

The Associations of Cash Flows and Earnings with Firm Performance: An International Comparison

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Abstract

This paper investigates the difference in the ability of between earnings and cash flows to measure firm performance across the two types of countries (code law countries and common law countries) exists. There are three predictions about this issue: (i) Over short measurement intervals, the ability of earnings relative to cash flows to reflect firm performance is stronger form firms in code law countries, compared to firms in common law countries. (ii) While earnings will improve more relative to cash flows for firms in code law countries over longer intervals, earnings will improve less relative to cash flows for firms in common law countries. (iii) Earnings and cash flows as correlated in stock returns varied with the level of aggregate accruals in the United States, are similarly correlated in the six countries as well. The results of empirical tests are consistent with there predictions.

Key words: Accruals, Measures of performance, Asymmetric information, Earnings management, and Legal system

EFM classification: 180; 200; 210

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1. Introduction

In American, Statement of Financial Accounting Concepts No.1, paragraph 44 states: “Information about enterprise earnings and its components measured by accrual accounting generally provides a better indication of enterprise performance than does information about current cash receipts and payments”. Under the accrual basis of accounting, earnings are the better measure of firm performance than cash flows. Dechow (1994) investigates circumstances under which accruals can improve earnings’ ability to measure firm performance. He finds that accrual plays an important role to explain the firm performance, and cash flows suffer more severely from timing and matching problems that have negative effect on explaining firm performance¹. But inclusion of special items in earnings is represented to reduce earnings’ association with firm performance over short intervals. Over longer intervals, cash flows will suffer fewer from timing and matching problems. So, the ability of earnings relative to cash flows to reflect firm performance diminishes.

If market is efficient, stock return can be proxy for firm value. Several prior studies² have investigated the relative association of cash flows and earnings with stock returns. They find that the association between stock returns and earnings is higher than that between stock returns and operating cash flows. Moreover, Gombola and Ketz (1983) show indirect evidence on the effect of current accrual adjustments on the relations between measures of cash flow and earnings. Using a factor analysis to group various financial ratios, they find that cash flow ratios are highly associated with earnings-based return ratios, when cash flow is defined by net income plus depreciation.

In other words, reported earnings in income statement is equal to cash flows from operating activities plus total accruals which can reflect business trading that do not create current cash flows, but future cash flows. Total accruals can be broken down

1 While cash outlays associated with revenues to be expensed in the period after which the firm recognizes the revenue, the matching problem is produced. While revenues are not recognized when a firm has performed all of services and cash can be received certainly, the timing problem is produced.

² Ball and Brown (1968); Beaver and Dukes (1972); Patell and Kaplan (1977); and Beaver, and Landsman (1983).

short-term and long-term components. Guenther (1994) finds that managers have more discretion on short-term accruals than on long-term accruals. Current accruals, which contain current assets and liabilities, support operating activities of the firm. Managers can manipulate current accruals by advancing recognition of revenues with credit sales, or delaying recognition of expenses with a low provision for bad debts (see Teoh, Welch, and Wong (1998a, 1998b)). From this point, cash flows' ability to reflect firm performance will be better than earnings ability. Since Ball and Brown (1968) find earnings have information content of firm value combined with accounting concept (accruals) and financial concept (cash flows), to compare the ability of earnings relative to cash flows to reflect firm performance is an important issue in Finance and Accounting.

Dechow (1994) provide that results of empirical tests in American are consistent with the prediction: the accruals play an important role to improve earnings' ability to measure firm performance. And the importance of accruals is predicted to increase (1) the shorter the measurement interval, (2) the greater the volatility of the firm's working capital requirements, and (3) the longer the firm's operating cycle. The views of Dechow (1994) adopted in this paper are that the accruals can diminish timing and matching problems and the accruals can improve earnings relative to cash flows to measure firm performance. We now understand empirical tests of earnings' and cash flows' ability to measure firm performance, but this evidence is largely based on firms in American. Without testing the robustness of these finding outside the environment, it is hard to determine whither these empirical regularities are spurious correlations, or these findings are always consistent with our theoretical prediction. Our tests assume that market return can represent firm performance, if stock market is efficient. This assumption might not be descriptively valid across the six countries, thereby reducing the power of our tests.

This paper attempts to fill this gap. Recently, a lot of studies provide evidence that the legal system of financial market has an effect on the corporate ownership and capital structure (La Porta et al. (1997, 1998, 2000)). These findings support that a country's legal system have a strong impact on the financial report. There are two types of legal law, common law vs. code law. The code law, which originated in

Roman law, is based on statutes and comprehensive codes. The rule based on the code law depends heavily on the opinions of legal scholars (Merryman (1969)). The countries, which adopt the code law, have further been classified into three common families: French-origin, German-origin, and Scandinavian-origin. On the other hand, the common law, which generated from England law, is formed by the judgment on specific disputes. The United Kingdom and old British colonies, which include The United States, Canada, Australia, India, etc., use the common law.

The legal system has influence on financial report through by accounting regulations, which represent the general requirements for measurement and disclosure of accounting information³. The legal protection rights provided to investors are earnings will improve more relative to cash flows for firms in code law countries indirectly affected by disclosures of financial information. La Porta et al. (1997) find that common law countries protect investors more than code law countries. Leuz, Nanda, and Wysocki (2003) also find and suggest an endogenous link between corporate governance and the quality of reported earnings.

In summarize, while accrual plays an important role to explain the firm performance, earnings are the better measure of firm performance than cash flows. Due to information asymmetries between managers and outsiders, managers are necessary to provide the appropriate indicator of firm's performance for a given period. The net cash flows can evaluate the firm's performance, while the success of a firm results from generating cash inflows in excess of cash outflows. In fact, during a given interval, the realized cash flows in balance sheets are not able to represent information incorporated in operating performance with accuracy, because they have timing and matching problems that cause them as being a biased indicator of firm's performance. In other words, Earnings incorporated in revenue recognition principle and matching principle can decrease timing and matching problems. Then earnings are the appropriate measure of firm performance, because they are generated through the accrual process. Furthermore, the legal system is relative to information

³ Following Healy and Wahlen (1999), they find earnings management as the alteration of firms' reported economic performance by insiders to either mislead some stakeholders or to influence outcomes.

disclosures and information asymmetries. Based on these deductions, our primary objective of this paper is to establish whether firms' performance in other countries originated in different legal system are strongly related to firms' earnings similar to those appearing to explain performance of U.S. firms.

In doing so, the use of international data provides a special opportunity for this analysis. Because of considering the different legal system and comparing with U.S. firms, we start by representing the typical accounting information in each of the six countries (The United Kingdom, Canada, Italy, Germany, Japan, and France). In addition to data availability, although the six countries are homogeneous in their level of economic development, their legal system — as classified by code law and common law — are different. According to classification developed by La Porta et al. (1997) and Leuz et al. (2003), we decomposed our sample into two groups: common law countries (The United Kingdom, and Canada) and code law countries (Italy, Germany, Japan, and France)⁴.

