

Flexibility in cash flow classification under IFRS: Determinants and consequences*

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Abstract

International Financial Reporting Standards (IFRS) allow managers flexibility in classifying interest paid, interest received, and dividends received within operating, investing, or financing activities within the statement of cash flows. In contrast, U.S. Generally Accepted Accounting Principles (GAAP) requires these items to be classified as operating cash flows (OCF). Studying IFRS-reporting firms in 13 European countries, we document firms' cash-flow classification choices vary, with about 76%, 60%, and 57% of our sample classifying interest paid, interest received, and dividends received, respectively, in OCF. Reported OCF under IFRS tends to exceed what would be reported under U.S. GAAP. We find the main determinants of OCF-enhancing classification choices are capital market incentives and other firm characteristics, including greater likelihood of financial distress, higher leverage, and accessing equity markets more frequently. In analyzing the consequences of reporting flexibility, we find some evidence that the market's assessment of the persistence of operating cash flows and accruals varies with the firm's classification choices, and the results of certain OCF prediction models are sensitive to classification choices.

Keywords: Statement of cash flows, classification shifting, IFRS, operating cash flows.

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1 Introduction

In this paper, we examine the determinants and consequences of comparative flexibility in classification choices within the statement of cash flows. International Financial Reporting Standards (IFRS) are perceived to allow managers more flexibility than generally accepted accounting principles in the United States (U.S. GAAP). This increased flexibility 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 the flexibility to report these items within operating cash flow (OCF) or, alternatively, to classify them as investing or financing. We describe variation in firms' cash flow classification choices under IFRS, identify capital market incentives and firm reporting environment characteristics associated with these choices, and document consequences of classification flexibility.

Cash flow, and particularly OCF, is well established as a basis for business valuation (e.g., Damodaran 2006, Imam et al. 2008),¹ contracting (e.g., Dichev and Skinner 2002; Mulford and Comiskey 2005), and financial analysis (e.g., 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

¹ Imam et al. (2008) present evidence that discounted cash flow models and price earnings multiples are the valuation models most preferred by analysts. Liu et al. (2007, 56), who present evidence that earnings multiples dominate cash flow multiples in predicting share price, nonetheless note that many practitioners prefer to use cash flows rather than earnings as a basis for valuation using multiples, "arguing that accruals involve discretion and are often used to manipulate earnings And expenses such as depreciation and amortization deviate substantially from actual declines in value because they are based on *ad hoc* estimates that are, in turn, derived from potentially meaningless historical costs."

classification variations within the statement of cash flows (Lee 2012). IFRS reporting provides a setting where the accounting standards provide firms flexibility in classification choices within the statement of cash flows.

The effect of flexibility in cash flow classification and its consequences are important because both the International Accounting Standards Board (IASB) and Financial Accounting Standards Board (FASB) share the objective that financial information should enable financial statement users to better predict future cash flows.² 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.”³

Despite identical objectives, 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),

² 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.

³ IFRS *Conceptual Framework*, Chapter 1, ¶OB20, which is identical to U.S. GAAP, *Concepts Statement No. 8* ¶OB20.

members of the FASB discussed the classifications of interest paid and interest received, ultimately opting to require these items be reported in the operating section.⁴

In our sample of 798 non-financial IFRS firms in 13 European countries from 2005 to 2012, we first document variation in classification choices. About 76%, 60%, and 57% of the sample classifies interest paid, interest received, and dividends received, respectively, in OCF. Only about 42% of the sample firms that report all three items opt to classify all three in OCF. We document significant variation in classification across industries and most countries.

The first set of analyses focuses on firms' classification choices and the effect on reported OCF. Results indicate 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.

The second set of analyses focuses on determinants of firms' cash flow classification choices from the perspective of OCF-increasing classifications. We examine incentives to inflate reported OCF, similar to Lee (2012), including capital market incentives, financial distress, the presence of analysts' cash flow forecasts, and profitability. Further, we explore characteristics associated with the reporting environment such as analyst following, classification choices of industry peers, cross-listing in the U.S., country and industry

In our determinants analysis, we construct two dependent variables as proxies for OCF-increasing classification choices: (1) the amount of the difference in reported OCF under IFRS and

⁴ 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*.)

a benchmark measure 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 first of these variables, we create a hypothetical benchmark by adjusting each firm's 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 classification as a benchmark because our main focus is on the differences between U.S. GAAP and IFRS. 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. We focus on interest paid because it usually constitutes a relatively large amount relative to interest received and dividends received, is commonly reported, is typically reported separately and is thus easier to identify. It is also possible that a firm has more control over the amount and timing of cash outflows (i.e. payments) as opposed to cash inflows (i.e. receipts) thus making interest paid more susceptible to use as an OCF-increasing item.⁵ When a firm classifies interest paid as financing, it follows that *ceteris paribus* reported OCF will be higher than if interest paid had been classified as operating. Thus classification of interest paid as financing is an OCF-increasing classification choice.

