mean that book values are more accurate than stock market values, but simply that they refer to assets whose value has already been determined. However, a significant part of many firms' market values is accounted for by the present value of future growth opportunities of assets, which has not been determined yet. He showed that the financial information content of "supported by" growth opportunities would be lower, all other things being equal. Lev and Zarowin (1999) agreed with Myers (1977), who claimed that the increasing speed of changes in business and the deficient accounting treatment of such changes, have contributed to a decline in the usefulness of financial information. Business changes are primarily driven by increased competition and innovation. In the context of the current study, change-drivers, such as deregulation, competition, and innovation, adversely affect the matching of costs with revenues, leading to a decrease in the value relevance of financial information.

Therefore, we expect that firms with high growth are more likely to disclose pro forma earnings than other companies. Tasker (1998) applied two methods to estimate firm growth. One is current period sales growth di-

vided by that of the previous period, the other is market value divided by book value at the end of a period. We apply the method presented in Tasker (1998), and take the sales growth ratio and market value to book value to measure the firm growth.

Special Items (SPECIALI)

Elliott and Hanna (1996) confirmed that reports of large, one-time items have increased over time, as have those of large negative write-offs. They showed that those companies more likely to record such write-offs were those that previously reported a similar write-off. They thus demonstrated that analysts' skepticism about "recurring nonrecurring items" in quarterly and annual reports was justified. Their results pointed to a potential decline in usefulness of periodically reported bottom-line net income in the valuation of companies. Bradshaw and Sloan (2002) investigated two alternative definitions of accounting earnings: earnings computed under GAAP (Generally Accepted Accounting Principles) and a modified Street version of accounting earnings that excluded various items recorded under GAAP. They documented a marked increase in the exclusion of significant expenses from the earnings reported by analyst tracking services, and a corresponding increase in firms specially identifying large portions of their expenses as nonrecurring. This change in the reporting environment has resulted in a growing disparity between earnings under GAAP and earnings under the Street system. They also showed that investors have shown an increasing preference for the modified version of earnings reported by analyst tracking services, as opposed to earnings dictated by GAAP.

Therefore, we expect that firms with large special items tend to disclose pro forma earnings. We take the special items divided by total assets at the end of year to measure the special items.

Negative Earnings Surprises (NEGSURP)

Hayn (1995) found that firms reported negative earnings (losses) in around 19.6% of firm years. Lougee and Marquardt (2004) also found that companies that voluntarily disclosed pro forma earnings reported negative earnings in around 51.4% of firm years. Therefore, we expect that firms with great negative earnings surprises tend to disclose pro forma earnings. We use a dummy variable which takes the value of one or zero. One means the firm has earnings in the focal year that are less than the previous year, and zero means otherwise.

Leverage (LEVERAGE)

A multivariate model to predict the release of earnings forecasts by managers has been developed based on factors that are hypothesized to affect the demand and supply for such forecasts. Kross, Lewellen, and Ro (1994) tested the model using a comprehensive sample of earnings forecasts, and found support for their hypotheses about the influence of the various factors. More specifically, larger firm size, greater leverage, higher and more stable earnings rates and less rapid growth rates have been associated with an increased propensity for management to provide earnings forecasts for their firms.

Therefore, we expect that firms with greater leverage are more likely to disclose pro forma earnings. We take the average of total debts divided by total assets over the previous five-year period to measure leverage.

Profitability (PROFIT)

Recent research on announcement timing (Givoly and Palmon, 1982; Patell and Wolfson, 1982; Kross, 1981; and Whittred, 1980) provides evidence that delayed announcements of annual earnings more often convey bad news (i.e., lower than expected earnings) than early announcements. Givoly and Palmon (1982), Kross (1982), and Chambers and Penman(1984) indicated that early (late) announcements are associated with higher (lower) abnormal returns or higher (lower) stock returns variability, rather than late (early) announcements.