Accounting accruals can mitigate timing and matching problems over short measurement interval. Earnings can provide a better measurement of performance than cash flows, because of the function of accruals. Since the managers of code law countries have more discretion in reporting earnings than the managers of common law countries, the managers of code law countries engage in earning management more than the managers of common law countries. Hence, this paper followed by Dechow (1994) study provides two issues. First, this paper investigates the difference in degree of disclosure of financial information (information asymmetries) between code law countries and common law countries. At an aggregate level, that earnings are better than cash flows to explain firm performance is fairly similar across the six countries. But the difference in the ability of between earnings and cash flows to measure firm performance across the two types of countries (code law countries and common law countries) exists. Second, this paper provides evidence whether firms of code law countries have higher degree of information asymmetries than firms of common law countries based on accruals (the difference between earnings and cash

⁴ These countries are classified by legal and institutional characteristics into simple code law and common law used in prior studies (e.g. La Porta et al. (1997); Ball et al. (2000)).

flow) as an indicator of information asymmetries.

The remainder of this paper is organized as follows. Next section describes literature about this issue and develops our research hypotheses. Section 3 describes details on sample and variable measurement and provides descriptive statistics. Sections 4 provides the results of the empirical tests. Section 5 concludes.

2. Hypotheses development and literature review

2.1 Measurement of firm performance over short (annual) intervals

In the first issue, this study compares the difference of the ability of earnings relative to cash flows to reflect firm performance across the six countries. Several prior studies have investigated the relative association of cash flows and earnings with security returns. They find that the association between stock returns and earnings is higher than that between stock returns and operating cash flows. Realized cash flows can be divided two types as net cash flows and operating cash flows. Net cash flow will change with accordance in cash inflows and cash outflows generated by the firm's operating, investing, and financing activities. Net cash flows⁵, which don't include in accrual adjustments, have serious timing and matching problems⁶. In other words, operating cash flows⁷ not only reflect the net cash flows from the firm's operating activities, but also include long-term accruals, which are not recovered during one year. Compared to net cash flows, operating cash flows are able to reduce

⁵ The change in retained earnings is equal to revenues (R) subtracted by expenses (EX) and dividends (D). The change in long-term liabilities can be divided into items having effect on cash (ΔLTL_C) and items not having effect on cash (ΔLTL_{NC}). The change in long-term assets can be divided into items having effect on cash ($\Delta LTNA_C$) and items not having effect on cash ($\Delta LTNA_{NC}$). Hence, net cash flows can be represented by the following equations:

$$NCF = R - EX - (\text{Change in Working Capital}) + \Delta LTL_{NC} - \Delta LTNA_{NC} - \Delta LTNA_C + \Delta LTL_C + \text{Shareholders' equity into contributed capital} + D$$

⁶ Based on the principle of accruals, there is a time lag between booking and realizing, which produces the timing and matching problems. For example, credit sales, which don't become realized cash flows until the fiscal year end, are recognized as sales revenue in income statement in this fiscal year. Therefore, the difference of recognizing revenues in income statement and realized revenues exists.

⁷ Operating cash flows are equal to the sum of earnings and changes in long-term accounts (e.g., depreciation, gains and losses, and special items) subtracted by changes in working capital. Therefore, operating cash flows (CFO) are represented by the following equation:

$$CFO = \text{Earnings } (R - EX) - (\text{Change in Working Capital}) + (\text{Changing in long-term accounts})$$

the possibility of occurring the timing and matching problems. However, operating cash flows can't eliminate the timing and matching problems, while they exclude firms' short-term accruals such as changes in firms' working capital requirements⁸. Therefore, over the short interval, earnings, which contain net cash flows and accruals, can closely reflect firm performance. While net cash flows, which do not include any accruals, encounter timing and matching problems, it is the worst measure of firm performance among all measures. Operating cash flows, which contain long-term accruals but exclude in short-term accruals, are predicted to less reflect firm performance than earnings but to better reflect firm performance. Dechow (1994) investigates circumstances under which accruals can improve earnings' ability to measure firm performance. He deduct that there is a stronger contemporaneous association between stock returns and earnings than between stock returns and realized cash flows over short measurement intervals. He tests this hypothesis used by U.S. firms and find that these results support this hypothesis. For U.S. firms, accruals play an important role to explain the firm performance, and earnings can reflect more information about firm performance than cash flows. Based on the accrual basis of accounting, similar to Dechow analysis, earnings are more strongly associated with stock returns than operating cash flows and net cash flows over short measurement interval across the six countries. We use annual data to measure firm performance over short measurement intervals. It is the first hypothesis in this paper.

According to the previous hypothesis, there are some pitfalls. Earnings can be manipulated by managers. Accruals can be decomposed into discretionary accruals and nondiscretionary accruals. Managers can use these discretionary accruals to convey information, which is beneficial to them⁹. Under information asymmetry, this manipulation is not always observable and there is a strong positive relationship between earnings per share and stock price, especially over short measurement intervals. Aggressive management of earnings through income-increasing accounting adjustment leads investors to be overly optimistic about the firm's prospects.

⁸ Earnings-Operating cash flows= Change in Working Capital+ Long-term Operating Accruals ($\Delta LTNA_{NC} - \Delta LTL_{NC}$).

⁹ Insiders, such as managers and large stockholders, have incentives to manage reported earnings in order to mask true firm performance and to derive their benefits from outsiders (Zingales (1994); Shleifer and Vishny, (1997)).

Although earnings will be less than cash flows to measure firm performance based on principles of reliability and verifiability, earnings can manipulate stock price and reflect to stock returns over short intervals. Then, over short intervals, the association between stock returns and earnings relative to the association between stock returns and cash flows is stronger for firms with high level of earnings manipulation than for firms with low level of earnings manipulation. Leuz et al. (2003) groups countries with similar legal and institutional characteristics. They find that outsider economies with strong legal enforcement (such as U.K. and United States) have the lowest level of earnings management and outsider economies with weak legal enforcement (such as Italy and India) have the higher level of earnings management. La Porta et al. (1997) define common law countries with strong legal enforcement and code law countries with weak legal enforcement. Following Dechow (1994), La Porta et al.(1997), and Leuz et al.(2003), to the extent that earnings for firms in code law countries are less transparent relative to those for firms in common law countries, it is possible that asymmetric information problems are more severe for firms in code law. This situation exists over short measurement interval. In summary, the ability of earnings relative to cash flows to reflect firm performance is stronger form firms in code law countries, compared to firms in common law countries.

2.2 Measurement of firm performance over long intervals

Over long measurement intervals, cash flows become to be a useful measure of firm performance because of fewer timing and matching problems. So, accruals are less important over long intervals than over short intervals. Then, the difference of the ability of earnings relative to cash flows to reflect firm performance will diminishes over longer measurement intervals. Dechow suggest that the contemporaneous association of stock returns with cash flows improves relative to the contemporaneous association of stock returns with earnings as the measurement interval is increased. We predict that earnings and cash flows identified by Dechow studies as correlated in the cross-section with stock returns in the United States over longer measurement intervals, are similarly correlated in the six countries as well. Therefore, in this paper, the second hypothesis predicts that the contemporaneous relationship between stock returns and cash flows improves more than the contemporaneous relationship between stock returns and earnings across the six countries over long measurement intervals.