A cross-sectional determinants analysis of all firms with consistent classification during the study period indicates that actually-reported OCF exceeds benchmark-OCF by a greater amount for firms with weaker financial positions (i.e., greater likelihood of financial distress, higher leverage, and lower profitability). Firms with higher amounts of equity-raising activity also make greater OCF-increasing classification choices. For the determinants analysis using an indicator variable

⁵ We thank an anonymous reviewer for this observation.

signifying classification choice, we find that firms with higher leverage are more likely to make an OCF-enhancing choice and firms cross-listed in the United States are more likely to make a classification choice that is consistent with U.S. GAAP. We find no effects related to homogeneity of industry practice or to the presence of analysts' cash flow forecasts.

An examination of 99 firms that change classifications during our sample period reveals that 58% make OCF-increasing classification choices. The most common change is a reclassification of interest paid out of operating, an OCF-increasing choice. Analysis indicates that an OCF-increasing reclassification is more likely for firms with greater equity issuance and less likely for firms with more analyst coverage, homogeneity of industry practice, and a cross-listing in the U.S.

Variation in classification of cash flow items also introduces non-comparability into measurement of widely-used metrics such as accruals and free cash flow.⁶ Therefore, the final set of analyses focuses on consequences of flexibility in classification choice. The first consequence we examine pertains to the market pricing of persistence of cash flows and accruals. We examine whether the persistence of cash flows and accruals differs for firms that report consistently with U.S. GAAP compared to those firms making classification choices permitted under IFRS. We find that future returns are positively associated both with past accruals and past OCF, regardless of the classification choices. This positive association holds for firms where interest paid is included in OCF, and is even greater for firms where interest paid is excluded from OCF, an alternative permitted under IFRS. A related analysis also indicates differences in accrual pricing between the group of firms reporting consistently with U.S. GAAP and those using the classification flexibility allowed under IFRS, but results are sensitive to model specification.

⁶ 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. The alternative Hribar and Collins (2002) measure of accruals based on the balance sheet, even if superior, is not always feasible in an international setting.

A second consequence we examine pertains to models for predicting cash flows that have been used in prior accounting research. We find that differences in cash classification choices affect results when the cash flow prediction model is based on prior sales (Dechow et al. 1998, Roychowdhury 2006), but not when the cash flow prediction model is based on prior cash flows (Barth et al. 2001, Givoly et al. 2009). One implication is that the latter type of model may be more useful in the international context in which flexibility in cash flow classification exists.

Our study contributes to literature on managerial discretion in non-earnings measures, especially in an international context. Although managerial discretion in cash flow classification could be potentially helpful to financial statement users, our evidence suggests that classification choices are associated with incentives to report higher OCF. We also find that the likelihood of making an OCF-increasing change in classification is positively associated with equity issuance but negatively associated with analysts' coverage, consistent with analysts serving some deterrent role. Similarly, being cross-listed in the U.S. decreases the likelihood of making a cash-flow classification change.

Our study also contributes to the debate over costs and benefits of comparability and uniformity (De Franco et al. 2011). Flexibility in cash flow reporting may result in lower comparability and uniformity and thus theoretically creates costs for users which are potentially significant because of the use of cash flows in valuation and contracting.⁷ We provide some evidence that the market pricing of the persistence of accruals and cash flows differs, depending on the cash-flow classification choices made. While flexibility in cash flow classification could

⁷ 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 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.

arguably lead to more informative OCF, our findings indicate that such flexibility impacts the comparability of reported OCF.

Our study should be of interest to various audiences. Cash flow classification choices potentially impact the results of IFRS research using reported OCF as the results could be contingent on these choices.⁸ Researchers comparing OCF and other performance measures should be interested in the effects of classification on their estimates (e.g., Bernard and Stober 1989; Sloan 1996; Ashbaugh and Olsson 2002; Orpurt and Zang 2009; Barton et al. 2010).

Regulators in the U.S. should be interested in our study because of the plan for convergence and potential adoption of IFRS (SEC 2011). As IFRS allows more 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.⁹ Standard setters also can potentially utilize an understanding of the factors associated with a firm's reporting choices when crafting standards that permit alternatives. In addition, financial statement users may benefit from understanding whether and how management's cash flow classification choices relate to reporting incentives and firm characteristics (Carslaw and Mills 1991).

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 the determinants of firms' cash flow classification choices while Section 5 includes the analysis of specific consequences of flexibility in classification choice. Section 6 concludes.

⁸ See Barth et al. (1999), Piotroski (2000), Mohanram (2005), and Penman and Yehuda (2009), among others.

⁹ Additionally, from a practical standpoint, our identification of what appears to be more than incidental noncompliance with classification and disclosure guidance could be relevant to standard setters and regulators.