Therefore, we expect that the firms with higher profitability tend to disclose pro forma earnings. We take the average of pretax earnings divided by total equity over the previous five-year period to measure the profitability.

Labor Intensity (LBORI)

Trueman (1986) suggested that the earnings forecasts of managers provide a public signal regarding managers' ability to anticipate future changes in the firm's business environment and to adjust the firm's operations accordingly. He indicated that the managers of more labor-intense firms released lower earnings forecasts than expected earnings, because they adjusted to new environments more easily.

Therefore, we expect that firms with greater labor-intensity tend to disclose pro forma earnings. We take the average of fixed assets divided by net sales revenue over the previous five-year period to measure labor-intensity.

Earnings Volatility (StdROA, StdROE)

Investors may perceive that companies with greater earnings volatility provide less and lower quality information to the market. For those companies with high earnings volatility, it is thus essential to disclose additional information about earnings to investors. DeFond and Hung (2003) investigated the growing trend for analysts' operating cash flow forecasts. They found that analysts tend to forecast cash flows for firms with accounting, operating and financing characteristics, and suggested that cash flows were likely useful in interpreting earnings and assessing firm viability than other factors. They also found that analysts tend to forecast cash flows for firms with (1) large accruals, (2) more heterogeneous accounting choices compared to their industry peers, (3) high earnings volatility, (4) high capital intensity, and (5) poor financial health. Their findings were consistent with the idea that financial analysts respond to market-based incentives to provide market participants with value-relevant information.

Therefore, we expect that firms with high earnings volatility tend to disclose pro forma earnings. We take the standard deviation of return on total equity over the previous five-year period and the standard deviation of return on total assets over the previous eight-quarter period to measure earnings volatility.

Lundholm and Myers (2002) applied the future earnings response coefficient (FERC) empirical model to investigate the information content of earnings predictions. FERC represents the relation between current stock returns and future earnings, and is widely used as a measure of the informativeness of stock prices in the literature. The current stock returns include unexpected current earnings, changes in expectations of future earnings, and residuals.

$$\mathrm{Re}\,turn_t = b_0 + b_1 EPS_{t-1} + b_2 EPS_t + b_3 EPS3_t + b_4 R3_t + \varepsilon_t$$

Where,

$\mathrm{Re}\,turn_t$ = Annual stock returns in year t.

EPS_{t-1} = Earnings per share in year t-1 divided by stock price at the beginning of year t.

EPS_t = Earnings per share in year t divided by stock price at the beginning of year t.

$EPS3_t$ = The sum of earnings per share in year t+1 divided by stock price at the beginning of year t, earnings per share in year t+2 divided by stock price at the beginning of year t, and earnings per share in year t+3 divided by stock price at the beginning of year t.

$R3_t$ = The sum of stock returns from year t+1 to t+3.

ε_t = Residuals.

According to Collins et al. (1994) and Lundholm and Myers (2002), the future earnings in year t+4 have less impact in the FERC empirical model. As such, we only choose future earnings (X3t) and future stock returns (R3t) up to year t+3.

We apply the FERC empirical model of Lundholm and Myers (2002) to investigate the information content of pro forma earnings. Collins et al. (1994) indicated that the expected earnings growth rate is not significantly related to current stock returns, and they included earnings to price ratio (EP), total assets growth rate (AG), firms scale (LNP) as control variables to correct for this. Therefore, we develop the empirical regression model (2) to test H2 based on the Lundholm and Myers (2002) and Collins et al. (1994),

$$\mathrm{Re}\,turn_t = \alpha_0 + \alpha_1 EPS_{t-1} + \alpha_2 EPS_t + \alpha_3 EPS3_t + \alpha_4 R3_t + \alpha_5 EP_{t-1} + \alpha_6 AG_t + \alpha_7 LNP_t$$
$$+ \alpha_8 \Pr(PF) + \alpha_9 \Pr(PF) \times EPS_{t-1} + \alpha_{10} \Pr(PF) \times EPS_t + \alpha_{11} \Pr(PF) \times EPS3_t$$
$$+ \alpha_{12} \Pr(PF) \times R3_t + \varepsilon_t$$

Where,

$\mathrm{Re}\,turn_t$ = Stock returns in year t.