We use four-year data to measure firm performance over longer intervals.

There is an alternative hypothesis that the manipulation of accruals will reduce the usefulness of reported earnings to reflect firm performance over short intervals. Under this situation, earnings management will be reversed over longer intervals. Then, the ability of earnings to reflect firm performance will improve more than it of cash flows as the measurement interval is increased. Following Dechow (1994), La Porta et al. (1997), and Leuz et al. (2003), the code law country's firms have higher level of earnings management than the common law country's firms have. In fact, both the contemporaneous associations of stock returns with cash flows and of stock returns with earnings are improved over longer measurement intervals¹⁰. While earnings will improve more relative to cash flows for firms in code law countries over longer intervals, earnings will improve less relative to cash flows for firms in common law countries. Evidence of this alternative hypothesis would confirm that there is a big difference to the economic importance of accruals among the six countries.

2.3 Cross-sectional predictions based on the level of aggregate accruals

Accruals play an important role in explaining the firm performance. The accrual is most important for firms that have had large changes in their noncash accounts, which are affected by the credit policy of sales, the cash collection, the cash payment policy of suppliers, and the difference of period between cash collection and cash payment (cash cycle). If cash collection is reasonably certain and the actual timing of the cash collection is not relevant to timing of reporting financial statements, cash flows for this firm affected by timing of reporting will less reflect the firm's value. It is the key function of accruals. Due to accruals which can diminish timing and matching problems in cash flow, earnings are able to provide a relatively more useful indicator of firm performance for firms operating with the difference between earning and cash flows by the largest magnitude (the higher level of aggregate accruals). The results found by Dechow (1994) support this hypothesis about the level of aggregate accruals in United States. So, we predict that earnings and cash flows identified by Dechow studies as correlated in stock returns varied with the level of aggregate accruals in the

¹⁰ Easton, Harris, and Ohlson (1992), Warfield and Wild (1992).

United States, are similarly correlated in the six countries as well. It is the third issue in this paper.

3. Data and empirical design

3.1 Data

Our data are extracted from the Worldscope Database. Two measurement intervals are employed: annual and four-yearly. To be included in the sample, there are six countries: Italy, Germany, Japan, France, United Kingdom, and Canada. Our sample comprises all firms for which the following items can be calculated: earnings per share, cash from operations per share, or net cash flows per share. Each firm must have monthly returns available on Datastream Database and price indexes available on Worldscope Database. Banks and financial institutions are excluded from our sample. The final sample consists of 26,849 firm-year observations, and 16,305 firm-four-year observations for the fiscal years 1982 to 2001 across the six countries.

3.2 Variable definitions

All financial statement variables, which are used in this paper, are scaled by price in the fiscal year end. And all items relative to accruals are scaled by total assets in the fiscal year end. The variables are defined as follows:

EPS = earnings per share (excluding extraordinary items and discontinued operations), scaled by price at the end of the fiscal year.

CFO = net cash flows from operating activities per share, scaled by price at the end of the fiscal year.

NCF = change in the balance of the cash account based on per-share, scaled by price at the end of the fiscal year.

AA = the net change in all noncash accounts on a per share basis, scaled by price at the end of the fiscal year; [(earnings - net cash flows) / number of common share outstanding] / P_{t-1} .

OA = all operating accruals per share, scaled by price at the end of the fiscal year; [(earnings - cash flows from operating activities) / number of common share

outstanding] / P_{t-1} .

CAR_{it} = the market-adjusted abnormal return, which is defined as buy-and-hold stock return, for firm i over time interval t ; $(\ln RI_{i,t} - \ln RI_{i,t-1}) - [\ln (\text{market index})_t - \ln (\text{market index})_{t-1}]$, where t is the contemporaneous one year, or four-year period, minus the value-weighted market index over the corresponding fiscal period; market index of each country is employed as follows:

Italy: MILAN MIB 30 price index

Germany: DAX 30 price index

Japan: NIKKEI 225 price index

France: CAC 40 price index

U.K.: FTSE 100 price index

Canada: S&P/TSX price index

3.3 Descriptive statistics

In table 1, we summarize descriptive statistics by country on the variables used in the analysis. There is significant variation in the number of firm-year (one-year or four-year) observations across countries due to differences in country size and the availability of complete financial data. Across the six countries, based on median of earnings per share, all of four-year earnings are less than four times annual earnings. But an opposite pattern exists on cash flows from operations and net cash flows in code law countries. It is not consistent with Dechow study in United States,¹¹ especially for code law countries (eg. Italy, Germany, Japan, and France). Therefore, we can not observe that reinvestment of earnings creates incremental value for code law countries. Over short intervals, relative to earnings, cash flows from operations and net cash flows have more negative patterns and higher standard deviations across the six countries¹². Over all intervals, while earnings have the highest standard deviations among three indicators used to measure firm performance for common law countries, cash from operations have the highest standard deviations among three indicators for code law countries. This result is consistent with Leuz et al. study

¹¹ He finds that a similar pattern is observed for cash from operations and net cash flows, while four-year earnings are greater than four times the annual earnings.

¹² A similar pattern is observed for code law countries and common law countries. It is consistent with Dechow study in United States.

(2003). They find that firms in code law countries engage in smoothing earnings. So, firms in code law have lower standard deviation of earnings than it of cash flows. In general, firms in code law (eg. Italy, Germany, Japan, and France) have higher standard deviations of earnings and cash flows than firms in common law (eg. U.K., and Canada) have.

[Insert Table 1]

Based on matching problem, while there is a large cash outflow during this period, there is a large cash inflow during next period. Accruals are used to improve mismatching of cash collection and cash payment. Then, changes in accruals will have negative autocorrelation and is negatively related to changes in cash flows. This suggests that accruals can smooth variability in cash flows in temporary. Table 2 indicates that accruals improve mismatching problems generated from cash flows across the six countries. The findings represent that changes in aggregate accruals have negative autocorrelation for all countries except Japan. According to the relationship between accruals and changes in cash flows, the results indicate that the correlation between changes in net cash flows and accruals is -0.517 over the annual interval, 0.265 over the four-year interval, in Italy; -0.380 over the annual interval, -0.263 over the four-year interval, in Germany; -0.597 over the annual interval, -0.368 over the four-year interval, in Japan; -0.595 over the annual interval, -0.369 over the four-year interval, in France; -0.421 over the annual interval, -0.395 over the four-year interval, in U.K.; -0.416 over the annual interval, -0.384 over the four-year interval, in Canada. For all countries, accruals are negatively related to changes in net cash flows. And the correlations over short intervals are more negative than these over long intervals. This suggests that matching problems are more serious over short intervals. There is no difference between code law countries and common law countries. On the other hand, for firms in code law countries, change in earnings and changes in cash from operations have higher positive correlation over the four-year interval than over the annual interval, because accruals smooth the temporary frustrations of cash flows and smooth earnings. But for common law countries, there is an opposite trend. It is also consistent with Leuz et al. study: firms in code law countries engage in smoothing earnings more than firms in

common law countries do.