2 Motivation and research design

2.1 Determinants of OCF classification choices

We explore incentives and reporting environment factors related to reporting higher OCF, similar to Lee (2012).¹⁰ Incentives for reporting higher OCF relate broadly to capital access and contracting. Additionally, reporting environment factors affecting classification choice include industry and market aspects (analysts' forecasts and cross-listing).

Because OCF is an important measure in assessing credit and default risk (Beaver 1966; Ohlson 1980; DeFond and Hung 2003), we expect that firms closer to financial distress are motivated to report higher OCF. We create a proxy for financial distress based on Altman's Z-score (Altman and Hotchkiss 2006).¹¹ Arguably, firms accessing equity markets more frequently have stronger incentive to inflate OCF to increase their valuation and thus 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 profitability will be associated with OCF-increasing classification choices. On the one hand, less profitable firms could be more likely to make OCF-increasing classification

¹⁰ 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.

¹¹ Because of our cross-country and cross-market setting, we use the Altman model which primarily requires accounting variables. An alternative, the Shumway (2001) distress model, as used 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.

choices, managing OCF upward to compensate for weakness in reported profits. On the other hand, more profitable firms could be likely to make OCF-enhancing classification choices to reflect better cash flow performance consistent with income performance. Therefore, we do not predict the sign of the association between profitability and OCF-increasing choices.

We examine three explanatory variables related to the firm's information environment: (1) availability of analysts' cash flow forecast, (2) industry practice, and (3) cross-listing in the U.S. The presence of an analyst's cash flow forecast indicates the perceived importance of OCF and the commensurate subsequent scrutiny of reported OCF (DeFond and Hung 2003). This perceived importance of OCF suggests 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. However, other evidence suggests that analysts' cash flow forecast help to mitigate earnings management (DeFond and Hung 2003; Wasley and Wu 2006; DeFond and Hung 2007; McInnis and Collins 2011), essentially serving a deterrent role. This possible deterrent role suggests that firms are less likely to make an OCF-enhancing classification choice when analysts have issued cash flow forecasts. Therefore, we do not predict the sign of an association between analysts following and OCF-increasing classification choices.

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.¹² For example, 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

¹² 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 U.S. GAAP if they cross-list in the United States or have product market interactions. Wang (2014) documents increased cross-country intra-industry information transfers within the EU after IFRS adoption.

majority of its industry peers classify interest paid as financing. Alternatively, a firm could make a different choice to distinguish itself from its industry peers and, possibly, report higher OCF. In this case, OCF-increasing choices would not be expected to be associated with industry practice. Therefore, we have no prediction on the sign of the homogeneity of firms' classification choices within an industry.

Our third information environment variable pertains to cross-listing. Bradshaw et al. (2004) argue that firms with cross-listings in the United States have stronger incentives to adopt similar reporting choices as U.S. companies. Empirically, their data show a positive correlation between U.S. GAAP conformity and cross-listing. 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 firm size to capture financial reporting incentives, financial reporting expertise, and the financial reporting environment of large versus small firms. We do not have a prediction for its sign. Finally, we include indicator variables for country and industry. The regression model is as follows:

$$\begin{aligned}
 OCF_Classification_i = & a_0 + a_1 Distress_Hi_i + a_2 Equity_Issues_i + a_3 Leverage_Hi_i \\
 & + a_4 Profitability_i + a_5 Analysts_Cash_Flow_Forecast_i \\
 & + a_6 Industry_Homogeneity_i + a_7 Cross-listed_in_US_i + a_8 Size_i + e_i
 \end{aligned} \tag{1}$$

Where:

$OCF_Classification_i$ is either $OCF_Reported_t$ less $OCF_Pro\ form_USGAAP_t$ or $Interest\ Paid\ in\ Financing$.

$OCF_Reported_t$ less $OCF_Pro\ form_USGAAP_t$ = 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, averaged over the sample period.

$Interest\ Paid\ in\ Financing$ = 1 if the firm classifies interest paid in financing cash flows as of the last year reported, and zero otherwise.

$Distress_Hi$ = 1 if the firm's financial distress computed using Altman's Z-score is less than 1.81, indicative of high distress, and zero otherwise.

$Equity_Issues$ = percent change in the firm's contributed capital over the sample period.

$Leverage_Hi$ = 1 if the firm's ratio of total liabilities over total assets at the beginning of the fiscal year, averaged over the sample period, is greater than the median, and zero otherwise.

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

Analysts Cash Flow Forecast = 1 if at least one analyst's cash flow forecast is available on IBES, and zero otherwise, averaged over the sample period.

Industry Homogeneity = 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 = 1 if the firm is cross-listed in the United States, and zero otherwise.

Size = the natural logarithm of the firm's beginning of year market capitalization in U.S. dollars, averaged over the sample period.

Regressions include country, industry, and year controls.

