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Flexibility in Cash Flow Reporting Classification Choices under IFRS

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Flexibility in Cash Flow Reporting Classification Choices under IFRS*

Abstract:

Relative to U.S. GAAP, IFRS allows more flexibility in classifying certain items within the statement of cash flows. Where U.S. GAAP requires firms to classify interest paid, interest received, and dividends received as operating cash flows (OCF), IFRS allows firms to report these within OCF or classify them as investing or financing. Studying IFRS-reporting firms in 13 European countries, we document firms' cash-flow classification choices vary, with about 77%, 54%, and 49% of our sample classifying interest paid, interest received, and dividends received, respectively, in OCF. Reported OCF tends to be higher under IFRS than it would be under U.S. GAAP classification. We find the main determinants of OCF-enhancing classification choices are capital market incentives and other firm characteristics, including greater likelihood of financial distress, greater probability of default, and accessing equity markets more frequently. We also find the cross-listed firms in our sample do not necessarily make choices consistent with U.S. GAAP.

JEL Codes: M4, M41, M48
Keywords: IFRS, US GAAP, Cash Flows

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1. Introduction

Generally accepted accounting principles in the United States (U.S. GAAP) are perceived to allow managers less discretion than International Financial Reporting Standards (IFRS). This comparatively limited discretion is apparent with regard to the classification of certain items within the statement of cash flows. U.S. GAAP requires that firms classify interest paid, interest received, and dividends received as operating cash flows. In contrast, IFRS allows firms to report these items within operating cash flow (OCF) or to classify them as investing or financing. We document variation in firms' cash flow classification choices under IFRS and examine capital market incentives and firm reporting environment characteristics explaining these choices. Cash flow, and particularly OCF, is well established as a basis for business valuation (e.g., Damodaran 2006), contracting (e.g., Dichev and Skinner, 2002; Mulford and Comiskey, 2005), and financial analysis (Estridge and Lougee, 2007). Although an extensive literature examines classification shifting within the income statement and within the balance sheet (Engel et al., 1999; Marquardt and Wiedman, 2005; McVay, 2006), less attention has been given to classification variations within the statement of cash flows with Lee (2012) as a notable exception. IFRS reporting provides a setting where the accounting standards provide firms discretion in classification choices within the statement of cash flows.

The effect of discretion in cash flow classifications is important because both the International Accounting Standards Board (IASB) and Financial Accounting Standards

Board (FASB)[1] share the objective that financial information should enable financial statement users to better predict future cash flows. Further, the Boards articulate the importance of both accrual accounting information and cash flow information in achieving this objective.

> "Information about a reporting entity's cash flows during a period also helps users to assess the entity's ability to generate future net cash inflows. It indicates how the reporting entity obtains and spends cash, including information about its borrowing and repayment of debt, cash dividends or other cash distributions to investors, and other factors that may affect the entity's liquidity or solvency. Information about cash flows helps users understand a reporting entity's operations, evaluate its financing and investing activities, assess its liquidity or solvency and interpret other information about financial performance."[2]

Despite identical objectives, the standard setters have established different requirements for presentation of certain items – interest paid, interest received, and dividends received – in the statement of cash flows. As a consequence, the amount of OCF reported by a given entity can differ under U.S. GAAP and IFRS. Theoretically, the appropriate classification of these items is open to debate. Even when deliberating the adoption of the statement of cash flows standard (SFAS 95), the FASB discussed the

[1] In IFRS, the *Conceptual Framework*, Chapter 1, The Objective Of General Purpose Financial Reporting ¶OB3 states: "Decisions by existing and potential investors about buying, selling or holding equity and debt instruments depend on the returns that they expect from an investment in those instruments, for example dividends, principal and interest payments or market price increases. Similarly, decisions by existing and potential lenders and other creditors about providing or settling loans and other forms of credit depend on the principal and interest payments or other returns that they expect. Investors', lenders' and other creditors' expectations about returns depend on their assessment of the amount, timing and uncertainty of (the prospects for) future net cash inflows to the entity. Consequently, existing and potential investors, lenders and other creditors need information to help them assess the prospects for future net cash inflows to an entity." In U.S. GAAP, *Concepts Statement No. 8* ¶ OB3 is identical.

[2] IFRS *Conceptual Framework*, Chapter 1, ¶ OB20, which is identical to U.S. GAAP, *Concepts Statement No. 8* ¶ OB20.

classifications of interest paid and interest received, ultimately opting to require these items be reported in the operating section.[3]

In our initial sample of 798 non-financial IFRS firms in 13 European countries from 2005 to 2008, we first document variation in classification choices. About 77%, 54%, and 49% of the sample classifies interest paid, interest received, and dividends received, respectively, in OCF. Only about 60% of our sample firms report all three items in OCF. We document significant variation in classification across both countries and industries. Almost all firms in Denmark, Finland, and Sweden make the same classification choices for interest paid and interest received.

We adjust OCF to include interest paid, interest received, and dividends received (i.e., consistent with U.S. GAAP requirements). That is, we consider a hypothetical U.S. GAAP benchmark assuming that managers' real operating activities would have remained the same even if cash flow classification choices had been restricted. We do not assert these items are appropriately classified as OCF. Rather, we use U.S. GAAP as a benchmark because our main focus is on the differences between U.S. GAAP and IFRS. We find that reported OCF tends to be higher under IFRS than it would have been under U.S. GAAP. Similarly, investing and financing cash flows would generally have been lower under IFRS. The pair wise means, by firm, for the three cash flow amounts under IFRS versus U.S. GAAP differ significantly.

[3] Even though U.S. GAAP requires interest paid and interest received to be reported as operating cash flows, paragraphs 88-90 in the basis of conclusions of SFAS 95, "Statement of Cash Flows" (FASB, 1987) discuss the debate over the classification of interest paid and interest received during the deliberation preceding the adoption of the standard. See Nurnberg and Largay (1998) for a historical perspective on aspects of the debate. SFAS 95 is now codified in the FASB Accounting Standards Codification (ASC Sections 230 *Statement of Cash Flows*, 830 *Foreign Currency Matters*, and 942 *Financial Services – Depository and Lending.*)

We then explore determinants of cash flow classification choices from the perspective of OCF-increasing classifications. Lee (2012) identifies incentives to inflate reported OCF including financial distress, the probability of bankruptcy, and the existence of analysts' cash flow forecasts. We examine these incentives for making OCF-increasing choices in our setting and additionally include other capital market incentives, profitability, and firm characteristics. Further, we explore characteristics associated with the reporting environment such as country, the reporting choices of industry peers, and cross-listing in the U.S.

In our primary analysis, we quantify the effect on OCF of IFRS classification flexibility by using U.S. GAAP as a hypothetical benchmark. U.S. GAAP serves as our benchmark, given our interest in differences between IFRS and U.S. GAAP. Our approach is consistent with the reality faced by U.S. investors who consider investing in IFRS-reporting firms and/or comparing U.S. GAAP-reporting firms with IFRS-reporting peers. We construct two dependent variables as proxies for OCF-increasing classification choices: 1.) the amount of the difference in actually-reported OCF under IFRS relative to the benchmark of what OCF would have been under U.S. GAAP, and 2.) an indicator variable signifying a classification choice that would increase OCF under IFRS relative to U.S. GAAP. For the second of these dependent variables, we focus on the classification choice for one item, interest paid, which IFRS permits to be classified either in the operating or the financing section of the statement of cash flows. The reason to focus on interest paid is that it constitutes a relatively large amount that is commonly reported separately and thus easier to identify. When a firm classifies interest paid as financing, it follows that *ceteris paribus* its reported OCF will be higher than if interest paid were

classified as operating. Thus classification of interest paid as financing is an OCF-increasing classification choice.

