

The Most Value Relevant Accounting Performance Measure by Industry

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We extend Francis et al. (2003) and Barton et al. (2010) studies to validate the findings of Francis et al. (2003) for both U.S. companies and non-U.S. companies that follow International Financial Reporting Standards (IFRS) by using more recent data. We also expand their research by examining the most value relevant performance measure for companies in the same industries from countries across the globe. Our study of both U.S. companies and non-U.S. companies that follow IFRS finds significant association between market performance and accounting performance measures. Our findings also indicate that for our sample data the most relevant accounting measure is return on assets (ROA).

INTRODUCTION

Performance measures are used by external users for investing, financing, and benchmarking decisions. Performance measures are also used internally by managers and executives to grow, improve, reward, and learn. Performance measures need to be “value relevant” in order to be useful. An accounting number is defined as “value relevant” if it has a predictive association with equity values. As per Statement 5 of the Statements of Financial Accounting Concepts (SFAC), an accounting number is “relevant” if it is capable of making a difference to financial statement users’ decisions in valuing the firm; an accounting number is “reliable” if it represents what it claims to represent. Therefore, an accounting amount will be “value relevant” only if the amount reflects information relevant to investors in valuing the firm through its stock price and is measured in a sufficiently reliable manner. In the academic literature, as documented in Barth, Beaver, and Landsman (2001) and Holthausen and Watts (2001), value relevance is the primary quality that makes accounting information useful to investors.

Financial and Non-Financial Performance Measures

Performance measures can be characterized as financial or non-financial, depending on whether the performance is measured in monetary or non-monetary terms. Financial measures are typically based on profit and return on capital employed. Some researchers, as for example, Johnson and Kaplan (1987), Ittner et al. (2003), and Merchant and Van der Stede (2007), find that financial measures encourage short-termism or myopia on the part of management. In response to this finding, other researchers such as Ittner

and Larcker (1998), and Sliwka (2002), have recommended the introduction of non-financial measures, such as customer satisfaction, quality, and attitudes of employees. They argue that while it may be efficient in the short-term to concentrate on improving a certain financial performance measure, it may not be effective for the long-term success of an organization. Non-financial measures, such as customer satisfaction, innovation, and human resources development, help to ensure a long-term orientation. Therefore, if the managers of a company are successfully meeting their non-financial performance goals, then they are ultimately improving their financial performance goals as well. However, an opposing finding has been documented by Marginson et al. (2010). They examined the relationship between performance measurement systems and short-termism using a sample of senior managers drawn from a major telecommunications company to determine the extent to which the diagnostic and interactive uses of financial and non-financial performance measures give rise to short-termism (Performance measures can be used diagnostically to monitor performance against key performance indicators, or they can be used interactively to encourage creativity and innovation). They find no evidence to suggest that the use of financial measures, either diagnostically or interactively, leads to short-term behavior. In contrast, they find a significant correlation between the diagnostic use of non-financial measures and short-termism.

Accounting and Market Performance Measures

Some of the most popular and most commonly used accounting measures based on US Generally Accepted Accounting Principles (GAAP) are: income statement line items such as revenues, operating income, earnings before interest and tax, net income, comprehensive income, earnings per share, or ratios such as return on investment (ROI), return on equity (ROE), return on assets (ROA) and return on sales (ROS). Ratios are designed to improve the usefulness of performance indicators since absolute line item amounts from the income statement line may not be sufficient for meaningful comparison. The most common market measures of performance are: share price, stock return, price to book ratio, market to book ratio, price to earnings ratio, Tobin Q, dividend yield, price earnings growth (PEG), and the dividend payout ratio.

Accounting measures have many advantages. These measures are simple to use, easy to understand, and they are based on audited figures. They also have notable disadvantages, in that they are historical and backward-looking, are based on historical costs, can be easily manipulated by changes in accounting policies, may be difficult to compare accounting measures across the companies due to different accounting policies, may encourage short-term decisions, give inadequate consideration to "intangible" assets such as intellectual capital, can be distorted by inflation, do not take into account the cost of capital, and do not take risk into account. The advantage of using market based performance measures is that they reflect value given by share prices. However, the share price may reflect market expectation rather than true performance. Also market imperfections can lead to over or under valuation of share prices unrelated to performance.