We create one observation per firm summarizing data available during the sample period to compute the variables in the model. Firms with consistent classification over time are analyzed separately from firms that changed classification.¹³ 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 using the dependent variable, *OCF_Reported_t less OCF_Proforma_USGAAP_t*. To examine the relation between the variables described above and the likelihood of an OCF-enhancing classification choice, we estimate a logistic regression in which the dependent variable is *Interest Paid in Financing*.

2.2 Determinants of OCF-increasing reclassifications

Because cross-sectional variations in the classification within the statement of cash flows might result from historical legacy for each firm, the subsample of firms that change classification offers a potentially cleaner setting to examine the determinants of classification choice. The Appendix presents an illustrative example of one company that changed its classifications of interest paid and interest received. In 2007, Norse Energy Corp. ASA, a Norwegian gas explorer and producer, changed its classification of interest paid to financing from operating. Norse Energy

¹³ We examine these classification changers separately in Section 2.2.

changed its classification of interest received from operating to investing. The net effect of these changes was to report positive, rather than negative operating cash flows, in both 2007 and 2008.¹⁴

The various classification changes impact reported operating cash flow differently. To examine determinants of classification choice, we therefore focus on firms that increased OCF by making the classification change. We compare the OCF-increasing changers to a control group of firms that did not make a classification change, and specifically non-changing firms with existing classification choices that have not already maximized reported OCF. (OCF would be maximized by excluding interest paid from operating while including both interest received and dividends received in operating.) Thus we include the non-changing firms facing a similar decision space as the OCF-enhancing changers, namely the possibility of increasing reported OCF by making a change in classification.

To examine the relation between the determinant variables described in Section 2.1 above and the likelihood of an OCF-increasing classification choices, we estimate a logistic regression similar to equation (1) with the dependent variable *OCF-Increasing Classification Changer* equal to one if the firm increased OCF by making a classification change, and zero otherwise. Our expectations on the independent variable signs are similar.

2.3 Consequences: Market pricing of the persistence of cash flows

Prior research shows that the cash flow component of earnings is more persistent than the accrual component, yet market pricing does not always correctly reflect the relatively greater persistence (Sloan 1996; Dechow et al. 2008; Pincus et al. 2007.) In the context of cash flow classification, the question remains whether investors anticipate the persistence of operating cash

¹⁴ Within our sample, operating cash flows for firms reporting negative operating cash flows would become positive from an IFRS-allowed reclassification in about 1% of firm-year observations.

flows (and accruals) similarly regardless of where cash flow items are classified. To examine this question, we estimate the following model using ordinary least squares similar to Kraft et al. (2007):

$$\begin{aligned} Returns_{t+1} = & \beta_0 + \beta_1 ACCR_Reported_t + \beta_2 FLEX \times ACCR_Reported_t + \beta_3 OCF_Reported_t \quad (2) \\ & + \beta_4 FLEX \times OCF_Reported_t + \beta_5 FLEX + \beta_6 Size_t + \beta_7 BM_t + \beta_8 EP_t + \varepsilon_{t+1} \end{aligned}$$

Where

$Returns_{t+1}$ = annual return computed 6 months after year end.

$ACCR_Reported_t$ = the amount of accruals, calculated as net income less reported operating cash flows at time t divided by the average of total assets at time t and $t-1$.

$ACCR_Reported_t * FLEX$ = the interaction between accruals and the indicator variable $FLEX$ at time t .

$OCF_Reported_t$ = the reported amount of operating cash flow at time t divided by the average of total assets at time t and $t-1$.

$OCF_Reported_t * FLEX$ = the interaction between accruals and the indicator variable $FLEX$ at time t .

$FLEX$ = 1 if the firm's classification choices for operating cash flow reflect the flexibility available under IFRS rather than the classifications requirements of U.S. GAAP, and zero otherwise.

$Size_t$ = the natural logarithm of the firm's market capitalization in U.S. dollars at the beginning of time t .

BM_t = the firm's book to market ratio, calculated as the ratio of the firm's shareholders' equity divided by its market capitalization at the beginning of time t .

EP_t = the firm's net income divided by its market capitalization at the beginning of time t .

Regressions include country, industry, and year controls.

Our primary variables of interest are the interaction variables β_2 and β_4 . A finding of a statistically significant value for these coefficients indicates that the market pricing of the components of earnings – accruals and cash flows – differs for alternative classification choices. If the market pricing of persistence is identical regardless of flexibility in classification choices, then the coefficients on the interaction variables will not differ significantly from zero. With the inclusion of interaction variables, the coefficients on each of the component variables, accruals and cash flows, are interpreted as the relation with future returns when OCF is reported under the non-flexible classification choices required by U.S. GAAP. A positive (negative) value of β_2 indicates the magnitude of the relation of future returns with accruals is greater (smaller) when OCF is reported under flexible classification choice compare to the non-flexible classification choices

required by U.S. GAAP. A positive (negative) value of β_4 indicates the magnitude of the relation of future returns with cash flows is greater (smaller) when OCF is reported under flexible classification choice compare to the non-flexible classification choices required by U.S. GAAP.