We find that firms with greater likelihood of financial distress and a greater probability of default make OCF-increasing classification choices. We further show that firms accessing equity markets more frequently and those with greater contracting concerns are also more likely to make OCF-increasing classification choices. Firms with negative OCF are less likely to make OCF-increasing classification choices. Unlike Lee (2012), we find no relation between classification choices and the presence of analysts' cash flow forecast. Our inability to reject the null hypothesis of no relation is likely because cash flow forecasts are present for almost every firm in our sample, consistent with Lee's (2012) observation that the prevalence of cash flow forecasts has increased over time and the literature finding that the provision of analysts' cash flow forecasts is more pervasive in countries other than the U.S. (DeFond and Hung 2007). We find that firms cross-listed in the United States are more likely to make classification choices that result in higher reported OCF relative to the U.S. GAAP benchmark. We find little or no effects related to industry practice, profitability, or firm size.

This paper contributes to our understanding of an area in which IFRS differs from U.S. GAAP, a topic of increased importance as U.S. regulators consider adopting IFRS for public companies. While it could be argued that flexibility in cash flow classification under IFRS could lead to OCF being more informative, such flexibility could impact comparability of reported OCF, which has potentially significant implications because of the use of cash flows in valuation and contracting.[4] This study also contributes to our

[4] For example, Portugal Telecom reported 2006 OCF of €1,788. Interest paid of €569 was classified as financing, and interest received of €239 and dividend received of €36 were classified as investment

understanding of management discretion in reporting non-earnings measures. Again, although managerial discretion in cash flow classification could be potentially helpful to financial statement users, our evidence suggests that some caution may be warranted when managers have particular incentives that affect their classification choices.

Our study should be of interest to various audiences. Researchers studying IFRS and using reported OCF as a variable of interest should be concerned with cash flow classification choices if their results would be contingent on these choices. For instance, researchers comparing OCF and other performance measures (e.g., Bernard and Stober, 1989; Sloan, 1996; Ashbaugh and Olsson, 2002; Orpurt and Zang, 2009; Barton *et al*., 2010) should potentially be interested in the effects of classification on their estimates. Financial statement users may benefit from understanding whether and how a manager's choice of classifications on the statement of cash flows relates to reporting incentives and firm characteristics (Carslaw and Mills, 1991). Standard setters can potentially utilize an understanding of the factors associated with a firm's reporting choices when crafting standards that permit alternatives.

Our study also has potential implications for the debate over costs and benefits of comparability and uniformity (De Franco et al., 2011) because discretion in cash flow reporting results in lower comparability and uniformity and thus potentially creates costs for users. For regulators in the U.S., our study should be of interest because of the plan for convergence and potential adoption of IFRS (SEC, 2011). As IFRS allows more

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activities. Overall, OCF would have been 16% lower under U.S. GAAP than as reported under IFRS. This illustrates the significance of cash flow classification choices. An analyst covering Portugal Telecom and U.S. telecommunications companies or even other European telecommunication companies such as Deutsche Telekom AG (which in 2006 classified dividends received, interest paid, and interest received all in operating) would have had to deal with non-comparability in financial ratios and in OCF-based valuations.

flexibility than U.S. GAAP, U.S. regulators should also be interested in the variation in firms' classification choices and the factors associated with those choices. Additionally, from a practical standpoint, our identification of certain instances of not following guidance related to the disclosure of interest paid and making classifications choices not consistent with guidance could be relevant to standard setters and regulators.

The paper is organized as follows. Section 2 discusses the motivation and research design. Section 3 describes our sample selection and presents a comprehensive description of cash flow classification of interest paid, interest received, and dividends received. Section 4 reports results of our tests of OCF-increasing classification choices, incentives, and reporting environment. A summary and conclusions are in Section 5.

2. OCF-Increasing Classification Choices, Incentives and the Reporting Environment

We explore incentives and reporting environment factors related to reporting higher OCF.[5]

We expect that firms closer to financial distress and with a higher probability of default are motivated to report higher OCF (consistent with findings in Lee 2012) because OCF is an important measure in assessing credit and default risk (Beaver 1966, Ohlson 1980, DeFond and Hung 2003). Our proxy for financial distress is Altman's Z-score (Altman and Hotchkiss, 2006).[6] A higher Z-score corresponds to a lower risk of

[5] Under IFRS, the choice of classification on the statement of cash flows is not required to be the same as the placement on the firm's income statement. So, income statement classification incentives do *not* drive cash flow reporting. For the specific items examined, non-financial firms commonly place these with financing items on the income statement.

[6] The Shumway (2001) distress model in Lee (2012) is developed for a single market and requires market driven variables. It is unclear how to extend the market-driven variables to a cross-country and cross-market setting. Because of our cross-country and cross-market setting, we use the Altman model which primarily requires accounting variables.

financial distress, so we expect a negative relation. Our proxy for the probability of default is credit ratings. Because not all firms in our sample are rated, we estimate credit ratings similar to Barth et al. (2008), as discussed in Appendix A. A higher credit rating implies a lower risk of default, so we predict a negative relation.

Arguably, firms accessing equity markets more frequently have stronger incentive to inflate OCF to increase the amount of capital they can raise. Therefore, we expect these firms are more likely to make classifications that enhance their reported OCF. Our proxy for capital market incentives is equity issuances. We expect that the more firms opt to access the equity markets, the stronger incentives they have to report higher OCF. Thus, we expect a positive relation between equity issues and OCF-increasing classification choices.

We predict that firms with contracting concerns and costs involved in renegotiating debt covenants will also seek to report higher OCF. Our proxy for contracting concerns is leverage, computed as total liabilities divided by total assets. We predict a positive relation.

We expect that profitable firms and firms with negative OCF are more likely to make OCF-increasing classification choices, similar to incentives to report positive rather than negative earnings (Burgstahler and Dichev, 1997). Reporting higher OCF reinforces the assessment of profitability. Those firms with negative OCF would report less negative, or even positive, cash flows by reporting items like interest paid outside of the operating section.[7] So, we expect a positive relation between both profitability and negative OCF.

[7] We find no cases where reclassifying interest paid from operating to financing would change the average operating cash flows over the period from negative to positive.

We examine three explanatory variables related to the firm's information environment: 1.) the availability of analysts' cash flow forecast, 2.) industry practice, and 3.) cross-listing in the U.S. The existence of an analyst's cash flow forecast indicates the perceived importance of OCF and the commensurate subsequent scrutiny of OCF (DeFond and Hung, 2003). Because of this perceived importance of OCF, we expect that firms are more likely to classify interest paid in financing (i.e., make an OCF-enhancing choice) when analysts have issued cash flow forecasts. Our second information-environment variable, industry practice, is relevant to classification choice because firms could be motivated to increase cross-sectional comparability by making classification choices consistent with those of their peer industry group.[8] Additionally, when considering the choice of where to report interest paid, a firm could be disadvantaged by classifying interest paid as operating and thus reporting comparatively lower OCF when, for example, the majority of its industry peers classify interest paid as financing. Therefore, we predict the greater the homogeneity of firms' classification choices within an industry, the more likely any given firm will follow. Bradshaw et al. (2004) argue that firms that are cross-listed in the United States have stronger incentives to adopt similar reporting choices as U.S. companies. Therefore we expect that cross-listed firms are less likely to classify items such as interest paid in financing, which is not allowed under U.S. GAAP.