[Insert Table 2]

4. Empirical results

4.1 Measurement of firm performance over short (annual) intervals

In the first issue, this study compares the difference of the ability of earnings relative to cash flows to reflect firm performance across the six countries over short (annual) intervals. Table 3 indicates the results of tests about each measure's (earnings per share, cash from operations per share, and net cash flows per share) association with stock returns. Over the annual intervals, across the six countries, the majority of the coefficient of earnings and cash flows, based on these regressions with independent variables indicating earnings, cash from operations, and net cash flows, are significantly positive. The R^2 s are the largest among these regressions. The results are consistent with the result in United States and support the first prediction in this paper. Over short intervals, earnings are more positively related to stock returns than both cash flows indicators.

According to the alternative predictions of measurement of firm performance over short intervals, the ability of earnings relative to cash flows is stronger for firms in code law countries, compared to firms in common law countries. This prediction is tested by comparing the following ratios¹³:

$$R_{CFO}^2 / R_{EPS}^2, \quad R_{NCF}^2 / R_{EPS}^2$$

While the dependent variable indicating the cumulative abnormal returns is the same in both the earnings and cash flows regression by each country, these ratios can represent the ability of earnings relative to cash flows to explain firm performance. These ratios, which are less than one, represent that earnings can predict more of the change in stock price (stock return) than net cash flows do. Over the annual intervals, while earnings have a stronger association with stock returns than net cash flows over the annual intervals, this pattern is more significant for firms in code law countries than for firms in common law countries. According to this prediction, the ratios

¹³ Following Dechow tests.

R_{CFO}^2 / R_{EPS}^2 or R_{NCF}^2 / R_{EPS}^2 of firms in code law countries are larger than these of firms in common law countries. Table 3 indicates that ratios of R_{CFO}^2 / R_{EPS}^2 are less than 0.1 (10%) for all of code law countries except Italy¹⁴, and greater than 0.2 (20%) for all of common law countries (eg. U.K., and Canada¹⁵). Overall, as compared with firms in common law countries, there is the stronger contemporaneous relationship between stock returns and earnings than between stock returns and net cash flows for firms in code law countries over short intervals. This result is consistent with the previous prediction about the difference of explanatory power of earnings relative to cash flows across code law countries and common law countries.

[Insert Table 3]

4.2 Measurement of firm performance over long intervals

In this paper, the second hypothesis predicts that the contemporaneous relationship between stock returns and cash flows improves more than the contemporaneous relationship between stock returns and earnings across the six countries as the measurement interval is increased. We also use ratios of R_{CFO}^2 / R_{EPS}^2 and R_{NCF}^2 / R_{EPS}^2 to measure the relative explanatory ability of earnings and cash flows over different measurement intervals. Based on the prediction, ratios of R_{CFO}^2 / R_{EPS}^2 and R_{NCF}^2 / R_{EPS}^2 over short intervals is less than these ratios over long intervals. In Table 3, we can find that ratios of R_{CFO}^2 / R_{EPS}^2 and R_{NCF}^2 / R_{EPS}^2 are significantly increased as measurement interval is lengthened from annual to four years, for all firms in the six countries¹⁶. This is consistent with the idea the explanatory power of cash flows relative to earnings will increase over longer intervals regardless of the country's legal system.

¹⁴ Over the annual intervals, for Germany, Japan, and France, the ratio of R_{CFO}^2 / R_{EPS}^2 is, respectively, 0.0432, 0.0758, and 0.0241.

¹⁵ Over the annual intervals, for The United Kingdom, and Canada, the ratio of R_{CFO}^2 / R_{EPS}^2 is, respectively, 0.2078, and 0.3380.

¹⁶ The ratio of R_{CFO}^2 / R_{EPS}^2 increases from 0.3455 for annual, to 1.0379 for four years in Italy; from 0.0431 for annual, to 0.3871 for four years in Germany; from 0.0759 for annual, to 0.1120 for four years in Japan; from 0.0242 for annual, to 0.6311 for four years in France; from 0.2078 for annual, to 0.3306 for four years in U.K.; and from 0.3380 for annual, to 0.4072 for four years in Canada.

There is an alternative hypothesis that the manipulation of accruals will reduce the usefulness of reported earnings to reflect firm performance. Then, earnings will improve less relative to cash flows for firms in common law countries than for firms in code law countries. However, simply comparing R^2 s can not prove that earnings is statistically better than cash flows to measure firm performance. At the same time, simply comparing R^2 s can not prove the difference in the improvement of the ability of earnings relative to cash flows to reflect firm performance between short intervals and long intervals. In fact, neither earnings nor cash flows can perfectly explain firm performance, because both of earnings and cash flows encounter different problems.¹⁷ We just want to know which measure is closer to explaining data. Therefore, we follow Dechow study to use Vuong (1989) test, that provide a likelihood ratio test for model selection. Vuong test can avoid the null that one of both models has to be true. Table 4 shows the results of Vuong's test. For code law countries, such as Germany and Japan, over the annual and four-year intervals, Vuong's Zs-statistic reject that cash from operations and net cash flows are better than earnings to explain firm performance. In the United Kingdom (common law country), over the annual intervals, the results of Vuong's Zs-statistic are similar to those in Germany and in Japan. Over four-year intervals, Vuong's Zs-statistic can not reject that cash from operations and net cash flows are better than earnings to explain firm performance. In summary, for firms in code law countries (such as Germany and Japan), over all intervals, earnings are closer to explain firm performance than cash flows are. For firms in common law countries (such as the United Kingdom), while cash flows will suffer fewer from timing and matching problems over longer intervals, there is no significant difference in explanatory power of earnings and cash flows.

[Insert Table 4]

4.3 Cross-sectional predictions based on the level of aggregate accruals

The third prediction is that, as the absolute value of aggregate accruals is

¹⁷ Earnings can be manipulated by managers. Cash flows suffer timing and matching problems.

increased, the explanatory power of net cash flows¹⁸ relative to earnings will decrease. Because of the importance of accruals, there is a negative relationship between the absolute magnitude of aggregate accruals and the ability of net cash flows to reflect to firm performance and positive relationship between the absolute magnitude of aggregate accruals and the ability of earnings to reflect to firm performance. To the extent that net cash flows less important for measuring firm performance when the absolute value of aggregate accruals is large, we predict that, as the quintile of the largest absolute value of aggregate accruals, R^2 of regression of stock returns on net cash flows is the lowest and R^2 of regression of stock returns on earnings is the largest. Table 5 indicates results of a test of the associations between net cash flows and earnings with the absolute value of aggregate accruals. In this Table, we rank firm-observations into five quintiles according to the absolute value of aggregate accruals. Quintile 1 is the quintile which contains all observations with the lowest magnitude of absolute value of aggregate accruals, while quintile 5 is the quintile which contains all observations with the largest magnitude of absolute value of aggregate accruals. For firms in the quintile 1, which suffer fewer from timing and matching problems, earnings and net cash flow will have a similar ability to measure firm performance. For firms in the quintile 5, which suffer more from timing and matching problems, earnings will have ability to measure firm performance more than net cash flows have.