A related analysis focuses on a comparison of the persistence parameters for accruals and cash flow components of earnings with the parameters that are implied by stock returns – similar to the approach in Sloan (1996) and Dechow et al. (2008).¹⁵

$$EARNINGS_{t+1} = \alpha_0 + \alpha_1 ACC_Reported_t + \alpha_2 OCF_Reported_t + Controls_t + v_t \quad (3)$$

$$Returns_{t+1} = \beta (EARNINGS_{t+1} - \alpha_0^* - \alpha_1^* ACC_Reported_t + \alpha_2^* OCF_Reported_t + \phi Controls_t) + \varepsilon_t \quad (4)$$

where

$EARNINGS_{t+1}$ = the amount of net income at time t divided by the average of total assets at time t and $t-1$.

$Controls = Size_t, BM_t$ and EP_t .

All other variables are as previously defined.

We undertake this analysis separately for the subsample of firms with classification choices that reflect the flexibility under IFRS ($FLEX = 1$) and the subsample with classification choices similar to those under U.S. GAAP. The coefficients α_1 and α_2 from the forecasting equation (3) indicate the persistence of the two components of earnings: accruals and cash flow. Prior research has shown that the cash flow component of earnings is more persistent than the accruals component. We examine whether the relationship, $\alpha_1 > \alpha_2$, holds for both subsamples. An impact of differences in classification choice would be indicated by differences in comparative persistence parameters for accruals and OCF.

¹⁵ Kraft et al. (2007) demonstrate that estimating equation (2) is asymptotically equivalent to estimating the system in equation (3) and equation (4). Kraft et al. (2007) also empirically demonstrate that inferences about rational pricing based on the two approaches are virtually identical in large-sample studies settings.

A comparison is also made between the coefficients from the market pricing equation α_1^* and from the forecasting equation α_i . Presence of the accrual anomaly, for example, is indicated by market underweighting cash flow ($\alpha_2^* < \alpha_2$) and overweighting accruals ($\alpha_1^* > \alpha_2$). In the international context, Pincus et al. (2007) provide evidence of the accrual anomaly only in certain countries; therefore, our focus is not on whether we find evidence of the accrual anomaly. Rather, we examine whether the comparative relationships between market pricing of the cash flow and accrual components differs for the two subsamples.

2.4 Consequences: Models of OCF prediction

Next, we examine models of future operating cash flow prediction. Cash flow prediction models are used both to develop expected cash flows (Dechow et al. 1998, Roychowdhury 2006, Kim and Park 2014) and to determine whether accounting measures are predictive of future cash flows (Barth et al. 2001, Givoly et al. 2009, Badertscher et al. 2012). We investigate whether the cash flow classification choices have different implications for the prediction of future cash flows. The first model we examine uses past sales and changes in sales to predict OCF based on Dechow et al. (1998):

$$OCF_{t+1} = \gamma_0 + \gamma_1 I/TA_t + \gamma_2 S_t/TA_t + \gamma_3 FLEX \times S_t/TA_t + \gamma_4 \Delta S_t/TA_t + \gamma_5 FLEX \times \Delta S_t/TA_t + \gamma_6 FLEX + \gamma_7 Size_t + \gamma_8 BM_t + \gamma_9 EP_t + \varepsilon_{t+1} \quad (5)$$

Where:

$I/TA_t = 1$ divided by the average of total assets at time t and $t-1$.

S_t/TA_t = sales revenue during time t divided by the average of total assets at time t and $t-1$.

$FLEX * S_t/TA_t$ is the interaction between sales revenue and the indicator variable $FLEX$ at time t .

$\Delta S_t/TA_t$ is change in sales revenue from time $t-1$ to time t divided by the average of total assets at time t and $t-1$.

$FLEX * \Delta S_t/TA_t$ is the interaction between change in sales divided by the average of total assets at time t and $t-1$ and the indicator variable $FLEX$ at time t .

Regressions include country, industry, and year controls.

In this model, the variables of interest are the *FLEX* interactions with sales and changes in sales, γ_3 and γ_5 . The coefficients on these variables will be significant if the firm's IFRS classification choices result in different predicted future OCF than would U.S. GAAP classification choices. Because OCF using *FLEX* classification choices is higher on average than OCF using U.S. GAAP classification choices, we expect the *FLEX* interaction coefficients to be positive. If the classification does not relate to the future OCF, the *FLEX* interaction coefficients will not be significant. We expect the coefficients on sales and changes in sales to be positive and significant, consistent with prior research.