We include size to capture financial reporting incentives, financial reporting expertise, and the financial reporting environment of large versus small firms. We do not

[8] This relates to Khanna et al. (2004) and Bradshaw and Miller (2008) who show that foreign firms are more likely to choose accounting method choices closer to US GAAP if they cross-list in the United States or have product market interactions. Wang (2012) documents increased cross-country intra-industry information transfers within EU after IFRS adoption.

have a prediction for its sign. Finally, we include indicator variables for country and industry.

Because the classification decisions are fairly stable over time, we use one observation per firm and summarize data available during the sample period to compute the variables in the model. To examine the relation between the variables described above and the magnitude of the effect of IFRS-permitted classification choices, we estimate an OLS regression model with the dependent variable constructed as the difference between OCF as reported and OCF as adjusted (if needed) for consistency with U.S. GAAP classification requirements. To examine the relation between the variables described above and the likelihood of an OCF-enhancing classification choice, we estimate a logit model in which the dependent variable is an indicator variable equal to one if interest paid is reported in the financing section and zero otherwise.

3. Sample Selection and Classification Choices

3.1 Sample Selection

We select a sample of non-financial firms in 13 European countries that adopted IFRS in 2005. Table 1, Panel A, presents our initial sample selection procedures. To select our sample, we identify all firms in Compustat Global with key data items for all fiscal years from 2005 to 2008 including total assets, OCF, and market values. With this selection procedure, we identify 11,260 (2,815) potential observations (firms). Table 1, Panel B, presents the potential and final samples by country. For those countries with 100 firms or less, we target to sample 100% of the firms. For those countries with over 100 firms, we target to select the greater of 100 firms or 30% of the firms with available

data. Because of the large number of firms in the United Kingdom, we selected 15% of observations, or 584. This selection procedure results in a potential sample of 4,816 observations. Our final sample is limited to 3,096 observations because of financial statements not in English, German, or Danish, or financial statements missing in Mergent On-Line.

Compustat Global has data items for cash flows from operating, investing, and financing activities. In addition, it has data items that indicate in what section (operating, investing, or financing) the detail line items like interest paid and interest received are reported. However, our examination of the Compustat Global cash flow detail data indicates that they are incomplete and often inaccurate. We therefore hand collect the detail cash flow items from the financial statements.

In our sample collection, we identify a possible non-compliance issue with regard to disclosure of interest paid.[9] For 862 observations, we could not locate interest paid or where it was classified on the statement of cash flows after searching the statement of cash flows and the financial statement footnotes.[10] It is possible that these firms do not pay interest or that interest paid is immaterial. However, we confirm that 844 (787) observations had interest expense (long-term debt) in Compustat Global and thus likely paid interest. Based on our review of disclosures by other firms, we determine that if the interest paid had been in the investing or financing sections, it would likely have

[9] IAS 7, *Statement of Cash Flows*, requires cash flows from interest and dividends received and paid to be disclosed separately (IAS 7, paragraph 31).

[10] For each country, the percent of non-disclosure of interest paid is as follows: Austria - 8%; Belgium - 16%; Denmark- 30%; Finland- 12%; France- 17%; Germany- 10%; Italy- 31%; Netherlands- 24%; Norway- 23%; Portugal- 25%; Spain- 38%; Sweden- 43%; United Kingdom- 1%.

appeared as a separate line in the section in the statement of cash flows.[11] Therefore, we categorize these observations as reporting interest paid in operating in our analyses. This classification tends to understate the difference between IFRS and US GAAP.

3.2 Description of Classification Choices

Table 3 describes the classification choices for interest paid, interest received, and dividends received – by country and industry.[12] The number of observations differs in each panel because not all firms report each item.[13]

We observe that the choice of where to classify interest paid in the statement of cash flows varies by country (Table 3, panel A). Overall, about 77% of the sample firms classify interest paid in operating and 22% in financing. In our sample, all firms in Denmark and Finland classify interest paid in the operating section. Almost all Swedish firms choose to classify interest paid in operating. In Portugal, however, about 83% of our sample firms classify interest paid in financing. About 65% of the observations in the France and the United Kingdom classify interest paid in operating. About 1% of the

[11] It is also possible that there is a non-compliance issue with interest received and dividends received. However, we cannot check these against other financial statements items like interest expense as easily because Compustat Global has incomplete data.

[12] U.S. GAAP also requires that taxes paid be classified as operating and dividends paid as financing. While IFRS allows discretion in these classifications, data on taxes paid and dividends paid for a substantial subsample of our firms indicate that over 99% of firms classified these items consistent with U.S. GAAP. Given the homogeneity of classification choice, we exclude income taxes paid and dividends paid from our analyses.

[13] IAS 7, *Statement of Cash Flows*, requires cash flows from interest and dividends received and paid to be classified as either operating, investing or financing activities (IAS 7, paragraph 31). Further, IAS 7, paragraph 33, states that "interest paid and interest and dividends received are usually classified as operating cash flows for a financial institution. However, there is no consensus on the classification of these cash flows for other entities. Interest paid and interest and dividends received may be classified as operating cash flows because they enter into the determination of profit or loss. Alternatively, interest paid and interest and dividends received may be classified as financing cash flows and investing cash flows respectively, because they are costs of obtaining financial resources or returns on investments." However, as shown in table 3, we find cases where companies do not follow this guidance.

sample classifies interest paid as an investing cash flow, inconsistent with guidance in IAS 7, *Statement of Cash Flows*, paragraph 33.

Classification of interest received exhibits great variation as shown in Table 3, panel A. About 54%, 37% and 9% classify interest received in operating, investing, and financing, respectively. Similar to the reporting of interest paid, all firms in Denmark and about 90% or more of the sample firms in Finland and Sweden classify interest received in operating. Portugal, Spain, and the United Kingdom have the highest percentage of firms classifying interest received in investing, at 94%, 68%, and 58%, respectively. About 9% of the sample firms classify interest received as a financing cash flow, inconsistent with guidance in IAS 7, *Statement of Cash Flows*, paragraph 33.

The dividends-received amount is primarily classified in operating and investing, at 49% and 48%, respectively, as shown in Table 3, panel A. All observations from Sweden and about 89% of the sample in Austria classify dividends received as operating. In contrast, 98% of the Portuguese firms in our sample classify dividends received in investing. About 4% of the sample classifies dividends received as a financing cash flow, inconsistent with guidance in IAS 7, *Statement of Cash Flows*, paragraph 33.

Panel B of Table 3 shows cash flow classifications by industry.[14] Classification choices for interest paid across industries are more concentrated than across countries. The percentage of the sample classifying interest paid in financing ranges from 14% for durable manufactures to 30% for transportation and utilities. In all industries, 70% or more of firms classify interest paid as operating.

For interest received, again, durable manufacturers have the highest percentage of firms classifying interest received in operating, with 67% of the sample making this

[14] To define industries, we follow the industry definitions in Barth et al. (1998).

choice. In the other industries, 43% to 61% of the sample firms classify interest received in operating.

Finally, for dividends received, the pharmaceutical industry exhibits homogeneity in classifying, with 100% reporting dividends received in investing. The Retail industry follows with 68% classifying dividends received in operating.