Eritmur et al. (2003) and Jegadeesh and Livnat (2006) find that stock prices respond to earnings information contained in announcements, signifying that there is a relationship between accounting and market measures. However, the relationship between the two is not entirely clear. If the increase in earnings is assumed to be permanent, it could lead to higher stock price returns in the future for firms with "good earnings news" and lower stock price returns for firms with "bad earnings news". This leads to a positive relationship between accounting measures and market measures, as pointed out by Foster, Olsen, and Shevlin (1984) and Chan, Jegadeesh, and Lakonishok (1996). If, however, the increase (decrease) in earnings is viewed as temporary or abnormal, it could result in a wave of contrarian stock sales (purchases), leading to a short-term decline (increase) in stock prices and returns after the earnings announcement. This results in a negative relationship between accounting and market measures, as pointed out by Chan (1988) and Zarowin (1989).

The rest of this paper is organized as follows: literature review in section II, hypothesis development in section III, research method and data collection in section IV, results in section V, and conclusions in section VI.

LITERATURE REVIEW

If managers are rewarded on the basis of a single performance measure, they will focus on that one measure to the neglect of all other measures. For example, when managers are rewarded based on ROI, it is in their interest to reject a new project if the ROI of the new project is lower than the current ROI. However, this may not be in the best interest of the company as that project's ROI may be greater than the firm's cost of capital. Therefore, there has been a trend to reward executives using a combination of accounting and market performance measures. Given this trend, one might infer that there exists a strong relationship between accounting and market measures of firm financial performance. To verify this, Gentry and Shen (2010) examine the relationship between accounting profitability and market performance to determine whether accounting and market measures of performance are highly correlated so that they can be used as interchangeable indicators of performance. They use data from all the publicly traded firms in the Compustat database from 1961 to 2008. Accounting profitability was measured with four of the most extensively used measures of accounting profitability for each firm-year: return on assets (ROA), return on equity (ROE), return on sales (ROS), and return on investment (ROI). Stock market performance was measured using market-to-book value ratio (MTB) and overall market return. The results showed no evidence of convergence between the four most extensively used measures of accounting profitability and MTB, one of the most extensively used measures of market performance. Even though they find that measures of accounting profitability and market performance are positively correlated across industries, their covariance is less than 10%; therefore, they are not the same and cannot be used interchangeably. These findings imply that there is a need for both accounting and market performance measures.

Barton et al. (2010) compare the value relevance of a set of eight performance measures disclosed in the financial statements of almost 20,000 companies across 46 countries between 1996 and 2005. The eight performance measures that are studied are: sales, earnings before interest, taxes, depreciation, amortization (EBITDA), operating income, income before taxes, income before extraordinary items and discontinued operations, net income, total comprehensive income, and operating cash flows. Regressing stock returns against each of the above eight performance measures and using adjusted R^2 as a proxy for value relevance, they find no clear pattern as to the most value relevant performance measure across all countries around the world. Each of the performance measures other than sales was value relevant in at least one of the 46 countries and income before taxes was found to be the most value relevant measure in 25 countries. Note that these results were based on data from 1996 to 2005, just before the European Union directive to companies to prepare financial statements in accordance with International Financial Reporting Standards (IFRS), in an attempt to increase transparency and harmonization.

In recent years, an increasing number of investors have poured money into foreign stock markets, through pension and mutual funds. A major deterrent to this has been the lack of comparability of company financial statements across countries. It is felt that harmonization of financial reporting standards across countries in accordance with IFRS effective January 1, 2005 will lead to greater transparency in the financial markets and facilitates cross-border investment. Devalle et al. (2010) examine whether the relationship between accounting measures and market data, or value relevance, has strengthened as a result of the adoption of IFRS in Europe. The authors examine a sample of 3,721 companies listed on five European stock exchanges, Frankfurt, Madrid, Paris, Milan, and London, for the period 2002 to 2007. They examine the effects of IFRS in these five countries which are believed to be different in terms of legal systems and size of capital markets. They compare regression coefficients before and after 2005. Using the explanatory power of the regression model to be a proxy for value relevance, they find that there has been an improvement in value relevance across the entire sample. However, the effects of IFRS are mixed for individual countries: value relevance has increased due to the adoption of IFRS in France and the United Kingdom, but it has decreased in Germany, Spain, and Italy. Moreover, in a regression of share price against book value of equity per share and earnings per share, IFRS was found to have increased the value relevance of earnings for all companies in the sample, while the value relevance of book value of equity has decreased.