[Insert Table 5]

The final sample in Table 5 comprises all firms for which the following data are available: net cash flows per share and earnings per share, while the sample in previous Tables comprises all firms with all data available¹⁹. Therefore, numbers of sample in Table 5 are more than these in previous Tables. For all countries except Italy, in quintile 5, since the R^2 on net cash flows is the lowest and the R^2 on earnings is the largest, earnings and net cash flows differ by the largest magnitude. The results

¹⁸ In this test, we want to explain the timing and matching problems in the extreme. Cash from operations suffer fewer from timing and matching problems than net cash flows do, because cash from operations include long-term accruals. So, we just compare to the ability of earnings relative to net cash flows to measure firm performance.

¹⁹ Earnings per share, cash from operations per share, and net cash flows per share.

make no difference over the annual and four-year intervals. Similar findings can be found for Vuong test in Table 5. The Zs-statistic are significant and positive in being beneficial to earnings. These results prove that net cash flows are a poor measure of firm performance. Earnings can explain more of the firm performance than cash flows do, as the magnitude of absolute value of accruals is the highest.

Based on this prediction, we need find that there is a monotonically decreased in the R^2 on net cash flows from quintile 1 to quintile 5, and there is a monotonically increased in the R^2 on earnings from quintile 1 to quintile 5. And the Zs-statistic are insignificant in quintile 1 and significant in quintile 5. Unfortunately, we can't find R^2 on net cash flows is monotonically decreased as moving from quintile 1 to quintile 5. According to Zs-statistic, they are significant in quintile 5, and insignificant in quintile, across all countries. Overall, these results partially support that cash flows are a better measure of the firm performance for firms with the largest magnitude of accruals. On the other hand, the ability of net cash flows is similar to it of earnings for firms with the lowest magnitude of accruals.

5. Conclusions

This paper predicts that earnings more closely reflect firm performance than cash flows across the six countries. On the other hand, outsider economies with strong legal enforcement (such as U.K. and Canada) have the lowest level of earnings management and outsider economies with weak legal enforcement (such as Italy, Germany, France, and Japan) have the higher level of earnings management. This situation exists over short measurement interval. Therefore, the ability of earnings relative to cash flows is stronger form firms in code law countries, compared to firms in common law countries. The results are consistent with these predictions. Over short intervals, across the six countries, earnings are more positively related to stock returns than both cash flows from operations and net cash flows. At the same time, there is the stronger contemporaneous relationship between stock returns and earnings than between stock returns and net cash flows for firms in code law countries than for firms in common law countries.

This paper also predict, across the six countries, that accounting accruals play a less important role over longer intervals than over shorter intervals. Because cash flows suffer less from timing and matching problems, the difference of the ability of earnings relative to cash flows to reflect firm performance will diminishes over longer measurement intervals. In addition, following Dechow (1994), La Porta et al. (1997), and Leuz et al. (2003), the code law country's firms have higher level of earnings management than the common law country's firms have. Earnings will improve more relative to cash flows for firms in code law countries than for firms in common law countries over longer intervals. The results are also consistent with these predictions. The explanatory power of cash flows relative to earnings will increase over longer intervals regardless of the country's legal system. For firms in code law countries (such as Germany and Japan), over all intervals, earnings are closer to explain firm performance than cash flows are. For firms in common law countries (such as the United Kingdom), while cash flows will suffer fewer from timing and matching problems over longer intervals, there is no significant difference in explanatory power of earnings and cash flows.

This paper also suggests that earnings and cash flows identified by Dechow studies as correlated in stock returns varied with the level of aggregate accruals in the United States, are similarly correlated in the six countries as well. It is the third issue in this paper. For firms, which suffer fewer from timing and matching problems, earnings and net cash flow will have a similar ability to measure firm performance. For firms, which suffer more form timing and matching problems, earnings will have ability to measure firm performance more than net cash flows have. These results are consistent with prediction.

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Table1**Summary statistics of data for the annual and four-year intervals across 6 countries**

All variables are on a per-share basis and deflated by beginning-of –period price. The full sample consists of 26,849 firm-year observations for the fiscal years 1982 to 2001 across 6 countries and 4,054 non-financial firms. CARs are the cumulated stock returns, which are adjusted by the market index for each country. The four-year observations are overlapping and are cumulated one-year values per share, which are adjusted by the number of common shares outstanding and deflated by beginning-of-period price.

		Mean	Min.	25%	Median	75%	Max.	Std.	Obs.	Firms
ITALY										
Annual	EPS	0.001	-0.041	0.000	0.001	0.002	0.025	0.005	559	146
	CFO	-0.012	-0.731	-0.012	-0.004	0.000	0.184	0.051	559	146
	NCF	0.000	-0.046	-0.001	0.000	0.001	0.030	0.006	559	146
	CAR	-0.099	-1.105	-0.322	-0.127	0.089	1.404	0.344	559	146
Four-year	EPS	0.005	-0.056	0.001	0.003	0.007	0.062	0.011	232	80
	CFO	-0.036	-1.532	-0.039	-0.014	-0.001	0.499	0.144	232	80
	NCF	0.002	-0.065	-0.001	0.000	0.003	0.192	0.016	232	80
	CAR	-0.368	-2.074	-0.850	-0.455	0.051	1.980	0.662	232	80
GERMANY										
Annual	EPS	0.004	-1.150	0.001	0.006	0.021	0.576	0.111	3,259	474
	CFO	-0.063	-2.799	-0.051	-0.008	0.002	0.901	0.233	3,259	474
	NCF	-0.001	-0.545	-0.006	0.000	0.006	0.595	0.065	3,259	474
	CAR	-0.163	-2.365	-0.349	-0.138	0.051	1.077	0.380	3,259	474
Four-year	EPS	0.012	-3.412	0.002	0.019	0.079	1.887	0.377	2,089	333
	CFO	-0.286	-8.206	-0.230	-0.040	-0.003	1.675	0.836	2,089	333
	NCF	0.000	-0.702	-0.011	0.001	0.012	0.837	0.110	2,089	333
	CAR	-0.655	-3.616	-1.071	-0.599	-0.202	1.495	0.724	2,089	333
JAPAN										
Annual	EPS	0.089	-14.946	0.014	0.069	0.252	7.622	0.896	8,231	1,208
	CFO	-0.538	-40.701	-0.417	-0.005	0.229	16.383	3.354	8,231	1,208
	NCF	-0.065	-17.106	-0.191	-0.010	0.129	14.584	1.228	8,231	1,208
	CAR	-0.133	-1.174	-0.329	-0.135	0.057	1.107	0.303	8,231	1,208
Four-year	EPS	0.356	-26.749	0.018	0.209	0.785	13.764	2.212	4,917	946
	CFO	-1.925	-137.311	-1.149	-0.010	0.652	34.378	10.708	4,917	946
	NCF	-0.169	-17.176	-0.385	-0.033	0.204	14.549	1.870	4,917	946
	CAR	-0.489	-2.509	-0.812	-0.478	-0.151	1.577	0.521	4,917	946