The second prediction model uses past OCF and accruals to predict future OCF similar to Barth et al. (2001).

$$OCF_{t+1} = \varphi_0 + \varphi_1 ACCR_Reported_t + \varphi_2 FLEX \times ACCR_Reported_t + \varphi_3 OCF_Reported_t + \varphi_4 FLEX \times OCF_Reported_t + \varphi_5 FLEX + \varphi_6 Size_t + \varphi_7 BM_t + \varphi_8 EP_t + \varepsilon_{t+1} \quad (6)$$

where all variables are as previously defined. These regressions include country, industry, and year controls.

In this model, the coefficients on the *FLEX* interactions with accruals and past OCF, φ_2 and φ_4 , will be significant if the predicted future OCF differs for firms using classification choices allowable under IFRS but not under U.S.GAAP. On one hand, we would expect the *FLEX* interaction coefficients to be positive because OCF using IFRS classification choices is higher than OCF using U.S. GAAP classifications. On the other hand, unlike the sales model, the independent variables are past cash flows and past accruals. Because past cash flows and past accruals capture the firm's classification choices in the prediction of future cash flows (using those same classification choices), these variables serve as controls for the classification choice also. In this case, the *FLEX* interaction coefficients will not be significant.

3 Sample selection and classification choices

3.1 Sample selection

Table 1, panel A, presents our initial sample selection procedures. We select our sample of firms based on data availability in 2008 and then extend the sample to 2012, for a total sample period of 2005 to 2012.¹⁶ We identify all non-financial firms in Compustat Global with key data items for all fiscal years from 2005 to 2008 including total assets, OCF, and market values. This selection procedure yields 2,815 available firms.

Because databases do not accurately report cash flow classification, we hand collect the detail cash flow items from the financial statements.¹⁷ For those countries with 100 available firms or less, we select 100% of the firms. For those countries with over 100 available firms, we 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% (or 146) of total potential firms to collect the cash flow data. When sampling from the available population of firms within a country, we utilize stratified sampling, first ranking within country by industry and size (total assets) and then selecting firms. This selection procedure results in a potential sample of 1,204 firms. Our final sample is reduced to

¹⁶ We select our sample based on data availability in 2008 to maximize coverage of firms with at least three years of data following the widespread mandatory adoption of IFRS in Europe starting in 2005. Our focus is on the post-2005 period because that is the time frame in which firms in our sample largely faced similar classification alternatives. Prior to 2005, some firms had already adopted IFRS or were using a home-country GAAP that permitted IFRS-allowable classifications. Cash flow reporting varied by country in the period before IFRS adoption. According to the Nobes (2001) report, the following countries' local GAAP had no specific rules requiring a cash flow statement: Austria, Belgium, Finland, Italy, and Spain. For Portugal, Nobes (2001) indicates there were no specific rules except for listed companies; our review of listed companies' pre-IFRS annual reports in Portugal indicates that the classifications for interest paid, interest received, and dividends received were financing, investing, and investing, respectively. The classification requirements were similar to IFRS in the UK (Davies et al. 1997) and in Germany (Leuz 2000). We were unable to document the local GAAP requirements for Denmark, the Netherlands, Norway, and Sweden, so we reviewed actual annual reports in the pre-IFRS period. In the annual reports reviewed, the classification used for all three items in those countries was operating. Nobes (2011) summarizes classification practices related to interest paid in five countries pre-IFRS as follows: Austria and France – operating; United Kingdom – financing; and Germany and Spain – operating or financing.

798 firms primarily because of non-accessible financial statements. (The financial statements are either missing in Mergent On-Line (94% of cases) or written in languages other than English, German, or Danish.) For the 798 sample firms, we collect all available data for the period from 2005 to 2012.

Table 2 presents a description of the size and profitability of the 798 firms in the final sample and a comparison with other firms in the country that were excluded because of non-accessible financial statements. As expected, the 798 firms in the final sample are generally larger (and, on average, more profitable) than the firms that were excluded.

In our data collection, we identify a possible non-compliance issue with regard to disclosure of interest paid.¹⁸ For 1,347 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.¹⁹ It is possible that these firms do not pay interest or that interest paid is immaterial. However, we confirm that 1,305 (1,325) 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 appeared as a separate line in the section in the statement of cash flows.²⁰ Therefore, we categorize these observations as reporting interest paid in operating for our analyses. This classification tends to understate the difference between IFRS and U.S. GAAP.

¹⁸ IAS 7, *Statement of Cash Flows*, requires cash flows from interest and dividends received and paid to be disclosed separately (IAS 7, paragraph 31).

¹⁹ For each country, the percent of non-disclosure of interest paid is as follows: Austria - 19%; Belgium - 27%; Denmark - 37%; Finland - 12%; France - 27%; Germany - 8%; Italy - 23%; Netherlands - 29%; Norway - 27%; Portugal - 14%; Spain - 29%; Sweden - 42%; United Kingdom - 11%.

²⁰ A noncompliance issue is also possible with regards to interest received and dividends received. However, we cannot check these against other financial statements items as easily because Compustat Global has incomplete data.