Francis et al. (2003) investigate the ability of earnings and non-earnings performance measures to explain the variability of stock returns at the industry level between 1990 and 2000. Based on Standard & Poor's Industry Survey, Francis et al. (2003) identify seven industries where earnings is the preferred performance metric, three industries where earnings before interest, taxes, depreciation, and amortization (EBITDA) is the preferred performance metric, three industries where cash from operations (CFO) is the preferred performance metric, and three industries where specific non-GAAP performance metrics are preferred. They find that in industries where earnings are the preferred metric, earnings dominate CFO and EBITDA. However, CFO and EBITDA do not dominate over earnings in those six industries where CFO and EBITDA are the preferred measures. Finally, they find no evidence that non-GAAP performance measures dominate earnings in industries where such non-GAAP measures are expected to dominate.

Given the importance of earnings as a measure of performance, it may be noted that there are two approaches to measuring net income. The first approach highlights the calculations of revenues and expenses in order to derive net income. The second approach stresses the valuation of assets and liabilities, and the importance of calculating the beginning and ending balance sheets in order to calculate net income. Although net income is a commonly used measure of profitability and performance, alternative measures of performance such as operating income, earnings before interest and tax, cash flow from operation, and comprehensive income are also used. Operating income is income before costs for interest and income taxes and before non-operating income such as income from investments in other companies. Even though operating income is important because it can provide insight whether a company will be solvent and whether it has enough earnings to pay interest, it measures earnings before two important expenses, interest and income taxes. Therefore, the question is whether operating income is more value relevant than net income. Operating cash flow is calculated by adding back to net income all non-cash expenses (those that are expensed but not paid for in cash) such as depreciation, and deferred income taxes. Cash flow is a good measure when forecasting how much cash the business will generate over its future lifetime, but for evaluation purposes it is questionable whether cash flow is a better measure of performance compared to net income because depreciation is a real expense and assets need to be replaced eventually.

One of the disadvantages of conventional accounting performance measures is that they disregard the effects of inflation. United States GAAP states that companies must report their financials unadjusted for inflation, also called nominal reporting. Inflationary gains and losses are created because non-monetary assets such as plant, property, and equipment are typically reflected at original cost. Konchitchki (2010) investigates the consequences of omitting inflationary gains and losses and whether the inflationary gains and losses can help predict future cash flows from operations over the next four years. He also explores whether investors are taking into account this information on inflation when they make their investing decisions. While previous research looked into the subsequent year, Konchitchki (2010) looks at the following four years and determines that these inflationary gains and losses are realized in cash flows over the four years, even during periods of low inflation. He also finds that investors, while aware of the effects of inflation, are not fully incorporating this information into their investment decision making.

In addition to earnings, comprehensive income is often viewed as an important additional performance metric. Both US GAAP and the IFRS require presentation of comprehensive income. Comprehensive income is "the change in equity of a business entity during a period from transactions and other events and circumstances from non-owners sources. It includes all changes in equity during a period except those resulting from investments by owners and distributions to owners" (Definition is taken from FASB 220-10-20). The presentation of comprehensive income is required only if the company has items that qualify as other comprehensive income such as certain foreign currency translation items, defined benefit pension plan and other postretirement plan adjustments, certain unrealized gains and losses on investment securities and derivatives, and other adjustments. Under US GAAP, comprehensive income can be presented at the bottom of the income statement, in a separate statement, or it may be included in the statement of changes in shareholders' equity. IFRS permits the first two alternatives but does not allow comprehensive income to be reported in the statement of changes in shareholders' equity. The