Table 4 presents information on common combinations for those 675 observations that clearly disclose classification choices for all three items. The most common combination, selected by 44%, is classifying all items in OCF. (This reporting combination is used by about 60% of our full sample). The second most common combination is classifying interest paid in financing and both dividends received and interest received in investing. Table 4, Panel B, reports classifications by section pairs. The diagonals of the section-pair classifications indicate similarities of classification choices, by item. For example, of the 472 firms that classify interest paid as operating, 391 also classify interest received as operating. Interest paid and interest received were classified differently by 35% (234/675) of our firms, implying that *net* interest is not automatically a determinant of OCF reported under IFRS. For interest received and dividends received, 75% (505/675) of observations classify these two items in the same section.

To examine the financial statement effects of cash flow classification choices, we test whether the operating, investing, and financing cash flows as reported would differ significantly from cash flows under U.S. GAAP classifications. We adjust as-reported OCF to include interest paid, interest received, and dividends received. Similarly, we

adjust as-reported investing and financing cash flows to exclude these items.[15] Table 5 reports descriptive statistics of the as-reported cash flows and the *pro forma* U.S. GAAP cash flows. The mean (median) of reported OCF is about 2 percent (3 percent) higher,[16] on average, than it would have been under U.S. GAAP, while both investing and financing cash flows are lower. The standard deviation and median of OCF in the pooled sample differ significantly between IFRS and U.S. GAAP. The mean OCF does not. Means, standards deviations, and medians of investing cash flows (ICF) and financing cash flows (FCF) do not differ statistically. The means of the pair-wise differences are significantly different for all cash flow components.

4. Results

4.1 Descriptive Statistics and Correlations

Table 6, panel A, reports descriptive statistics for variables in the logit model. The number of firms is reduced to 603 from 798 due to excluding 48 firms that do not have all data available to compute all independent variables, 145 firms from Denmark, Finland and Sweden (where there is little or no variation in interest paid and interest received classification choices), and 2 outlying observations with extreme values of the difference in cash flows.[17] The mean of *OCF_Reported* less *OCF_ Pro forma_USGAAP* and the percent reporting interest paid in financing are slightly different than those reported in Table 5 and Table 3, panel A, respectively, because here we summarize observations by firm rather than firm-year. The correlation table in Table 6, panel B,

[15] If values are missing for any cash flow variables, we set them equal to zero in our computations.
[16] Percent differences computed as $OCF\_Reported_t$ less $OCF\_\ Pro\ forma\_USGAAP_t$ divided by $OCF\_Reported_t$ from Table 5.
[17] We also check for but do not identify any outlying observations in OLS regression model using a studentized residual greater than an absolute value of 3.

indicates that the two dependent variables, *OCF_Reported less OCF_Pro forma_USGAAP* and *Interest Paid Reported in Financing,* are positively and significantly correlated. *Distress* and *Credit Rating* are negatively and significantly related to the dependent variables as expected. *Equity Issues* and *Leverage* are positively and significantly associated with dependent variables as expected.

4.2 OLS Regression Model

Results using differences in OCF as the dependent variable are presented in Table 7. Because *Distress* and *Credit Rating* are positively and significantly correlated, we include these variables in separate regressions. We find that *Distress* (where a higher value implies a more remote likelihood of financial distress) and *Credit Rating* (where a higher value implies a better credit rating) are each negatively and significantly related to *OCF_Reported less OCF_Pro forma_USGAAP*, suggesting firms that are less financially distressed and less likely to default are less likely to make classification choices that result in higher OCF, consistent with our expectations. Our results also show that *Equity Issues* is positive and significant, suggesting that firms that access equity markets more frequently opt to make classification choices to report higher OCF. *Leverage* is also significantly positive, indicating that firms with greater leverage are more likely to make classification choices to show higher OCF. Firms with negative operating cash flows are less likely to make classification choices that increase OCF, opposite to expectations. It appears that those firms that already are reporting negative OCF are not sensitive to reporting less negative OCF.

We also find that those firms cross-listed in the U.S. are more likely to make OCF-enhancing classification choices, contrary to our expectations based on Bradshaw et

al. (2004). This finding suggests that these firms are making choices not allowed under U.S. GAAP and that their choices result in reported OCF that is higher than what would have been reported under U.S. GAAP. Finally, size is negative and significant in the regression with *Credit Rating* but not the other regression.

Neither *Profitability*, *Analysts Cash Flow Forecast*, *Industry Homogeneity*, nor any of the industry indicator variables (not tabulated) are significant. Country indicator variables are significant with *p*-values below .05.

4.3 Logit Regression Model

Table 8 presents the results of estimating the logit regression, where the classification choice to report interest paid in financing is the dependent variable. Here, we also estimate separate models for *Distress* and *Credit Rating*.

Overall, results are similar to those presented in Table 7 except that cross-listing is no longer significant. Neither *Profitability*, *Analysts Cash Flow Forecast*, *Size*, nor any of the industry indicator variables (not tabulated) are significant. Country indicator variables are significant with *p*-values lower than .05.

4.4 Sensitivity and Robustness Checks

4.4.1 Firms Changing Classifications

In our sample, we identify 65 firms, or 8%, that change their classifications during the sample period. Appendix B provides descriptive information on the classification changes made, comparisons to the full sample, and comparisons of the firm before and after the change. We also include an example of the cash flow effects of firm changing classifications. We perform regression similar to those in tables 7 and 8 computing the change in each variable, when possible (not tabulated). The evidence is directionally

similar but weaker than in our main tables with none of the variables being significant at conventional levels. Given the small sample size and the change specification, the weaker results are not surprising.

4.4.2 Additional Analyses and Variables

Data on auditors indicate that 88% of our full sample of 798 firms are audited by a Big auditor (Deloitte, Ernst & Young, KPMG, or PwC). We include an indicator variable for each of these four big auditors in our regressions, and none of the indicator variables are significant (not tabulated). This result indicates that classification choice is not associated with choice of auditor.

We also examine the effect of including other variables but none are significant: average market-to-book ratio, average returns, an indicator variable for high debt (over the median), an indicator variable for earnings that are the just positive, the variability of OCF, computed as the standard deviation of the firm's OCF over the sample period, and capital intensity which captures structure of operations and potential financing needs.

When we include only observations with interest paid located on the face of or in the footnotes to the financial statements (about 70% of the sample), regression results are similar to the overall reported results.

We also reviewed the classification choices of a larger set of cross-listed firms to determine whether the results on the cross-listing variable are generalizable to a broader set of cross-listing firms. We collected data on 83 European Union cross-listed firms in 2006 (including some of the 40 cross-listed firms in our sample), and we find the classification choice for interest paid is similar to our overall sample: 78% reporting in operating and 22% in financing.

5. Summary and Conclusion

Cash flow, and particularly OCF, is used in business valuation and contracting. However, OCF can be measured differently under IFRS and U.S. GAAP because of classification alternative available under IFRS. While previous international accounting research focuses on IFRS versus U.S. GAAP differences in earnings and shareholders' equity, little attention has been given to potential differences in OCF under the two sets of standards.

Using our international setting, we build on and extend certain findings from a U.S.-only setting (Lee 2012). We find that firms with a higher likelihood of financial distress and the probability of bankruptcy are more likely to use make OCF-increasing classification choices. We find no relation between classification choices and the presence of analysts' cash flow forecast, a finding we attribute to the almost universal presence of such forecasts. Beyond these factors, we find that firms with average negative cash flows over a period of time do not make OCF-increasing choices, suggesting that classification shifting would not improve their appearance of better performance. Interestingly, we also find that cross-listed firms are less likely to make OCF classification choices similar to U.S. GAAP.