3.2 Description of classification choices

Table 3 describes the classification choices for interest paid, interest received, and dividends received – by country and industry.²¹ The number of observations differs in each panel because not all firms report each item.²²

The choice of where to classify interest paid in the statement of cash flows varies by country (Table 3, panel A). Overall, about 76% of the sample firms classify interest paid in operating and 23.5% in financing. In our sample, all firms in Finland classify interest paid in the operating section. Over 95% of all Danish and Swedish firms choose to classify interest paid in operating. In Portugal, however, about 81% of our sample firms classify interest paid in financing. About 65% of the observations in Belgium, France, Germany, Spain, and the United Kingdom classify interest paid in operating. About 0.5% of the sample classifies interest paid as an investing cash flow, inconsistent with guidance in IAS 7, *Statement of Cash Flows*, paragraph 33 (IASB 1994).

Classification of interest received also varies as shown in Table 3, panel A. About 60%, 31%, and 9% classify interest received in operating, investing, and financing, respectively. Similar to the reporting of interest paid, a very high proportion of the sample firms in Denmark, Finland, and Sweden classify interest received in operating. Portugal, the United Kingdom, and Spain have the highest percentage of firms classifying interest received in investing, at 91%, 61%, and 52%,

²¹ 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.

²² 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.

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 (IASB 1994).

Dividends received are primarily classified in operating and investing, at 57% and 40%, respectively, as shown in Table 3, panel A. Over 90% of observations from Austria and Sweden classify dividends received as operating. In contrast, only 23% of the Portuguese firms in our sample classify dividends received as operating, with the remaining 77% classified as investing. About 3% 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.²³ Classification choices for interest paid shows less variation across industries than across countries. Across all industries, at least two-thirds of firms classify interest paid as operating. The percentage of the sample classifying interest paid in financing ranges from 13% for durable manufactures to 33% for both chemicals and services and 34% in other.

For interest received, durable manufacturers have the highest percentage of firms classifying interest received in operating, with 71% of the sample making this choice. In the remaining industries, 36% to 70% of the sample firms classify interest received in operating. Finally, for dividends received, 81% of firms in the extractive industries report dividends received in operating, followed by durable manufacturers with 70% classifying dividends received in operating.

Table 4 presents information on common classification-choice combinations for the 1,925 firm-year observations that clearly disclose classification choices for all three items. The most common classification-choice combination, selected by 42%, is classifying all items in OCF. 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.

²³ We follow the industry definitions in Barth et al. (1998).

The diagonals of the section-pair classifications indicate similarities of classification choices, by item. For example, of the 1,310 observations that classify interest paid as operating, 83% (1,093/1,310) also classify interest received as operating. Interest paid and interest received were classified differently by 35% (671/1,925) of observations, implying that *net* interest is not automatically a determinant of OCF reported under IFRS. For interest received and dividends received, 32% (624/1,925) of observations classify these two items in the different sections.

The financial statement effects of cash flow classification choices are reflected in a comparison of reported OCF and pro-forma U.S. GAAP OCF. Specifically, 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.²⁴ Table 5 reports descriptive statistics of the as-reported cash flows and the *pro forma* U.S. GAAP cash flows.²⁵ The mean (median) of reported OCF is about 2.4 percent (3.5 percent) higher,²⁶ than it would have been under U.S. GAAP, while both investing and financing cash flows are higher. The mean and median of OCF in the pooled sample differ significantly between IFRS and U.S. GAAP. Means and medians of investing cash flows and financing cash flows also differ statistically. The means of the pair-wise differences are significantly different for all cash flow components.

²⁴ If values are missing for any cash flow variables, we set them equal to zero in our computations.

²⁵ Variables in Table 5 are winsorized at the top and bottom percentile.

²⁶ Percent differences computed as $OCF_{Reported,t} / OCF_{Pro\ form\ USGAAP,t} - 1$.

4 Results of determinants tests

4.1 OCF classification choices

Table 6, panel A, reports descriptive statistics for variables in the determinants analysis.²⁷ The number of firms is reduced to 538 from 798 because the following are excluded: firms that changed their classification choice during the period, firms from Denmark, Finland and Sweden (where classification choices for interest paid and interest received exhibit little or no variation), and firms missing data to compute all independent variables.