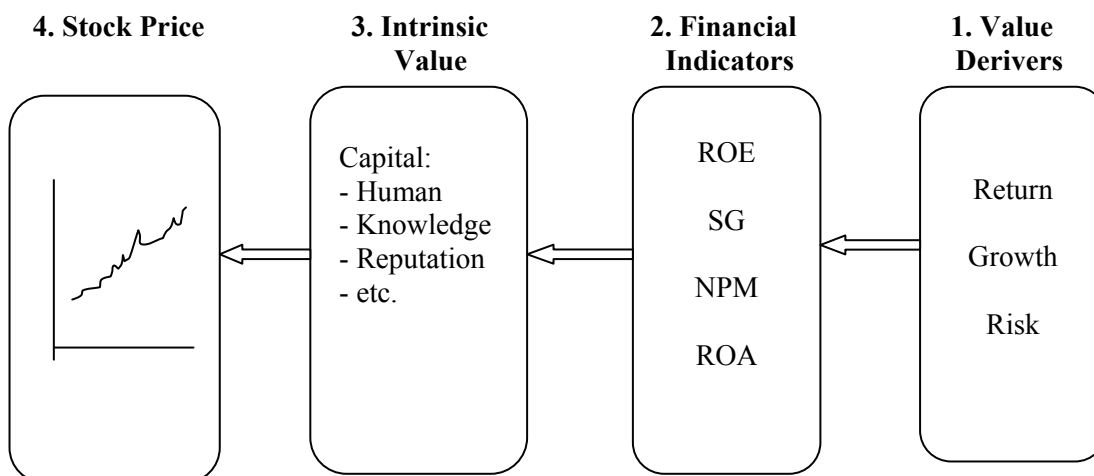
suggested choice is that comprehensive income be reported at the bottom of the income statement, as this is the most transparent. However, most companies do not follow this guideline. Bamber et al. (2010) examine why this is the case, by investigating the determinants of managers' reporting choices for comprehensive income. They find that managers with stronger equity-based incentives and less job security are significantly less likely to report comprehensive income as part of income statement.

HYPOTHESIS DEVELOPMENT

Barton et al. (2010) found that there is no discernible pattern of the most value relevant performance measures for 20,000 firms in 46 countries around the world between 1996 and 2005. However, as countries adopt IFRS effective January 2005, harmonization of financial statements across countries is more likely, and a distinguishable pattern of value relevance may become evident across countries (Approximately 90 countries have fully conformed to IFRS. Canada and Korea are expected to transition to IFRS by 2011, Mexico by 2012, and Japan by 2015 or 2016. The Securities and Exchange Commission expects the earliest date that U.S. public companies will be required to adopt IFRS is 2015; source: www.ifrs.com). At the industry level in the United States, Francis et al. (2003) have shown that earnings are the most value relevant metric, not just across the seven U.S. industries where earnings is the preferred metric, but also in nine other industries where non-earnings measures are the preferred metrics. Our research seeks to extend on these two previous studies by investigating the most value relevant performance measure in the industries identified by Francis et al. (2003) for both the U.S. companies and foreign companies that follow IFRS. Using a modified version of the Barton et al. (2010) model for a more recent time period, 2006 to 2009, we expect to confirm the Francis et al. (2003) findings that earnings is the most value relevant performance measure across the selected industries globally, not just for U.S. companies, but also for foreign companies that follow IFRS. In this manner we seek to determine whether an industry level pattern of value relevance exists between U.S. companies and global companies.

The link between accounting performance measures and market performance is depicted in Figure 1. Consistent with Copeland et al. (2000), Dowling (2006), and Zhang and Rezaee (2009), we use a four-stage valuation model, which is based on standard finance theory, to show how value drivers such as return, growth, and risk affect firm financial performance and stock price. This four-stage stock market valuation model is one of the most commonly used frameworks in accounting literature. The model shows that success (failure) of the company in achieving its goals affects accounting performance which in turn affects market performance (e.g. stock price). These four stages are explained below.