EPS_{t-1} = Earnings per share (EPS) in year t-1 divided by the stock prices at the beginning of year t.

EPS_t = Earnings per share (EPS) in year t divided by the stock prices at the beginning of year t.

$EPS3_t$ = The sum of earnings per share (EPS) in year t+1 divided by the stock prices at the beginning of

year t, earnings per share (EPS) in year t+2 divided by the stock prices at the beginning of year t, and earnings per share (EPS) in year t+3 divided by the stock prices at the beginning of year t.

$R3_t$ = The sum of stock returns from year t+1 to t+3.

EP_{t-1} = The earnings to stock prices ratio in year t-1.

AG_t = The total assets growth rate in year t.

LNP_t = The natural log of total market value in year t.

$\Pr(PF)$ = A dummy variable that takes on the value of one or zero. One indicates the company discloses pro forma earnings, and zero otherwise.

Data Resources and Sampling

The sampling period in this study is five years, from 2008 to 2012, and the data comes from the Taiwan Economic Journal. The returns, stock prices and earnings in this study are all for three consecutive years. Therefore, the data for the returns, stock prices and earnings are from the years 2012 to 2015. The data was collected based on the following principles:

(1) Publicly traded companies: Publicly traded companies are required by the SEC to submit financial statements. The data is thus readily available and more reliable.
(2) Non-financial companies: The operating and financial structures of financial and non-financial companies are different, and thus this study does not consider financial companies.
(3) Any companies with missing data are removed from the sample.

IV. RESEARCH FINDINGS

Sample Statistics

The sample includes 3,287 firm-years, and Table 1 shows the descriptive statistics for each variable. The proxies of the companies' growth, MB and SALESGR, have the minimums of 0.1538 and -49.9713 and the maximums 63.7075 and 49.9427, respectively. There is a thus huge spread between the highest and lowest values. MB and SALESGR have the means of 1.4934 and 5.1637 and the medians of 1.0965 and 5.3512. Because the mean and median of MB and SALESGR are similar, the data is not skewed, and there is an almost symmetrical distribution. The proxies of earnings variability, StdROA and StdROE, have the minimums of 0.1463 and 0.0027 and the maximums 21.0498 and 3.4734, respectively, and thus a very large spread between the highest and lowest values. However, the mean of StdROA is 3.5057 and the median is 2.9765, with the distribution of earnings variability being weakly right-skewed. The proxies of the stock returns, RETURN and R3t, have the minimums of -87.2084 and -156.5391 and the maximums 2881.0573 and 2796.0395, respectively. There is an extremely large spread between the highest and lowest values. The means of RETURN and R3t are 3.5238 and 74.3257, and the medians are -4.4975 and 57.0998. The means of both variables are thus greater than the medians, and the distribution of stock returns is right-skewed. Because the standard deviations of RETURN and R3t are greater, this implies the stock returns of the sample firms are significantly different. The minimum and maximum of the total assets growth rate (AG) are -46.05 and 341.04, respectively, and there is a huge spread between these values. However, the mean and median of AG are 5.6097 and 3.69, respectively, and thus the distribution of the total assets growth rate is weakly right-skewed, although skewness is not serious problem in the data.