Our paper contributes to the international accounting literature exploring the consequences of IFRS adoption and reporting. Given the recent adoption of IFRS in more than 120 countries and the consideration by U.S. regulators to adopt IFRS, our evidence on the classification of cash flows as operating, investing, and financing activities is potentially important. Our results show that cash flow classification

flexibility within IFRS likely creates a non-comparability that is absent under the more rigid classification requirements of U.S. GAAP. Our work thus points to an area for future research that has implications both for investors and researchers. Variation in classification of cash flow items introduces non-comparability into measurement of widely-used metrics such as accruals and free cash flow. Accruals are sometimes measured as the difference between earnings and cash flows from operating activities, and free cash flow is often measured as operating cash flow minus capital expenditures. Understanding the impact of non-comparability on such metrics will facilitate appropriate inferences from research incorporating these metrics.

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Table 1: Sample Selection

Panel A: Available Observations on Compustat Global

The available observations on Compustat Global are those with data for fiscal years 2005 to 2008 in European countries that report under IFRS

Available all four years - fiscal years from 2005 to 2008	17,270
Less: Total assets missing	47
Less: Operating Cash Flows Missing	365
Less: Missing year (less than 3 years in data set)	2,858
Less: Missing market value in at least one year	2,740
Total available observations	11,260
Total available firms	2,815

Panel B: Number of Observations Selected

			Excluded Observations			
Country	Number of Observations	Number Selected*	Language	Missing in Mergent	Other	Sample
Austria	208	208	19	60	8	121
Belgium	268	268	0	79	4	185
Denmark	268	268	0	125	0	143
Finland	408	408	0	236	0	172
France	1,624	488	25	34	7	422
Germany	1,676	508	15	94	0	399
Italy	824	401	0	221	6	174
Netherlands	412	412	0	150	1	261
Norway	412	412	0	243	7	162
Portugal	152	152	0	68	4	80
Spain	312	312	0	80	0	232
Sweden	804	395	13	128	5	249
United Kingdom	3,892	584	0	65	23	496
Total	11,260	4,816	72	1,583	65	3,096

* For those countries with 100 firms or less, we target to sample 100% of the firms. For those countries with over 100 firms, we target to select the greater of 100 firms or 30% of the firms with available data. Because of the large number of firms in the United Kingdom, we select 15% of observations, or 584.

Table 2: Sample Description by Country

Country	Number of firms	Total Assets (in thousands of U.S. dollars) Mean	Std. Dev.	Median	Operating Cash Flows (in thousands of U.S. dollars) Mean	Std. Dev.	Median
Austria	31	3,329	6,434	625	371	924	71
Belgium	47	16,477	76,298	718	-122	4,035	50
Denmark	105	21,988	53,404	2,606	1,400	3,553	202
Finland	43	707	1,516	286	51	119	21
France	109	17,467	27,536	4,831	1,517	3,589	311
Germany	36	4,054	11,625	629	491	1,431	52
Italy	45	14,805	31,630	6,078	1,421	4,822	226
Netherlands	66	7,636	16,976	1,251	561	1,292	83
Norway	43	5,065	13,832	632	585	2,331	50
Portugal	20	6,189	11,397	2,660	474	746	191
Spain	58	14,347	29,002	2,405	1,313	3,583	252
Sweden	67	4,343	8,630	948	317	666	78
United Kingdom	128	4,468	12,911	993	513	2,412	95
Total	798	10,653	32,521	1,566	798	2,890	113

Total assets and operating cash flows are in U.S. dollars. We tabulate the fiscal 2008 observation for each firm.

Table 3: Classification of Interest Paid, Interest Received, and Dividends Received in the Statement of Cash Flows by Country and Industry

Panel A: Classification in the Statement of Cash Flows by Country

	Interest Paid Classification				Interest Received Classification				Dividends Received Classification			
Country	**Total**	**Operating**	**Investing**	**Financing**	**Total**	**Operating**	**Investing**	**Financing**	**Total**	**Operating**	**Investing**	**Financing**
Austria	121	87%	0%	13%	97	74%	26%	0%	37	89%	11%	0%
Belgium	185	72%	0%	28%	123	50%	27%	23%	65	43%	51%	6%
Denmark	143	100%	0%	0%	61	100%	0%	0%	38	29%	68%	3%
Finland	172	100%	0%	0%	127	96%	4%	0%	103	63%	37%	0%
France	422	67%	0%	33%	82	70%	15%	16%	163	46%	47%	7%
Germany	399	71%	0%	29%	323	65%	23%	12%	188	65%	31%	3%
Italy	174	84%	2%	13%	39	41%	46%	13%	63	30%	63%	6%
Netherlands	261	92%	2%	6%	129	49%	40%	12%	80	36%	64%	0%
Norway	162	89%	0%	11%	49	47%	35%	18%	32	44%	38%	19%
Portugal	80	18%	0%	83%	64	0%	94%	6%	44	2%	98%	0%
Spain	232	69%	0%	31%	101	18%	68%	14%	61	44%	54%	2%
Sweden	249	97%	0%	3%	76	89%	0%	11%	21	100%	0%	0%
United Kingdom	496	64%	3%	33%	465	35%	58%	6%	74	34%	66%	0%
Total	3,096	77%	1%	22%	1,736	54%	37%	9%	969	49%	48%	4%

Table 3: Classification of Interest Paid, Interest Received, and Dividends Received in the Statement of Cash Flows by Country and Industry (continued)

Panel B: Interest Paid Classification in the Statement of Cash Flows by Industry

	Interest Paid Classification				Interest Received Classification				Dividends Received Classification			
Industry	**Total**	**Operating**	**Investing**	**Financing**	**Total**	**Operating**	**Investing**	**Financing**	**Total**	**Operating**	**Investing**	**Financing**
Mining and construction	188	79%	3%	19%	117	50%	44%	5%	62	56%	44%	0%
Food	167	82%	1%	17%	87	55%	39%	6%	73	66%	34%	0%
Textiles, printing and publishing	257	81%	0%	19%	145	61%	30%	8%	81	46%	49%	5%
Chemicals	111	71%	0%	29%	61	41%	39%	20%	43	53%	47%	0%
Pharmaceuticals	108	86%	0%	14%	53	55%	26%	19%	11	0%	100%	0%
Extractive industries	140	71%	3%	26%	80	53%	28%	20%	35	60%	23%	17%
Durable manufacturers	384	87%	1%	13%	200	67%	24%	10%	88	59%	35%	6%
Computers	297	71%	0%	29%	151	47%	51%	2%	51	29%	59%	12%
Transportation	314	70%	1%	30%	195	55%	39%	6%	147	35%	60%	5%
Utilities	106	70%	0%	30%	58	59%	38%	3%	50	34%	66%	0%
Retail	263	74%	2%	24%	155	51%	39%	10%	71	68%	32%	0%
Services	270	70%	1%	28%	165	43%	48%	9%	78	33%	60%	6%
Other	491	81%	0%	19%	269	55%	32%	13%	179	55%	45%	0%
Total	3,096	77%	1%	22%	1,736	54%	37%	9%	969	49%	48%	4%

Table 4: Classification of Interest Paid, Interest Received, and Dividends Received in the Statement of Cash Flows