FIGURE 1
A FOUR-STAGE MODEL OF CORPORATE MARKET VALUATION



Stage 1: Corporate Value Drivers

At this stage, Black et al. (1998) and Dowling (2006) show how corporate value is created by investing to achieve a return in excess of cost of capital (Return), grows the business (Growth), and manages risk (Risk). A successful move by a company to achieve the company's goals and objectives can enhance company value drivers by: (1) securing incremental sales from current markets, e.g. Kreps and Wilson (1982); Milgrom and Roberts (1982); Shapiro (1983), (2) helping the company to expand into new markets, e.g. Bromley (2002); Williamson (1985), and (3) lowering the risk of doing business with companies, e.g. Orlitzky and Benjamin (2001).

Stage 2: Financial Indicators

Corporate value drivers (e.g., return, growth, and risk) will directly affect the accounting performance measures (e.g., return on equity, sales growth, net profit margin, and return on assets). As we show in the following paragraph, these accounting measures affect future financial indicators e.g., Schultz and de Chernatony (2002).

Stage 3: Intrinsic Values

As shown in Figure 1, the intrinsic value of a company depends on many factors, and only some of these factors which directly affect costs and revenues are traditionally reported on financial statements. In the current competitive market, companies build their stocks of different types of capital, such as the stocks of human capital (employee), organizational capital (databases, trademarks, intellectual property), customer capital (brands, customer base), and stakeholder capital (corporate credibility and corporate reputations) to differentiate themselves from competitors. According to the resource-based theory of the firm, as presented by Barney (2001), the stocks of capital can be the primary sources of a company's comparative advantage.

Step 4: From Corporate Value to Stock Price

Fama and French (1992, 1995) posit that finance literature provides two competing views on how a firm's share price is determined. One view assumes that stock markets are efficient, and any new information will be instantaneously reflected in stock price. Following this view, it is implied that any important change in a company affects stock price instantaneously. An alternative view does not consider the stock market to be efficient and argues that stock price is determined by both financial factors, such as transaction costs and taxes, and non-financial factors, such as analysts' and investors' expectations. Under this view, the market forces of supply and demand for particular stocks determine stock price, and supply and demand are driven by the expectations and behavior of investors. Thus, the change in the company's intrinsic value affects its stock price.

Therefore, based on these findings and discussed theories, we expect to observe a significant association between market performance and accounting performance for both U.S. companies and companies that follow IFRS.

H1: There is a positive association between market performance and accounting performance for both U.S. companies and companies following IFRS in the industries where earnings are identified as the preferred metric.

Additionally, we examine whether earnings is also the preferred metric for the same industries around the globe. That is if there is a significant association between earnings and return for global companies. This would indicate that on the industry level, investors look at the same measure regardless of country and that that measure is used and reflected in the stock return of the U.S. and foreign companies in that industry. It may be noted that Barton et al. (2010) did not find this consistency across countries when using data from the period 1996-2005.

H2: There is no difference between value relevance of accounting performance measures of companies operating in the United States and companies following IFRS in the industries where earnings are identified as the preferred metric.

Lastly, we examine whether any of the accounting measures is more value relevant than the other measures. That is, we examine whether any of the accounting measures used in this study exhibits more explanatory power in relation to market performance. In other words, we seek to be able to reject the following null hypothesis and accept the alternative.

H3: There will be no significant difference between value relevance of different accounting measures in the industries where earnings is identified as the preferred metric.

RESEARCH METHOD AND DATA COLLECTION

Research Methodology

We have adopted the Barton et al. (2010) model and modified it by adding four control variables namely size, capital expenditure, leverage, and liquidity. We have also added a dummy variable (IFRS) to differentiate between U.S. companies and non-U.S. companies that follow IFRS. Furthermore, we have used the Panel Data Analysis, using the Stata software, to run our models. In panel data analysis, the Stata software (or any other statistical software) takes care of multiple year observation without including dummy variables for multiple year observation.