Table 1 (Continued)

		Mean	Min.	25%	Median	75%	Max.	Std.	Obs.	Firms
FRANCE										
Annual	EPS	0.006	-0.677	0.001	0.007	0.023	0.278	0.068	750	187
	CFO	-0.004	-1.281	-0.009	0.001	0.014	0.376	0.094	750	187
	NCF	0.001	-0.641	-0.005	0.001	0.008	0.537	0.056	750	187
	AR	-0.067	-2.099	-0.312	-0.015	0.207	1.180	0.436	750	187
Four-year	EPS	0.018	-4.945	0.005	0.026	0.091	0.562	0.352	368	83
	CFO	-0.016	-4.327	-0.013	0.007	0.063	0.337	0.317	368	83
	NCF	0.016	-0.612	-0.003	0.004	0.022	1.003	0.107	368	83
	AR	-0.202	-3.341	-0.659	-0.143	0.361	1.482	0.850	368	83
U.K.										
Annual	EPS	0.000	-0.108	0.000	0.000	0.001	0.029	0.004	11,855	1,556
	CFO	0.000	-0.035	0.000	0.000	0.001	0.026	0.002	11,855	1,556
	NCF	0.000	-0.029	0.000	0.000	0.000	0.025	0.001	11,855	1,556
	AR	-0.067	-1.836	-0.275	-0.033	0.173	1.361	0.403	11,855	1,556
Four-year	EPS	0.000	-0.688	0.000	0.001	0.002	0.066	0.018	7,676	1,209
	CFO	0.001	-0.077	0.000	0.000	0.002	0.049	0.005	7,676	1,209
	NCF	0.000	-0.041	0.000	0.000	0.000	0.064	0.003	7,676	1,209
	AR	-0.267	-3.723	-0.725	-0.184	0.281	1.981	0.837	7,676	1,209
CANDAN										
Annual	EPS	0.000	-0.532	0.000	0.002	0.005	0.155	0.030	2,195	483
	CFO	0.002	-0.246	-0.001	0.001	0.005	0.295	0.022	2,195	483
	NCF	0.001	-0.169	-0.001	0.000	0.001	0.207	0.016	2,195	483
	AR	-0.014	-2.366	-0.238	0.015	0.245	2.062	0.486	2,195	483
Four-year	EPS	0.006	-1.322	0.001	0.006	0.019	0.445	0.078	1,023	233
	CFO	0.015	-0.600	0.000	0.005	0.019	0.865	0.065	1,023	233
	NCF	0.004	-0.251	-0.001	0.000	0.004	0.312	0.029	1,023	233
	AR	0.050	-5.012	-0.363	0.080	0.500	3.592	0.887	1,023	233

Table2
First-order autocorrelation coefficients of aggregate accruals and Pearson correlations for earnings, cash from operations, net cash flows, and accruals

	Italy	Germany	Japan	France	U.K.	Canada
First-Autocorrelation: Δ Aggregate Accruals per share						
Annual	-0.002	-0.196	0.019	-0.436	-0.230	-0.224
Corr (Δ NCF, AA)						
Annual	-0.517 ***	-0.380 ***	-0.597 ***	-0.595 ***	-0.421 ***	-0.416 ***
Four-year	0.265 ***	-0.263 ***	-0.368 ***	-0.369 ***	-0.395 ***	-0.384 ***
Corr (Δ CFO, Δ WC)						
Annual	-0.436 ***	-0.605 ***	-0.448 ***	-0.603 ***	-0.244 ***	-0.464 ***
Four-year	0.453 ***	-0.284 ***	-0.402 ***	-0.343 ***	-0.285 ***	-0.413 ***
Corr (Δ CFO, Δ EPS)						
Annual	0.019	-0.037 *	0.026 *	0.069	0.040 **	0.245 ***
Four-year	0.416 ***	0.025	0.121 *	0.062	-0.069 **	0.173 ***
Corr (Δ NCF, Δ EPS)						
Annual	0.219 ***	-0.029	0.142 ***	-0.016	-0.003	0.201 ***
Four-year	0.164 ***	0.150 ***	0.141 ***	-0.209 ***	0.226 ***	-0.088

*, **, and *** indicate significantly different from zero at the 10, 1, 0.1 percent levels, respectively.

Table 3**Tests comparing the ability of earnings relative to cash flows to reflect stock returns over the annual and four-year intervals; $CAR_{it} = \alpha + \beta(X)_{it} + \varepsilon_{it}$**

Reported coefficient estimates are from pooled regressions for each country. CAR_{it} is the cumulated stock returns adjusted by the market index for each country for firm i calculated over the annual or four-year intervals (t). EPS is earnings per share, CFO is cash flows from operations per share, and NCF is the net cash flows per share. All variables are deflated by beginning-of-period price.

		Independent Variable (X)		
		EPS	CFO	NCF
ITALY				
Annual				
	Obs.	559	559	559
	Intercept	-0.1100 ***	-0.091 ***	-0.098 ***
	Coefficient	11.4940 ***	0.604 *	2.323
	R^2	0.0235	0.00812	0.00165
	R_{CFO}^2 / R_{EPS}^2	0.3455		
	R_{NCF}^2 / R_{EPS}^2	0.0700		
Four-year				
	Obs.	232	232	232
	Intercept	-0.4030 ***	-0.3460 ***	-0.3700 ***
	Coefficient	7.5370 *	0.5910 *	1.6620
	R^2	0.0159	0.0165	0.0016
	R_{CFO}^2 / R_{EPS}^2	1.0379		
	R_{NCF}^2 / R_{EPS}^2	0.0984		
GERMANY				
Annual				
	Obs.	3259	3259	3259
	Intercept	-0.1650 ***	-0.1580 ***	-0.1620 ***
	Coefficient	0.6120 ***	0.0600 *	0.0050
	R^2	0.0317	0.0014	0.0000
	R_{CFO}^2 / R_{EPS}^2	0.0431		
	R_{NCF}^2 / R_{EPS}^2	0.0000		
Four-year				
	Obs.	2089	2089	2089
	Intercept	-0.6610 ***	-0.6130 ***	-0.6550 ***
	Coefficient	0.5180 ***	0.1450 ***	0.6160 ***
	R^2	0.0729	0.0282	0.0088
	R_{CFO}^2 / R_{EPS}^2	0.3871		
	R_{NCF}^2 / R_{EPS}^2	0.1207		
JAPAN				
Annual				
	Obs.	8231	8231	8231
	Intercept	-0.1360 ***	-0.1300 ***	-0.1320 ***
	Coefficient	0.0490 ***	0.0030 ***	0.0050 *
	R^2	0.0212	0.0016	0.0006
	R_{CFO}^2 / R_{EPS}^2	0.0759		
	R_{NCF}^2 / R_{EPS}^2	0.0280		
Four-year				
	Obs.	4917	4917	4917
	Intercept	-0.5110 ***	-0.4800 ***	-0.4820 ***
	Coefficient	0.0610 ***	0.0040 ***	0.0390 ***
	R^2	0.0685	0.0077	0.0203
	R_{CFO}^2 / R_{EPS}^2	0.1120		
	R_{NCF}^2 / R_{EPS}^2	0.2965		

*, **, and *** indicate significantly different from zero at the 10, 1, 0.1 percent levels, respectively.