TABLE 1:
The Descriptive Statistics of the Variables (N=3287)

	Min.	Max.	Med.	Mean	Std.
Pr(PF)	0.0000	1.0000	0.0000	0.3412	0.4822
LNASSET	12.1378	20.2899	15.0000	15.1565	1.2287
INTANGIBLEI	0.0000	0.1993	0.0003	0.0039	0.0129
MB	0.1538	63.7075	1.0965	1.4934	1.7193
SALESGR	-49.9713	49.9427	5.3512	5.1637	18.6884
SPECIALI	-0.0395	0.0262	0.0000	0.00001	0.0009

NEGSUR	0.0000	1.0000	1.0000	0.5523	0.4961
LEVERAGE	0.1658	0.8691	0.3891	0.3959	0.1363
PROFIT	-0.4938	0.6341	0.0951	0.0887	0.1468
LBORI	0.0102	0.9999	0.2302	0.2789	0.2334
StdROA	0.1463	21.0498	2.9765	3.5057	2.3815
StdROE	0.0027	3.4734	0.0657	0.0948	0.1356
RETURN	-87.2084	2881.0573	-4.4975	3.5238	73.9834
EPSt-1	-1.5098	1.6531	0.1035	0.1109	0.1829
EPSt	-2.0698	1.3012	0.0968	0.0698	0.1728
EPS3t	-3.8597	2.9923	0.2949	0.3009	0.4689
R3t	-156.5391	2796.0395	57.0998	74.3257	123.7340
EPt-1	-0.7749	0.6951	0.1142	0.1052	0.1403
AGt	-46.0500	341.0400	3.6900	5.6097	17.9497
LNPt	4.4813	14.0498	7.7421	7.8679	1.4098

Note: Pr(PF): The dummy variable takes on the value of one or zero. One means the company discloses pro forma earnings, and zero means otherwise. LNASSET: The average natural log of total assets over the previous five-year period. INTANGIBLEI: The intangible assets divided by total assets at the end of year. MB: The stock prices per share divided by common stock per share. SALESGR: The sales revenue growth ratio. SPECIALI: The special items divided by total assets at the end of year. NEGSUR: A dummy variable that takes on the value of one or zero. One means the earnings in the focal year are less than in the previous year, and zero means otherwise. LEVERAGE: The average leverage ratio (total liability to total assets) over the previous five years. PROFIT: The average return on equity (earnings before tax to total equity) over the previous five years. LBORI: Labor intensity, the average of total fixed assets to net sales over the previous five years. StdROA: The standard deviation of return on total assets over the previous eight quarters. StdROE: The standard deviation of return on equity over the previous five years. RETURN: Annual stock returns in year t. EPSt-1: Earnings per share (EPS) in year t-1 divided by the stock prices at the beginning of year t. EPSt: Earnings per share (EPS) in year t divided by the stock prices at the beginning of year t. EPS3t: The sum of earnings per share (EPS) in year t+1 divided by the stock prices at the beginning of year t, earnings per share (EPS) in year t+2 divided by the stock prices at the beginning of year t, and earnings per share (EPS) in year t+3 divided by the stock prices at the beginning of year t. R3t: The sum of stock returns from year t+1 to t+3. EPt-1: The earnings to stock prices ratio in year t-1. AGt: The total assets growth rate in year t. LNPt: The natural log of total market value in year t.

Correlation Coefficients

We apply the Pearson and Spearman correlation coefficients to determine the degree of correlation between the variables. The top right of Table 2 shows the Spearman correlation coefficients, while the bottom left shows the Pearson correlation coefficients. The correlation coefficient between each variable is less than 0.7, and thus it seems there is no serious problem with multicollinearity in the data. The top right of Table 3 shows the Spearman correlation coefficients, and the bottom left shows the Pearson correlation coefficients. The correlation coefficient between each variable is less than 0.7, and thus again there seems to be no serious problem with multicollinearity in the data.