$$RETURN_{it,g} = \gamma_{0,jg} + \gamma_{1,jg}(\text{performance Measures})_{it,g} + \gamma_{2,jg} SIZE_{it,g} + \gamma_{3,jg} CAPEX_{it,g} + \gamma_{4,jg} LVRG_{it,g} + \gamma_{5,jg} LIQUID_{it,g} + \gamma_{6,jg} IFRS + \sum_{k=7}^{11} \gamma_{k,jg} INDU + \varepsilon_{it,g}$$

Where RETURN is the firm's i 's stock return for fiscal year t , net of the average stock return for that year in the firm's industry g for each of the following six performance measures, j : return on equity (ROE), return on assets (ROA), operating income (OI), income before tax (PTI), net income (NI), and income before extraordinary items (IB). Consistent with prior research, we control for company size by adding the natural log of total assets. We also include ratio of total debt over total assets (LVRG) to control for solvency. Our other control variables are capital expenditures (CAPEX), and liquidity (LIQUID). We have also added a dummy variable (IFRS) in global sample to control for companies that adopted IFRS. This variable will take value 1 if the country has adopted IFRS; otherwise, the value of this variable is zero. Industry dummy variables are for specific industries used in this study, which respectively are: Communications equipment, semiconductors, financial diversified services, healthcare managed care, household durable goods, and investment services industry.

The most value relevant performance measure will be the model with the highest R^2 , which indicates the best fit between the measured accounting performance measure and the firm's stock return.

Data and Samples

This study consists of a sample of 302 companies with four years of observations from 2006 to 2009, resulting in a sample of 1208 company year observations from two random samples of U.S. companies and foreign companies that follow IFRS. These samples are randomly drawn from the population of active Compustat Global Vantage Database companies (\$F and \$G sets). We use the following Compustat data items: sales-net (Compustat G321), operating income (Compustat G617), pretax income, earnings before extraordinary items (Compustat G378), net income (loss) (Compustat G692), total debt, total cash (Compustat G1), capital expenditures (Compustat G676). Following the Francis et al. (2003) methodology, we select companies from industries where earnings are the preferred metric. These

industries are: equipment (SIC codes 3661 and 3663), computer hardware, networking, and software (SIC codes 3570, 3571, 3576, 7370, and 7372), financial diversified services (SIC codes 6311 and 6351), healthcare managed care (SIC codes 6324 and 6411), household durable goods (SIC codes 2510 and 2511), and semiconductors (SIC codes 3559, 3560, and 3674). From these observations, we form two samples, the first sample consists of U.S. companies, and the second sample consists of companies from foreign countries which have adopted IFRS.

RESULTS

Table 1 shows the descriptive statistics for the variables used in this study. All data are cleaned and outliers are removed. Furthermore, operating income (OI), income before tax (PTI), net income (NI), and income before extraordinary items (IB) are all normalized by dividing them by net sales revenue for the year. The normalization is done to avoid the size effect bias.

TABLE 1
DESCRIPTIVE STATISTICS FOR DEPENDENT AND INDEPENDENT VARIABLES

Variable	Obs	Mean	25 th %tile	Median	75 th %tile	Min	Max
RETURN	1208	5.115568	-36.9099	-10.4386	31.03393	-93.5484	343.3962
ROE	1206	0.6530008	-3.413	6.7695	14.28825	-341.979	293.861
ROA	1201	6.942598	2.086868	7.910441	13.64781	-59.6781	53.31707
OI/SALES	1203	1.38238	-0.934708	6.234905	13.98427	-558.333	57.97185
PTI/SALES	1203	-1.129972	-2.133635	5.510175	14.2908	-650.843	117.3081
NI/SALES	1203	5.99659	2.358252	9.168704	18.30386	-531.145	71.03022
IB/SALES	1202	0.0263715	0.0211515	0.0404409	0.1076435	-4.87805	1.148725
SIZE	1208	5.149561	3.401744	5.105709	6.7462	-1.66073	11.23048
CAPEX	1208	0.0309005	0.0089459	0.018132	0.0372029	0	0.438098
LVRG	1200	2.473033	0.0000132	0.0203018	0.1992205	0	170.627
LIQUID	1208	0.211314	0.0877646	0.1732117	0.296948	0.000168	0.940202
IFRS	1208	0.3990066	0	0	1	0	1