Table 3 (Continued)

FRNACE		Independent Variable (X)			
		EPS	CFO	NCF	
Annual	Obs.	750	750	750	
	Intercept	-0.0780 ***	-0.0650 ***	-0.0670 ***	
	Coefficient	1.8540 ***	0.2070	0.9410 ***	
	R^2	0.0831	0.0020	0.0148	
	R_{CFO}^2 / R_{EPS}^2	0.0242			
	R_{NCF}^2 / R_{EPS}^2	0.1779			
	Four-year	Obs.	368	368	368
	Intercept	-0.2140 ***	-0.1920 ***	-0.1870 ***	
	Coefficient	0.6570 ***	0.5790 ***	-0.9020 *	
	R^2	0.0739	0.0467	0.0128	
	R_{CFO}^2 / R_{EPS}^2	0.6311			
	R_{NCF}^2 / R_{EPS}^2	0.1731			
<hr/>					
U.K.	Annual	Obs.	11,855	11,855	11,855
		Intercept	-0.0710 ***	-0.0710 ***	-0.0680 ***
		Coefficient	19.0140 ***	14.2000 ***	20.4620 ***
		R^2	0.0315	0.0066	0.0055
		R_{CFO}^2 / R_{EPS}^2	0.2078		
		R_{NCF}^2 / R_{EPS}^2	0.1752		
	Four-year	Obs.	7,676	7,676	7,676
	Intercept	-0.2690 ***	-0.2880 ***	-0.2760 ***	
	Coefficient	8.3690 ***	16.8910 ***	31.7620 ***	
	R^2	0.0316	0.0105	0.0132	
	R_{CFO}^2 / R_{EPS}^2	0.3306			
	R_{NCF}^2 / R_{EPS}^2	0.4162			
<hr/>					
CANADA	Annual	Obs.	2,195	2,195	2,195
		Intercept	-0.0140	-0.0180 *	0.0410
		Coefficient	1.9860 ***	1.5340 **	2.1580 *
		R^2	0.0147	0.0050	0.0049
		R_{CFO}^2 / R_{EPS}^2	0.3380		
		R_{NCF}^2 / R_{EPS}^2	0.1202		
	Four-year	Obs.	1,023	1,023	1,023
	Intercept	0.0360	0.0230	-0.0615	
	Coefficient	2.2840 ***	1.7490 ***	2.8290 ***	
	R^2	0.0406	0.0165	0.0082	
	R_{CFO}^2 / R_{EPS}^2	0.4072			
	R_{NCF}^2 / R_{EPS}^2	0.5575			

*, **, and *** indicate significantly different from zero at the 10, 1, 0.1 percent levels, respectively.

Table 4
Results of the likelihood ratio test: Vuong (1989) test

A significant positive Z-statistic rejects that Measure 2 is better than Measure 1.

Country	Comparison	Vuong's Z-statistic	Probability
Measure 1 vs. Measure 2			
ITALY			
Annual	Earnings vs Cash Flows from Operations	0.350	0.7266
	Earnings vs Net Cash Flows	0.500	0.6185
	Cash Flows from Operations	0.280	0.7803
Four-year	Earnings vs Cash Flows from Operations	-0.010	0.9913
	Earnings vs Net Cash Flows	0.409	0.6852
	Cash Flows from Operations	0.279	0.7794
GERMANY			
Annual	Earnings vs Cash Flows from Operations	1.819 *	0.0695
	Earnings vs Net Cash Flows	1.849 *	0.0638
	Cash Flows from Operations	0.460	0.6425
Four-year	Earnings vs Cash Flows from Operations	1.650	0.1001
	Earnings vs Net Cash Flows	1.949 *	0.0515
	Cash Flows from Operations	0.810	0.4185
JAPAN			
Annual	Earnings vs Cash Flows from Operations	2.539 *	0.0110
	Earnings vs Net Cash Flows	2.619 **	0.0089
	Cash Flows from Operations	0.470	0.6403
Four-year	Earnings vs Cash Flows from Operations	2.989 **	0.0028
	Earnings vs Net Cash Flows	2.349 *	0.0187
	Cash Flows from Operations	-1.080	0.2795
FRANCE			
Annual	Earnings vs Cash Flows from Operations	1.569	0.1157
	Earnings vs Net Cash Flows	1.319	0.1859
	Cash Flows from Operations	-0.470	0.6355
Four-year	Earnings vs Cash Flows from Operations	0.389	0.6977
	Earnings vs Net Cash Flows	0.639	0.5240
	Cash Flows from Operations	0.429	0.6696
U.K.			
Annual	Earnings vs Cash Flows from Operations	2.269 *	0.0233
	Earnings vs Net Cash Flows	2.249 *	0.0242
	Cash Flows from Operations	0.200	0.8381
Four-year	Earnings vs Cash Flows from Operations	0.970	0.3302
	Earnings vs Net Cash Flows	0.860	0.3904
	Cash Flows from Operations	-0.260	0.2795
CANADA			
Annual	Earnings vs Cash Flows from Operations	0.620	0.5354
	Earnings vs Net Cash Flows	0.330	0.7380
	Cash Flows from Operations	-0.270	0.7878
Four-year	Earnings vs Cash Flows from Operations	0.750	0.4517
	Earnings vs Net Cash Flows	1.049	0.2954
	Cash Flows from Operations	0.370	0.7148

Table 5

Tests comparing the ability of earnings relative to cash flows to reflect stock returns over the annual and four-year intervals across quintiles; $CAR_{it} = \alpha + \beta(X)_{it} + \varepsilon_{it}$

These quintiles are formed based on the absolute value of aggregate accruals (Abs (AA)). Reported coefficient estimates are from pooled regressions for each country. CAR_{it} is the cumulated stock returns adjusted by the market index for each country for firm i calculated over the annual or four-year intervals (t). EPS is earnings per share, CFO is cash flows from operations per share, and NCF is the net cash flows per share. All variables are deflated by beginning-of-period price. Vuong's Z-statistic compares the explaining power of earnings with net cash flows. A significant positive Z-statistic rejects that net cash flows is better than earnings.