TABLE 2:
Pearson's and Spearman's Correlation Coefficient (Regression One)

$$\Pr(PF) = \alpha_0 + \alpha_1 LNASSET + \alpha_2 INTANGIBLEI + \alpha_3 MB + \alpha_4 SALESGR + \alpha_5 SPECIALI + \alpha_6 NEGSUR + \alpha_7 LEVERAGE + \alpha_8 PROFIT + \alpha_9 LBORI + \alpha_{10} StdROA + \alpha_{11} StdROE + \varepsilon$$

	Pr(PF)	LNASSET	INTANGIBLEI	MB	SALESGR	SPECIALI	NEGSUR	LEVERAGE	PROFIT	LBORI	StdROA	StdROE
Pr(PF)	1	-0.024	-0.025	-0.128(**)	0.133(**)	0.046	-0.037(*)	0.097(**)	0.013	0.072(**)	-0.107(**)	0.008
LNASSET	-0.023	1	0.068(**)	0.114(**)	0.096(**)	-0.003	-0.022	0.125(**)	0.127(**)	0.062(**)	-0.064(**)	-0.108(**)
INTANGIBLEI	-0.035(*)	0.011	1	0.018	0.041(*)	-0.008	0.009	-0.035(*)	0.000	0.135(*)	-0.074(**)	-0.156(**)
MB	-0.096(**)	0.098(**)	0.024	1	0.193(**)	-0.003	-0.143(**)	-0.156(**)	0.545(**)	-0.116(**)	0.425(**)	0.037(*)
SALESGR	0.127(**)	0.099(**)	-0.028	0.114(**)	1	0.008	-0.338(**)	0.072(**)	0.357(**)	-0.055(**)	-0.018	-0.068(**)
SPECIALI	0.031	-0.021	-0.002	0.003	0.018	1	-0.025	0.017	-0.018	-0.013	-0.024	0.015
NEGSUR	-0.037(*)	-0.018	0.023	-0.082(**)	-0.328(**)	-0.022	1	-0.011	-0.258(**)	-0.002	0.078(**)	-0.014
LEVERAGE	0.093(**)	0.102(**)	-0.041(*)	-0.072(**)	0.075(**)	0.002	-0.011	1	-0.168(**)	-0.066(**)	-0.228(**)	0.178(**)
PROFIT	0.003	0.147(**)	-0.018	0.333(**)	0.361(**)	-0.008	-0.263(**)	-0.216(**)	1	-0.215(**)	0.381(**)	-0.122(**)
LBORI	0.059(**)	0.078(**)	0.036(*)	-0.085(**)	-0.075(**)	-0.023	0.004	-0.028	-0.195(**)	1	-0.189(**)	-0.082(**)
StdROA	-0.109(**)	-0.072(**)	0.013	0.313(**)	-0.044(*)	0.009	0.049(**)	-0.196(**)	0.251(**)	-0.162(**)	1	0.375(**)
StdROE	-0.032	-0.118(**)	-0.024	0.041(*)	-0.108(**)	0.012	-0.055(**)	0.151(**)	-0.125(**)	-0.065(**)	0.412(**)	1

Note: a. The definitions of the variables are the same as in Table 1.

   b. *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

TABLE 3
Pearson's and Spearman's Correlation Coefficient (Regression Two)

$$\mathrm{Re}\,turn_t = \alpha_0 + \alpha_1 EPS_{t-1} + \alpha_2 EPS_t + \alpha_3 EPS3_t + \alpha_4 R3_t + \alpha_5 EP_{t-1} + \alpha_6 AG_t + \alpha_7 LNP_t$$
$$+ \alpha_8 \Pr(PF) + \alpha_9 \Pr(PF) \times EPS_{t-1} + \alpha_{10} \Pr(PF) \times EPS_t + \alpha_{11} \Pr(PF) \times EPS3_t$$
$$+ \alpha_{12} \Pr(PF) \times R3_t + \varepsilon_t$$