Table 2 shows the Pearson correlation matrix for the four control variables used in this study, namely, size (SIZE), capital expenditures (CAPEX), leverage or borrowing (LVRG), liquidity or the sum of cash and cash equivalent (LIQUID). All of these variables are normalized by dividing them by total assets to eliminate the possibility of size effect bias. To differentiate between U.S. companies, we have added a dummy variable (IFRS), which is equal to 1 if the company is following IFRS, and zero otherwise. As the

correlation matrix in Table 2 shows, there is no high correlation that can create any multicollinearity problem. The convention in accounting research is to check for the possible existence of multicollinearity when the correlation between independent variables exceeds 0.7. As Table 2 shows, the significant correlations are all far below this 0.7 threshold.

TABLE 2
PEARSON CORRELATION MATRIX FOR INDEPENDENT VARIABLES

	SIZE	CAPEX	LVRG	LIQUID	IFRS
SIZE	1				
CAPEX	0.0799***	1			
LVRG	-0.1984***	-0.0233	1		
LIQUID	-0.1658	-0.1395	-0.0613**	1	
IFRS	-0.0773***	0.0547**	0.0736**	-0.1901***	1

*, **, ***, significant at .10, .05, and .01 level, respectively.

Results of running our regression models are shown in Table 3. The dependent variable in all regression models is the stock return (market performance measure). The first column of this table shows the independent variables used in this study. The variable called “accounting measure” in this column alternates in each regression model with each of our accounting measures shown in the second to seventh column (ROE, ROA, OI/SALES, PTI/SALES, NI/SALES, IB/SALES). As this table shows, all regressions are highly significant. So are the coefficients of all accounting measures except for the coefficient of operating income, when it is used as an accounting measure. However, the coefficient of return on assets (ROA) is not only highly significant but also exhibits the highest explanatory power with an adjusted R-squared of 0.0421 for the test. This finding supports the first hypothesis of this study, indicating that there is a link between accounting performance and market performance. Our result also supports our second hypothesis, so we conclude that there is no significant difference between value relevance of accounting measures used by U.S. companies and companies following IFRS. Finally, the finding does not support the third hypothesis because the evidence shows that the return on assets (ROA) is the most relevant accounting performance measure. Lastly, there is no significant difference between industries in which the earnings is the preferred measure except for the communication equipment industry.

TABLE 3
REGRESSION RESULTS

Coefficients	Accounting Measures					
	ROE	ROA	OI/SALES	PTI/SALES	NI/SALES	IB/SALES
Return (Dependent Variable)						
Accounting Measure	0.23396*** (4.83)	0.77208*** (5.23)	0.07051 (1.5)	0.08832** (2.31)	0.121761** (2.38)	10.7874** (2.43)
Size	2.29575** (2.71)	1.88559** (2.18)	2.66549*** (3.09)	2.54729*** (2.96)	2.435068*** (2.8)	2.5083*** (2.92)
Capex	-114.923** (-2.43)	-134.948*** (-2.85)	-116.72** (2.44)	-115.976** (-2.43)	-115.981** (-2.43)	-117.006** (-2.45)
Lvrg	0.15368 (1.19)	0.11573 (0.9)	0.10926 (0.84)	0.105582 (0.81)	0.103417 (0.79)	0.104667 0.8
Liquid	9.98641	1.12080 (0.1)	12.3891 (1.08)	11.8499 (1.04)	12.27161 (1.07)	12.00769 (1.05)
IFRS	-3.19239 (0.128)	-2.83799 (-0.17)	-2.67476 (-0.24)	-2.78380 (-0.23)	-2.148826 (0.19)	-2.86623 (-0.21)
indu_1	19.20857 (1.70)	20.2288* (1.8)	22.43765** (1.97)	22.2598** (1.96)	22.68224** (1.99)	22.1952** (1.95)
indu_2	1.424197 (0.29)	1.96719 (0.4)	1.31401 (0.27)	1.42923 (0.29)	1.597121 (0.32)	1.40849 (0.29)
indu_3	1.69553 (0.38)	1.33095 (0.3)	0.84909 (0.19)	1.20201 (0.27)	1.052731 (0.23)	1.28991 (0.29)
indu_4	-10.2708 (-0.33)	-9.16296 (-0.3)	-9.60233 (-0.31)	-9.85795 (-0.32)	-9.24527 (-0.3)	-10.003 (-0.32)
indu_5	-20.7377	-20.7278 (-1.62)	-20.0863 (-1.55)	-20.1722 (-1.56)	-19.8477 (-1.53)	-20.1377 (-1.55)
cons	-6.27999	-7.0815 (-1.21)	-8.60998 (-1.45)	-7.80783 (-1.32)	-8.15233 (-1.38)	-7.39209 (-1.24)
Observations	1206	1201	1203	1203	1203	1202
Adj. R-Squared:	0.0384***	0.0421***	0.0218***	0.0243***	0.0246***	0.0246***