Panel A: Classification for All Items by Section Combinations

Interest Paid	Interest Received	Dividends Received	Obs.	Percent
Operating	Operating	Operating	300	44.4%
Financing	Investing	Investing	124	18.4%
Operating	Operating	Investing	84	12.4%
Operating	Investing	Investing	73	10.8%
Financing	Financing	Investing	27	4.0%
Financing	Financing	Operating	14	2.1%
Financing	Investing	Operating	13	1.9%
Financing	Operating	Investing	10	1.5%
Operating	Investing	Operating	8	1.2%
Other Combinations			22	3.3%
Total			675	100%

Panel B: Classification by Section Pairs

		Interest Paid			
		Operating	Investing	Financing	Total
Interest Received	Operating	391	0	16	407
	Investing	81	5	137	223
	Financing	0	0	45	45
		472	5	198	675
Dividends Received	Operating	308	1	33	342
	Investing	157	4	160	321
	Financing	7	0	5	12
		472	5	198	675

		Interest Received			
		Operating	Investing	Financing	Total
Dividends Received	Operating	306	22	14	342
	Investing	94	200	27	321
	Financing	7	1	4	12
		407	223	45	675

Table 5: Comparison of Reported to *Pro forma* U.S. GAAP Operating, Investing, and Financing Cash Flows

n=3,096	**Mean**	**Std.Dev.**	**Median**
OCF_Reported$_t$	0.0894	0.0994	0.0855
INV_ Reported$_t$	-0.0786	0.1369	-0.0646
FIN_Reported$_t$	-0.0072	0.1750	-0.0170
OCF_ *Pro forma*_USGAAP$_t$	0.0873	0.1028	0.0826
INV_*Pro forma*_USGAAP$_t$	-0.0771	0.1368	-0.064
FIN_ *Pro forma*_USGAAP$_t$	-0.0038	0.1761	-0.0151
OCF_Reported$_t$ - OCF_ *Pro forma*_USGAAP$_t$	0.0021***	0.0224	0*
INV_Reported$_t$ - INV_ *Pro forma*_USGAAP$_t$	0.0014***	0.0082	0
FIN_Reported$_t$ FIN_- *Pro forma*_USGAAP$_t$	-0.0034***	0.0202	0*

*, **, *** denote statistical significance at the 0.10, 0.05, and, 0.01, respectively.

Variable Definitions:

OCF_Reported$_t$ is operating cash flows as reported by the firm in time t.

OCF_*Pro forma*_USGAAP$_t$ is operating cash flows in time t adjusted to include interest paid, interest received, and dividends received in operating cash flows if these items are not already reported in the operating section.

INV_Reported$_t$ is investing cash flows as reported by the firm in time t.

INV_*Pro forma*_USGAAP$_t$ is investing cash flows in time t adjusted to exclude interest paid, interest received, and dividends received.

FIN_Reported$_t$ is financing cash flows as reported by the firm in time t.

FIN_*Pro forma*_USGAAP$_t$ is financing cash flows in time t adjusted to exclude interest paid, interest received, and dividends received.

All firm subscripts are omitted. All variables are scaled by the firm's total assets.

Table 6: Descriptive Statistics and Correlations of Capital Market Incentives and Reporting Environment

Panel A: Descriptive Statistics

Variable	Mean	Std. Dev.	Median
Number of firms n = 603			
OCF_*Reported*$_t$ less OCF_ *Pro forma*_USGAAP$_t$ *	0.0028	0.0098	0
Interest Paid Reported in Financing	0.3051	0.4609	0
Distress	1.8463	1.0794	1.6999
Credit Rating	2.6455	2.4426	3
Equity Issues	0.5451	0.4129	0.6394
Leverage	0.6028	0.1937	0.6170
Profitability	0.1570	0.2276	0.1498
Negative Cash Flows	0.0755	0.1904	0
Analysts Cash Flow Forecast	0.8657	0.3413	1
Industry Homogeneity	0.2487	0.0578	0.2576
Cross-listed in U.S.	0.0647	0.2462	0
Size	7.7311	1.8689	7.5854

Table 6: Descriptive Statistics and Correlations of Capital Market Incentives and Reporting Environment
(continued)

Panel B: Correlations for Determinants Tests (Pearson correlations above diagonal. Spearman correlations below diagonal.)

	OCF_Reported less OCF_ Pro forma_USGAAP	Interest Paid Reported in Financing	Distress	Credit Rating	Equity Issues	Leverage	Profit-ability	Negative Cash Flows	Analysts Cash Flow Forecast	Industry Homo-geneity	Cross-listed in US	Size
$OCF\_Reported_t$ less		0.591	-0.315	-0.124	0.190	0.278	-0.099	-0.036	0.012	0.059	0.094	0.052
$OCF\_Pro\ forma\_USGAAP_t$		0.000	0.000	0.002	0.000	0.000	0.015	0.375	0.762	0.149	0.020	0.198
Interest Paid Reported	0.696		-0.125	-0.049	0.125	0.156	-0.012	-0.069	0.018	0.121	0.001	0.029
in Financing	0.000		0.002	0.233	0.002	0.000	0.768	0.091	0.657	0.003	0.972	0.470
Distress	-0.275	-0.144		0.244	-0.318	-0.409	0.302	-0.157	-0.017	0.028	-0.147	-0.272
	0.000	0.000		0.000	0.000	0.000	0.000	0.000	0.674	0.495	0.000	0.000
Credit Rating	-0.111	-0.052	0.315		-0.104	-0.097	0.386	-0.308	0.003	0.104	0.038	0.189
	0.007	0.198	0.000		0.011	0.018	0.000	0.000	0.945	0.011	0.357	0.000
Equity Issues	0.249	0.197	-0.470	-0.201		0.273	-0.248	0.039	0.004	0.056	-0.047	0.066
	0.000	0.000	0.000	0.000		0.000	0.000	0.342	0.929	0.168	0.253	0.104
Leverage	0.249	0.178	-0.462	-0.175	0.848		0.009	-0.090	0.004	0.037	0.100	0.267
	0.000	0.000	0.000	0.000	0.000		0.823	0.026	0.925	0.368	0.014	0.000
Profitability	-0.073	-0.004	0.350	0.438	-0.025	0.061		-0.374	0.001	0.153	0.032	0.096
	0.075	0.923	0.000	0.000	0.534	0.137		0.000	0.982	0.000	0.432	0.018
Negative Cash	-0.087	-0.050	-0.102	-0.281	0.021	-0.038	-0.258		-0.106	-0.096	-0.025	-0.265
Flows	0.033	0.222	0.012	0.000	0.613	0.355	0.000		0.009	0.018	0.547	0.000
Analysts Cash	-0.010	0.018	0.000	0.018	-0.012	-0.011	0.017	-0.133		0.066	0.084	0.087
Flow Forecast	0.802	0.657	0.992	0.660	0.769	0.795	0.671	0.001		0.104	0.040	0.033
Industry	0.048	0.117	-0.020	0.070	0.094	0.068	0.147	-0.068	0.066		0.083	0.009
Homogeneity	0.236	0.004	0.625	0.087	0.021	0.097	0.000	0.096	0.107		0.042	0.830
Cross-listed in US	0.065	0.001	-0.156	0.017	0.019	0.099	0.030	-0.047	0.084	0.067		0.337
	0.113	0.972	0.000	0.670	0.638	0.015	0.465	0.250	0.040	0.098		0.000
Size	0.106	0.018	-0.330	0.133	0.256	0.327	0.091	-0.243	0.074	0.007	0.303	
	0.009	0.651	0.000	0.001	0.000	0.000	0.026	0.000	0.071	0.856	0.000	

Table 6: Descriptive Statistics and Correlations of Capital Market Incentives and Reporting Environment (continued)

Variable Definitions:

OCF_Reported$_t$ *less OCF_ Pro forma_USGAAP*$_t$ is the average by firm of operating cash flows as reported by the firm in time t less operating cash flows in time t adjusted to include interest paid, interest received, and dividends received in operating cash flows if these items are not already reported in the operating section.