	RETURNt	EPSt-1	EPSt	EPS3t	R3t	EPt-1	AGt	LNPt	Pr(PF)
RETURNt	1	-0.261(**)	0.189(**)	-0.055(**)	0.171(**)	0.063(**)	0.360(**)	0.272(**)	0.081(**)
EPSt-1	-0.153(**)	1	0.375(**)	0.423(**)	-0.172(**)	0.689(**)	0.051(**)	0.011	0.016
EPSt	0.151(**)	0.231(**)	1	0.695(**)	0.241(**)	0.578(**)	0.423(**)	0.284(**)	0.099(**)
EPS3t	-0.022	0.314(**)	0.542(**)	1	0.362(**)	0.564(**)	0.197(**)	0.233(**)	0.113(**)
R3t	0.388(**)	-0.142(**)	0.107(**)	0.252(**)	1	0.114(**)	0.201(**)	0.136(**)	0.032
EPt-1	-0.043(*)	0.675(**)	0.395(**)	0.399(**)	-0.059(**)	1	0.295(**)	0.272(**)	-0.025
AGt	0.255(**)	0.015	0.353(**)	0.129(**)	0.144(**)	0.201(**)	1	0.287(**)	0.032
LNPt	0.167(**)	0.021	0.289(**)	0.216(**)	0.072(**)	0.251(**)	0.212(**)	1	-0.036(*)
Pr(PF)	0.024	-0.024	0.072(**)	0.116(**)	0.012	-0.017	0.019	-0.035(*)	1

Note: a. The definitions of the variables are the same as in Table 1.
  b. *. Correlation is significant at the 0.05 level (2-tailed). **. Correlation is significant at the 0.01 level (2-tailed).

Empirical Results

Table 4 shows the empirical results of our logistic regression, and the dependent variable is Pr(PF), which is a dummy variable that takes on the value of one for companies that disclose the pro forma earnings, and zero otherwise. The estimated coefficient of firm scale (LNASSET) is -0.084, and there is a negative relation between LNASSET and Pr(PF), which is significant at the 0.05 level. This means that firms with low total assets tend to disclose pro forma earnings, consistent with Atiase (1985). It is more difficult for investors to gain information about small-scale firms, and this prompts the managers of such firms to disclose earnings information voluntarily. The results provide evidence that the amount of voluntary information disclosure conveyed to the market by pro forma earnings should be inversely related to firm capitalization. The estimated coefficient of Intangible Intensity (INTANGIBLEI) is -4.921, and there is a negative relation between INTANGIBLEI and Pr(PF), which is not significant. The estimated coefficient of market value to book value (MB) is -0.228, and there is a negative relation between MB and Pr(PF), which is significant at the 0.01 level. This is not consistent with our expectations, and means that the firms with low growth tend to disclose pro forma earnings, consistent with Debreceny, Gray, and Rahman (2002). Firms with high growth mush consider whether to voluntarily disclose information beyond that required by regulators, and one concern with doing so is the potential loss of competitive advantage. The estimated coefficient of sales growth (SALESGR) is 0.021, and there is a positive relation between SALESGR and Pr(PF), which is significant at the 0.01 level. This provides evidence that the amount of voluntary information disclosure conveyed to the market by pro forma earnings should be positively related to sales growth, which is consistent with H1. Those firms with less GAAP earnings information content tend to disclose pro forma earnings. The estimated coefficient of special items (SPECIALI) is 119.147, and there is a positive relation between SPECIALI and Pr(PF), which is significant at the 0.1 level. This provides evidence that the amount of voluntary information disclosure conveyed to the market by pro forma earnings should be positively related to nonrecurring items, consistent with H1. Firms with less GAAP earnings information content tend to disclose pro forma earnings. The estimated coefficient of negative earnings growth (NEGSUR) is 0.052, and there is a positive relation between NEGSUR and Pr(PF), which is not significant. The estimated coefficient of leverage (LEVERAGE) is 1.123, and there is a positive relation between LEVERAGE and Pr(PF), which is significant at the 0.01 level. This provides evidence that the amount of voluntary information disclosure conveyed to the market by pro forma earnings should be positively related to firm capital structure, which is consistent with Kross, Lewellen, and Ro (1994). Firms with greater leverage are found to be associated with an increased propensity for management to provide earnings forecasts for their firms to reduce information asymmetry with creditors. The estimated coefficient of profitability (PROFIT) is 0.878, and there is a positive relation between PROFIT and Pr(PF), which is significant at the 0.01 level. This provides evidence that the amount of voluntary information disclosure conveyed to the market by pro forma earnings should be positively related to firm profitability. The estimated coefficient of labor intensity (LBORI) is 0.603, and there is a positive