*, **, ***, significant at .10, .05, and .01 level, respectively.
Z-values are shown in parentheses.

CONCLUSIONS

In this study, we have examined different corporate performance measures, financial as well as non-financial, and market performance measures versus accounting performance measures. Market performance measures (e.g., stock price, stock return) focus on perceived performance by current and potential shareholders, while accounting performance measures (e.g., sales, return on equity) use accounting numbers to evaluate the entity's performance. Accounting measures use numbers that are based on historical costs, while market measures use current costs. Even though the basis of these two measures is different, studies show that there is a link between these two measures. Furthermore, we use a four stage model to justify the link between accounting performance and market performance measures. The four stage model argues that any event, favorable or unfavorable, affects the accounting measures such as return on equity, sales growth, net profit margin, and return on assets, which in turn changes the stock of the entity's human capital and knowledge as well as the reputation of the entity. The disclosure

of these accounting measures and change in human capital and reputation affects the perception of investors which is reflected in the entity's stock price.

After establishing the link between the market and accounting performance measures, we examine the following six different accounting performance measures to identify the most relevant measure in certain industries across the globe: return on equity, return on assets, operating income scaled by sales revenue, income before tax scaled by sales revenue, net income scaled by sales revenue, and income before extraordinary items scaled by sales revenue. This study is the extension of the study done by Francis et al. (2003) that identified U.S. industries in which earnings dominates as a performance measure. It may be noted that Barton et al. (2010) examined performance measures across countries and did not find a pattern of the most value relevant performance measure. Using an extension of the Barton et al. (2010) model, we validate the finding of Francis et al. for U.S. companies using most recent data. We also expand their research by examining the most value relevant performance measure for companies in the same industries from countries across the globe. Our study of both U.S. companies and companies that follow IFRS finds significant association between market performance and accounting performance measures. Our findings also indicate that for our sample data the most relevant accounting measure is return on assets (ROA).

Specifically, our findings provide support for our first two hypotheses, so we can conclude that for companies that follow U.S. GAAP and IFRS, there is positive association between market performance and accounting performance measures. Also, our findings show that there is no difference in value relevance of accounting measures between companies that follow the U.S. GAAP and those that follow the IFRS. However, our finding does not support our third hypothesis; therefore, we cannot conclude that there is no difference between value relevance of different accounting measures. In fact, we find that the return on assets is the most value relevant accounting measure. We speculate that investors value return on assets the most because this measure is the only measure, in our analyses, that includes both uses (revenues and expenses) and sources of assets.

This paper contributes to the previous research on this topic by identifying on an industry level which performance measure is the most value relevant measure for countries around the globe. While Francis et al. (2003) examined only U.S. companies between 1990 and 2000, this research examines companies both in U.S. and in other countries in an attempt to find if a pattern exists on an industry level regardless of the country of origin. It also extends on this research by examining the most recent available data (2006-2009) to reexamine the findings by Francis et al. (2003). Barton et al. (2010) examined the most value relevant performance measure around the world on a country level between the period 1996 and 2005, and this paper extends on their research by examining the most value relevant performance measure at the industry level.

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