Interest Paid in Financing is an indicator variable equal to 1 if the firm classifies interest paid in financing cash flows as of the last year reported, and 0 otherwise.

Distress is financial distress computed using Altman's Z-score.

Credit Rating is the S&P credit rating estimated similar to Barth et al. (2008) grouped into quartiles, with 1 as the lowest rating and 4 the highest. We use actual credit ratings when available.

Equity Issues is the percent change in the firm's contributed capital over the sample period.

Debt Issues is the percent change in the firm's long-term debt over the sample period.

Profitability is the firm's net income divided by beginning total assets, averaged over the sample period.

Leverage is the firm's ratio of total liabilities over total assets at the beginning of the fiscal year, averaged over the sample period.

Analysts Cash Flow Forecast is an indicator variable equal to 1 if at least one analyst's cash flow forecast is available on IBES and 0 otherwise, averaged over the sample period.

Negative Cash Flows is an indicator variable equal to 1 if the firm reports negative operating cash flows and 0 otherwise, averaged over the sample period.

Industry Homogeneity is the percent of firms within an industry that report interest paid in financing cash flows, with industry classifications based on Barth et al. (1998).

Cross-listed in US is an indicator variable equal to 1 if the firm is cross-listed in the United States and 0 otherwise.

Size is the log of the firm's beginning total assets, averaged over the sample period.

Table 7: OLS Regression of the Difference in Operating Cash Flows on Incentives and Reporting Environment

Dependent Variable: OCF_Reported$_t$ less OCF_ *Pro forma*_USGAAP$_t$

	Expected Sign	Estimate	Std. Error	p-value	Estimate	Std. Error	p-value
(n = 603 firms)							
Intercept		0.0063	0.0051	0.1104	0.0130	0.0053	0.0071***
Distress	-	-0.0003	0.0002	0.0418**			
Credit Rating	-				-0.0021	0.0004	0.0000***
Equity Issues	+	0.0029	0.0010	0.0023***	0.0020	0.0010	0.0234**
Leverage	+	0.0112	0.0022	0.0000***	0.0079	0.0023	0.0003***
Profitability	+	-0.0024	0.0020	0.1115	-0.0013	0.0019	0.2499
Negative Cash Flows	+	-0.0040	0.0023	0.0442**	-0.0048	0.0023	0.0172**
Analysts Cash Flow Forecast	+	0.0001	0.0011	0.4776	0.0001	0.0011	0.4684
Industry Homogeneity	+	0.0000	0.0002	0.3914	0.0000	0.0002	0.3896
Cross-listed in US	-	0.0024	0.0017	0.0753*	0.0023	0.0016	0.0776*
Size	?	-0.0002	0.0003	0.2637	-0.0005	0.0003	0.0311**
F-value (p-value)		4.43 (0.0001)			5.23 (0.0001)		
Adjusted R^2		0.1418			0.1693		

*, **, *** denote statistical significance at the 0.10, 0.05, and, 0.01, respectively. *p*-values on test variables are based on one-tailed test for the test variables, and two-tailed test for all others.

Variable Definitions:
See Table 6 for variable definitions.
Country controls and industry controls are included.

Table 8: Logit Regression of The Classification Choice of Interest Paid in Financing on Incentives and Reporting Environment

Dependent Variable: Interest Paid in Financing

(n=603 companies)	Expected Sign	Estimate	Std. Error	Probability Value	Estimate	Std. Error	Probability Value
Intercept		0.080	1.372	0.477	-0.444	1.297	0.366
Distress	-	-0.191	0.129	0.069*			
Credit Rating	-				-0.064	0.046	0.083*
Equity Issues	+	0.520	0.300	0.041**	0.615	0.300	0.020**
Leverage	+	1.340	0.586	0.011***	1.544	0.578	0.004***
Profitability	+	0.035	0.484	0.472	0.068	0.493	0.445
Negative Cash Flows	+	-1.231	0.663	0.032**	-1.196	0.655	0.034**
Analysts Cash Flow Forecast	+	0.023	0.295	0.470	0.012	0.295	0.484
Industry Homogeneity	+	0.019	0.039	0.309	0.020	0.039	0.306
Cross-listed in US	-	-0.269	0.433	0.267	-0.283	0.433	0.257
Size	?	-0.043	0.070	0.270	-0.008	0.069	0.452
Goodness of Fit		Chi-Square	p-value		Chi-Square	p-value	
Likelihood Ratio		79.8	0.000		80.2	0.000	
Wald		60.7	0.000		60.6	0.000	
Predicted Probabilities and Observed Responses							
Percent Concordant		71.5			71.4		
Percent Discordant		28.2			28.4		
Percent Tied		0.3			0.3		

*, **, *** denote statistical significance at the 0.10, 0.05, and, 0.01, respectively. P-values on test variables are one-sided.

Variable Definitions:
See Table 6 for variable definitions.
Country controls and industry controls are included.

APPENDIX A
CREDIT RISK ESTIMATION

Estimation Equation

Similar to Barth et al. (2008), we estimate the relation between credit ratings and financial statement variables using the subsample of sample firms with credit ratings available.

$$SP = \alpha_0 + \alpha_1 TA + \alpha_2 ROA + \alpha_3 DBTA + \alpha_4 DIV + \alpha_5 NEG + \varepsilon \qquad (A1)$$

SP is the firm's S&P credit rating; *TA* is the natural logarithm of end-of-year total assets; *ROA* is net income divided by total assets; *DBTA* is debt to assets ratio, and *DIV*, and *NEG* are indicator variables that equal 1 if in year *t* the firm pays a cash dividend, or has negative *ROA*.[18] We omit firm-specific subscripts.

We set *Credit Rating*, our proxy for credit risk, equal to the predicted value from Equation (A1) for firms without credit ratings.

Estimating Equation (A1)

Due the limited availability of historical credit ratings for non-U.S. companies on commercially available databases, we collect credit ratings from Standard and Poors' website[19] in January 2011. We estimate Equation (A1) with the 2011 credit ratings and 2010 fiscal year data, the most recent year of available data. We include industry fixed effects.[20]

SP ranges from 1 to 4, where larger *SP* corresponds to lower risk; groups 4, 3, 2, and 1 include firms with ratings of AAA to A-_, BBB+_ to BBB-, BB+ to BB-_, and B_ to D, respectively.[21] Because *SP* has integer values, we use maximum likelihood estimation and an ordered probit model. We predict α_1, α_2, and α_4 are positive, and α_3, and α_5 are negative.

Empirical Estimates

Table A, Panel A, presents regression summary statistics from Equation (A1) for the 173 observations for firms with credit ratings and financial statement data. Consistent with prior research, S&P credit ratings, *SP*, are significantly positively related to *TA*, *ROA*, and *DIV*, and significantly negatively related to *DBTA* and *NEG*. The pseudo R-squared from the estimation is 0.58, indicating that these variables explain a substantial portion of the variation in credit ratings.