relation between LBORI and Pr(PF), which is significant at the 0.01 level. This provides evidence that the amount of voluntary information disclosure conveyed to the market by pro forma earnings should be positively related to labor intensity, which is consistent with Trueman (1986). The managers of more labor-intensive firms are more willing to release earnings forecasts because these can more easily adjust to new environments, and by reducing information asymmetry they can avoid being undervalued. The estimated coefficient of earnings volatility (StdROA) is -0.053, and there is a negative relation between StdROA and Pr(PF), which is significant at the 0.05 level. This is not consistent with our expectations. The estimated coefficient of earnings volatility (StdROE) is -0.068, and there is a negative relation between StdROE and Pr(PF), which is not significant, and this is also not consistent with our expectations. Liu and Chen (1998) discovered that earnings volatility was not significantly related to management earnings forecast disclosure. This implies that earnings volatility is not an important factor with regard to such disclosure.

Table 4 shows that the Cox & Snell and Nagelkerke R square values in the logistic regression are 0.051 and 0.072, which indicates extremely low explanatory power. Liu and Chen (1998) investigated the factors that affect voluntary earnings forecast disclosure among the listed firms in Taiwan, and the R square was 0.093 in their OLS model. Lee and Chou (2002) investigated the association between managers' reputation and voluntary earnings disclosure informativeness, and their R square values were 0.11, 0.077, 0.24, and 0.094. Lin and Tseng (2007) discussed the relationship between financial transparency and the informativeness of accounting earnings, and the R square in their abnormal returns-earnings regression is 0.024. Liu, Huang, and Lin (2009) investigated the relationships among innovation characteristics, financial forecast and earnings management, and the R square values in their empirical model were 0.10 and 0.04. This implies that the explanatory power of earnings and forecast disclosure research is very low in the prior literature examining Taiwan.

TABLE 4
Logistic Regression (Regression One)

$$Pr(PF) = \alpha_0 + \alpha_1 LNASSET + \alpha_2 INTANGIBLEI + \alpha_3 MB + \alpha_4 SALESGR + \alpha_5 SPECIALI + \alpha_6 NEGSUR + \alpha_7 LEVERAGE + \alpha_8 PROFIT + \alpha_9 LBORI + \alpha_{10} StdROA + \alpha_{11} StdROE + \varepsilon$$

	Expected Sign	Coefficient	Significant	Exp(B)
LNASSET	?	-0.084	0.014**	0.918
INTANGIBLEI	+	-4.921	0.147	0.007
MB	+	-0.228	0.000***	0.769
SALESGR	+	0.021	0.000***	1.021
SPECIALI	+	119.147	0.078*	4.648
NEGSUR	+	0.052	0.543	1.052
LEVERAGE	+	1.123	0.000***	3.341
PROFIT	+	0.878	0.005***	2.474
LBORI	+	0.603	0.000***	1.848
StdROA	+	-0.053	0.023**	0.953
StdROE	+	-0.068	0.861	0.924
Constant		0.274	0.581	1.318

Cox & Snell R^2 = 0.051
Nagelkerke R^2 = 0.072

Notes: a. The definitions of the variables are the same as in Table 1.
b. *(**, ***) is significant at the 0.10 (0.05, 0.01) level two-tailed.

We apply the empirical model of Lundholm and Myers (2002) to run the OLS regression, and the results are shown in Table 5. The future earnings response coefficient (EPS3t) is -0.241, significant at the 0.01 level. This provides evidence that the amount of future earnings forecasts information conveyed to the market should be inversely related to current stock returns.