	Abs(AA)	NCF		EPS		Vuong's		Obs.	
		Coefficient	R ²	Coefficient	R ²	Z-statistics	Prob.		
ITALY	Annual	Quintile1	116.425 *	0.02344	133.108 *	0.02897	0.379	0.7051	196
		Quintile2	22.276 **	0.00347	30.698	0.00664	0.179	0.8559	195
		Quintile3	30.212 *	0.04428	45.037 ***	0.08811	0.937	0.3476	195
		Quintile4	-3.515 **	0.00126	16.790 *	0.02516	0.339	0.7372	195
		Quintile5	-2.597 *	0.01112	10.475 ***	0.07593	0.478	0.6351	195
	Four-year	Quintile1	28.340 **	0.00779	40.697	0.01504	0.377	0.7079	87
		Quintile2	42.749 *	0.04916	44.118 *	0.05291	0.079	0.9350	87
		Quintile3	8.202 **	0.00441	21.949	0.02911	0.338	0.7345	87
		Quintile4	6.459 *	0.01029	0.940	0.00023	-0.318	0.7469	86
		Quintile5	-0.952 *	0.01146	7.648 **	0.11182	0.566	0.5729	86
GERMANY	Annual	Quintile1	6.475 ***	0.01939	7.214 ***	0.02399	1.019	0.3090	1272
		Quintile2	9.236 ***	0.04803	10.633 ***	0.05964	1.759 *	0.0794	1272
		Quintile3	4.253 ***	0.03995	6.141 ***	0.08514	1.699 *	0.0887	1272
		Quintile4	2.343 ***	0.04014	3.173 ***	0.09992	0.929	0.3542	1272
		Quintile5	0.018	0.00004	0.627 ***	0.10496	2.469 *	0.0137	1272
	Four-year	Quintile1	2.589 ***	0.01190	3.043 ***	0.01625	0.879	0.3784	815
		Quintile2	2.554 ***	0.02320	2.826 ***	0.02991	0.599	0.5499	814
		Quintile3	2.548 ***	0.03077	2.340 ***	0.04551	0.389	0.6962	814
		Quintile4	1.688 ***	0.04997	2.045 ***	0.12699	1.599	0.1109	814
		Quintile5	-0.028	0.00007	0.511 ***	0.22868	3.098 **	0.0020	814
JAPAN	Annual	Quintile1	0.116 ***	0.00601	0.115 ***	0.00591	-0.129	0.8997	5749
		Quintile2	0.098 ***	0.00693	0.100 ***	0.00692	0.000	0.9977	5749
		Quintile3	0.086 ***	0.01763	0.100 ***	0.02124	0.789	0.4273	5749
		Quintile4	0.052 ***	0.02165	0.072 ****	0.03088	1.169	0.2422	5749
		Quintile5	0.008 ***	0.00695	0.028 ***	0.04401	2.879 **	0.0039	5748
	Four-year	Quintile1	0.190 ***	0.02586	0.188 ***	0.02542	-0.319	0.7459	3990
		Quintile2	0.191 ***	0.03905	0.195 ***	0.04117	0.429	0.6647	3990
		Quintile3	0.164 ***	0.04982	0.170 ***	0.05291	0.359	0.7219	3990
		Quintile4	0.104 ***	0.05994	0.126 ***	0.09155	2.049 *	0.0407	3990
		Quintile5	0.022 ***	0.02380	0.046 ***	0.13672	4.399 ***	0.0001	3990

*, **, and *** indicate significantly different from zero at the 10, 1, 0.1 percent levels, respectively.

Table 5 (Continued)

	absAA	NCF		EPS		Young's		Obs.
		Coefficient	R ²	Coefficient	R ²	Z-statistics	Prob.	
FRANCE	Quintile1	3.151 ***	0.01065	3.301 ***	0.01162	0.529	0.5945	1203
Annual	Quintile2	4.020 ***	0.03166	5.105 ***	0.04838	1.369	0.1699	1203
	Quintile3	3.027 ***	0.03560	4.400 ***	0.07467	1.549	0.1214	1203
	Quintile4	1.576 ***	0.02881	2.973 ***	0.09269	1.779 *	0.0757	1203
	Quintile5	0.163 **	0.00449	0.863 ***	0.12703	2.768 **	0.0057	1203
	Four-year	Quintile1	0.817	0.00251	1.415 **	0.01261	10.122 ***	0.0001
Four-year	Quintile2	0.220	0.00051	1.547 ***	0.08089	1.029	0.3011	711
	Quintile3	1.695 ***	0.03110	2.051 ***	0.15523	1.488	0.1362	711
	Quintile4	0.612 ***	0.01554	2.114 ***	0.25683	2.418 **	0.0157	711
	Quintile5	0.397 ***	0.02600	0.404 ***	0.13321	0.909	0.3616	711
	U.K.	Quintile1	126.546 ***	0.00783	139.818 ***	0.00998	0.909	0.3626
Annual	Quintile2	141.960 ***	0.01546	169.755 ***	0.02570	1.459	0.1443	4241
	Quintile3	138.533 ***	0.02923	197.601 ***	0.06533	2.699 **	0.0070	4241
	Quintile4	88.110 ***	0.03134	51.722 ***	0.03949	0.189	0.8531	4241
	Quintile5	9.417 ***	0.00598	13.327 ***	0.06320	2.569 *	0.0101	4240
	Four-year	Quintile1	256.319 ***	0.02490	279.972 ***	0.03374	1.499	0.1343
Four-year	Quintile2	137.747 ***	0.02309	173.215 ***	0.04729	1.299	0.1939	2846
	Quintile3	125.871 ***	0.03110	167.291 ***	0.08204	1.899 *	0.0580	2846
	Quintile4	75.158 ***	0.03586	85.113 ***	0.09936	1.019	0.3056	2846
	Quintile5	17.297 ***	0.01592	5.674 ***	0.08439	2.419 *	0.0157	2846
	CANADA	Quintile1	35.911 ***	0.01859	36.107 ***	0.02914	1.569	0.1176
Annual	Quintile2	27.891 ***	0.02660	13.452 ***	0.01785	-0.279	0.7777	1380
	Quintile3	20.568 ***	0.04323	15.677 ***	0.04803	0.159	0.8729	1380
	Quintile4	11.366 ***	0.03360	4.920 ***	0.02661	-0.179	0.8593	1380
	Quintile5	1.234 ***	0.00720	2.445 ***	0.10136	2.129 *	0.0337	1380
	Four-year	Quintile1	13.570 **	0.00963	6.618 *	0.00654	-2.128 *	0.0331
Four-year	Quintile2	5.319 *	0.00607	9.054 ***	0.02026	0.559	0.5736	826
	Quintile3	19.151 ***	0.04441	22.449 ***	0.11992	1.539	0.1240	826
	Quintile4	7.262 ***	0.02897	12.617 ***	0.16700	2.128 *	0.0331	826
	Quintile5	2.036 ***	0.00341	2.347 ***	0.24229	2.938 **	0.0034	826

*, **, and *** indicate significantly different from zero at the 10, 1, 0.1 percent levels, respectively.