Table A, Panel B, presents the distributions of actual credit rating levels and changes and the distributions of estimated credit risk levels and changes. The distributions are similar, except in group 4 there are more firms with estimated credit risk (52.0 %) than with actual ratings (28.3%). In group 3, there are fewer firms with the estimated credit rating (45.1%) compared to actual

[18] Barth et al. (2008) also include subordinated debt in their model. For our sample, this variable is not available in commonly used databases.

[19] See http://www.standardandpoors.com/home/en/us.

[20] When we include country effects, results are similar.

[21] Our ordering is in the opposite direction from Barth et al. (2008) to match the expectations in our main logit regression.

(21.9%) percent of firms. Panel B also reveals the change in credit rating group from actual to predicted, with about 48.0% being accurately predicted, about 35% higher and 17% being lower. Finally, we find that the Pearson (Spearman) correlation between the actual and predicted credit ratings is 0.708 (0.683) and significant with a *p*-value of 0.00 (0.00).

TABLE A
Credit Risk Estimation

Panel A: Regression Summary Statistics from Equation (A1)

	Pred.	Coef.	p-value
TA	+	0.000	0.001
ROA	+	-7.060	0.002
DBTA	-	-3.475	0.024
DIV	+	4.436	0.001
NEG	-	-2.071	0.041
Pseudo R^2		0.58	

Panel B: Distributions of Actual and Estimated Credit Rating Groups

		Actual		Predicted	
Credit Rating Group		n	Percent	n	Percent
AAA to A-	4	49	28.3%	90	52.0%
BBB+ to BBB-	3	78	45.1%	41	21.9%
BB+ to BB-	2	32	18.5%	20	11.6%
B+ to D	1	14	8.1%	25	14.5%
Total		173		173	

Change in Credit Rating Groups from Actual to Predicted

Upgrades	3	0	0.0%
	2	4	2.3%
	1	56	32.4%
No Change	0	83	48.0%
Downgrades	-1	27	15.6%
	-2	3	1.7%
	-3	0	0.0%
Total		173	

APPENDIX B
DESCRIPTION OF FIRMS CHANGING CLASSIFICATIONS

In our sample, we identify 65 firms, or 8%, that change their classifications during the sample period. Table B, Panel A, indicates that the greatest numbers of reclassifications are moving interest paid out of OCF. The 65 changers represent 11 of the 13 sample countries, with the greatest number of changers in the United Kingdom (14) and Spain (12) (not tabulated). Companies in all industries, except Chemicals, made changes with the greatest number in Durable manufacturers (10) (not tabulated).

We next compare descriptive statistic for variables from our regression for the change subsample to the rest of the sample (the number of changer observations decreases to 59 due to data requirements to compute variables) in Table B, Panel B. We find that means and medians of the difference in OCF and leverage are significantly greater in the changer subsample. The medians of the interest paid reported in financing and equity issues are also significant greater. When we compare the changer sample to itself before and after the change in Table B, Panel C, we find significant differences in the means of the difference in OCF, interest paid reported in financing, leverage, negative cash flows and analysts' forecast coverage.

The exhibit presents an example of a company, Norse Energy Corp. ASA, a Norwegian gas explorer and producer that changed its classifications of interest paid and interest received in 2007. It changed its classification of interest paid to financing from operating. It changed its classification of interest received to investing from operating. The net effect of these changes was to report positive, rather than negative operating cash flows, in both 2007 and 2008.

Table B: Analyses of Companies Changing Classification of Interest Paid, Interest Received, and Dividends Received in the Statement of Cash Flows

Panel A: Classification Before and After Change by Change in Operating Cash Flow

	Interest Paid		Interest Received		Dividend Received	
	Companies	**Percent**	**Companies**	**Percent**	**Companies**	**Percent**
Into Operating	4	6%	8	12%	6	9%
Out of Operating	31	48%	20	31%	9	14%
No Change in Operating	30	46%	37	57%	50	77%
	65	100%	65	100%	65	100%

Panel B: Comparison of Descriptive Statistics between Companies that Do Not Change Classification and Companies that Change Classification

	No Change (n=544)		**Change** (n =59)	
Variable	**Mean**	**Median**	**Mean**	**Median**
OCF_*Reported*$_t$ less OCF_ *Pro forma*_USGAAP$_t$ *	0.0023	0	0.0069***	0.0047***
Interest Paid Reported in Financing	0.2592	0	0.7288	1***
Distress	1.8696	1.7081	1.6314	1.5064
Credit Rating	2.6735	3.0000	2.3871	3.1325
Equity Issues	0.5407	0.6340	0.5857	0.7322***
Leverage	0.5965	0.6096	0.6603**	0.7026***
Profitability	0.1576	0.1486	0.1519	0.1568
Negative Cash Flows	0.0763	0	0.0678	0
Analysts Cash Flow Forecast	0.8621	1	0.8983	1
Industry Homogeneity	24.8718	25.7576	24.8157	22.4490
Cross-listed in US	0.0643	0	0.0678	0
Size	7.7589	7.6068	7.4745	7.2004

Table B: Analyses of Companies Changing Classification of Interest Paid, Interest Received, and Dividends Received in the Statement of Cash (continued)

Panel C: Comparison of Descriptive Statistics for Companies that Change Classification Before and After Change

	Before Change		**After Change**	
Variable (n=59)	**Mean**	**Median**	**Mean**	**Median**
OCF_*After Change* less OCF_ *Before Change*			0.0065***	0.000
Interest Paid Reported in Financing	0.2923	0	0.7077***	1***
Distress	1.8143	1.5462	1.5632	1.5578
Equity Issues	0.0378	0	-0.0160	-0.0010
Leverage	0.6351	0.6798	0.6657**	0.6765
Profitability	0.1532	0.1378	0.0305	0.1336
Negative Cash Flows	0.0769	0	0.0308*	0
Analysts Cash Flow Forecast	0.7539	1	0.8462**	1
Industry Homogeneity	0.3347	0.2105	0.3347	0.2105
Cross-listed in US	0.0769	0	0.0769	0
Size	7.1147	6.9886	7.4006	7.2673

*, **, *** denote statistical significance at the 0.10, 0.05, and, 0.01, respectively. p-values on test variables are one-sided. Tests of equality of means in Panel A are for pooled samples. Tests of equality of means in Panel B are pair-wise.

Exhibit: Example of Effects of Reclassification on Operating Cash Flows

Norse Energy Corp. ASA, a Norwegian gas explorer and producer, changed its classifications of interest paid and interest received in 2007. It changed its classification of interest paid to financing from operating. It changed its classification of interest received to investing from operating. The net effect of these changes was to report positive, rather than negative operating cash flows, in both 2007 and 2008. The example below illustrates the computation of the net effect of the reclassifications.

Norse Energy Corp. Example: Computation of the Net Effects of the Reclassifications

	As reported following 2007 reclassification		*Adjustments, if no re-classification**		**Pro-forma** if no reclassification	
	2008	**2007**	*2008*	*2007*	**2008**	**2007**
Operating	**$5.3**	**$2.8**	***($13.7)***	***($14.4)***	**($8.4)**	**($11.6)**
Investing	$0.9	($56.8)	*($9.0)*	*($3.5)*	($8.1)	($60.3)
Financing	($16.6)	$34.5	*$22.7*	*$17.9*	$6.1	$52.4
Total	($10.40)	($19.50)	*$0*	*$0*	($10.40)	($19.50)

* The adjustments reverse the addition of Interest Received to Investing and instead add it to Operating. The adjustments also reverse the deduction of Interest Paid from Financing and instead subtract it from Operating.