TABLE 5
FERC Regression

$$\mathrm{Re}\,turn_t = b_0 + b_1 EPS_{t-1} + b_2 EPS_t + b_3 EPS3_t + b_4 R3_t + \varepsilon_t$$

Variables	Coefficient	T-Stat	P-Value
Constant		-4.623	0.000***
EPSt-1	-0.088	-4.967	0.000***
EPSt	0.249	13.745	0.000***
EPS3t	-0.241	-12.037	0.000***
R3t	0.418	24.876	0.000***

Adjusted R-Square = 0.224

Notes: a. The definitions of the variables are the same as in Table 1.
b. *(**, ***) is significant at the 0.10 (0.05, 0.01) level two-tailed.

We further include the proxy of pro forma earnings in the FERC regression to test the information content of these, and the results are shown in Table 6. The interaction item coefficient of future earnings response and pro forma earnings (Pr(PF)*EPS3t) is 0.079, which is significant at the 0.01 level. This provides evidence that the amount of future earnings forecasts information conveyed by the pro forma earnings to the market should be positively related to current stock returns, which is consistent with H2. The disclosure of pro forma earnings will enhance the association between future earnings and current stock returns.

TABLE 6
FERC Regression (Regression Two)

$$\mathrm{Re}\,turn_t = \alpha_0 + \alpha_1 EPS_{t-1} + \alpha_2 EPS_t + \alpha_3 EPS3_t + \alpha_4 R3_t + \alpha_5 EP_{t-1} + \alpha_6 AG_t + \alpha_7 LNP_t$$
$$+ \alpha_8 \Pr(PF) + \alpha_9 \Pr(PF) \times EPS_{t-1} + \alpha_{10} \Pr(PF) \times EPS_t + \alpha_{11} \Pr(PF) \times EPS3_t$$
$$+ \alpha_{12} \Pr(PF) \times R3_t + \varepsilon_t$$

	Coefficient	T-Stat	P-Value
Constant		-7.953	0.000***
EPSt-1	-0.064	-2.642	0.007***
EPSt	0.131	5.649	0.000***
EPS3t	-0.262	-11.191	0.000***
R3t	0.489	24.315	0.000***
EPt-1	0.013	0.421	0.669
AGt	0.142	8.139	0.000***
LNPt	0.107	6.225	0.000***
Pr(PF)*EPSt-1	-0.058	-2.352	0.021**

Pr(PF)*EPSt	0.059	2.026	0.042**
Pr(PF)*EPS3t	0.079	2.628	0.009***
Pr(PF)*R3t	-0.172	-7.224	0.000***
Pr(PF)	0.075	3.430	0.001***

Adjusted R^2 = 0.263

Notes: a. The definitions of the variables are the same as in Table 1.
b. *(**, ***) is significant at the 0.10 (0.05, 0.01) level two-tailed.

V. CONCLUSION

In addition to financial reports, pro forma earnings are also an important form of information disclosure in capital markets. The quality of such disclosure affects the forecasts of investors and is reflected in the stock prices. To address the issue of information asymmetry, managers can convey information about future profitability to investors by pro forma earnings. To date there are no consistent empirical conclusions about the information content of pro forma earnings in Taiwan. We thus investigate the information content of pro forma earnings in Taiwan's stock market in the current work.

We choose firms listed on the Taiwanese stock market from 2008 to 2012 as our sample, and apply the returns-earnings empirical model of Lundholm and Myers (2002). Our empirical results show that voluntary pro forma earnings disclosure can enhance the association of current stock returns and future earnings. That is, voluntary pro forma earnings disclosure is helpful to enhance the earnings informativeness, and the future earnings information that this releases will be reflected in current stock prices.

VI.   IMPLICATION FOR RESEARCH

This study contributes to accounting research and other information users in the following ways. It contributes to the literature on information content by showing how pro forma earnings influence the ability of the stock market to reflect future earnings. Lougee and Marquardt (2004) indicated the GAAP earnings are less informative than pro forma earnings. Our research confirms that the future earnings forecasts information conveyed by pro forma earnings should affect investors and be reflected in current stock prices.

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