Results of the regression using differences in OCF as the dependent variable are presented in the left columns of Table 6, panel B. A higher value of the differences in OCF variable, *OCF_Reported less OCF_Pro-forma_USGAAP*, signifies a greater OCF-enhancing impact of classification choices that differ from the hypothetical benchmark. As expected, we find that *Distress_Hi* (an indicator variable signifying greater likelihood of financial distress) is positively and significantly related to *OCF_Reported less OCF_Pro-forma_USGAAP*. This finding suggests that financially distressed firms make more OCF-increasing classification choices. *Equity Issues* is also positive and significant, suggesting that firms that access equity markets more frequently opt to make classification choices to report higher OCF. *Leverage_Hi* is also significantly positive, indicating that firms with greater leverage are more likely to make classification choices to show higher OCF. *Profitability* is significantly negative indicating that less profitable firms are more likely to make OCF-enhancing classification choices. Finally, size is negative and significant. Neither, *Analysts Cash Flow Forecast*, *Industry Homogeneity*, *Cross-listed in US* nor any of the

²⁷ The mean of *OCF_Reported less OCF_Pro-forma_USGAAP* in Table 5 and the percent reporting interest paid in financing in Table 3, panel A, are slightly different than those reported in because Table 6 summarizes observations by firm rather than firm-year.

industry indicator variables (not tabulated) are significant. Country indicator variables are all negative and significant with p -values below 0.01.²⁸

The right columns of Table 6, panel B present the results of estimating the logistic regression, where the classification choice to report interest paid in financing is the dependent variable. Similar to results of the OLS regression, *Leverage_Hi* is positively and significantly associated with the choice to classify interest paid in financing. This result implies that more highly leveraged firms are more likely to make an OCF-increasing classification choice for interest paid. In addition, *Cross-listed in US* is negative and significant indicating that firms with cross-listings are more likely to follow the classification choices permitted for US firms. Neither *Distress_Hi*, *Equity Issues*, *Profitability*, *Analysts Cash Flow Forecast*, *Industry Homogeneity*, *Size*, nor any of the industry indicator variables (not tabulated) are significant. Country indicator variables are all negative and significant with p -values lower than 0.01. The finding that country predicts classification choice while industry does not could reflect firms' view of their relevant peer group. Despite political and accounting-standard union, country membership dominates as a predictor of accounting choice within allowable alternatives.

4.2 Changes in OCF classification choices

In our sample, 99 firms, or 12%, reclassify interest paid, interest received, or dividends received within the statement of cash flows during our sample period. Table 7, panel A, shows that the 99 changers represent all countries except Portugal. The greatest number of changers were in the United Kingdom (24) and Germany (17), and the highest percentage of firms making a classification change (26%) were in Norway (11 of 43 firms) and Spain (15 of 58 firms). The majority of firms (58%) increase OCF in the year of the change, increasing OCF by 1.20% (0.78%)

²⁸ For country (industry) fixed effects, our baseline in the intercept is Portugal (other industries). We perform diagnostic tests and find no evidence of multicollinearity. Condition indices are less than 3 for main variables.

at the mean (median). Companies in all industries, except Chemicals, made changes with the greatest number in Services (14) (not tabulated). Among the reclassifications affecting OCF, the greatest number move interest paid out of OCF. As shown in Table 7, panel B, the majority of these firms (49) changed OCF through reclassifying interest out of OCF.

We next compare the change subsample to the rest of the sample, i.e. firms that did not change classification during the sample period. Table 7, panel C, presents descriptive statistics for variables in our main regression for the change subsample and the rest of the sample. We find means and/or medians of the following variables are significantly greater in the changer subsample: the difference in OCF (reported minus pro forma); interest paid reported in financing; high leverage; and analysts cash flow forecasts. Median profitability of changers is significantly lower.

The various classification changes impact reported operating cash flow differently. To examine determinants of classification choice, we therefore focus only on the 57 firms that increased OCF by making the classification change. We compare the OCF-increasing changers to a control group of firms that did not make an OCF-increasing classification change, and specifically non-changing firms with existing classification choices that have not already maximized reported OCF. (OCF would be maximized by excluding interest paid from operating while including both interest received and dividends received in operating.) Thus we include the non-changing firms facing a similar decision space as the OCF-enhancing changers, namely the possibility of increasing reported OCF by making a change in classification. This restriction left 109 firms, all of which are included as a control sample.

In the left side of Table 8, panel A, we compare the 57 OCF-increasing changer sample to itself over time—before and after the reclassification for variables similar to those in the cross-sectional regression. The significantly positive differences in the means and medians of the

difference in OCF (reported minus *pro forma*) and interest paid reported in financing are a function of the criteria for inclusion as an OCF-increasing changer. In addition, we find that equity issues, and analysts' forecast coverage are higher in the period after the change than before. The mean and median profitability of changers is significantly lower after the change.

In the right side of Table 8, panel A, we compare the 57 OCF-increasing changer sample to the control sample. We find significant differences in the means and/or medians of the difference in OCF (reported minus *pro forma*), interest paid reported in financing, equity issues, analysts' forecast coverage, cross-listed in the US, and industry.

Table 8, panel B, presents results of a logistic regression with the dependent variable *OCF-Increasing Classification Changer* equal to one if the firm increased OCF by making a classification change, and zero otherwise. Results indicate that firms that with greater equity issuance activity are more likely to make OCF-increasing choices. Any valuation enhancement related to higher reported OCF would increase equity issuance proceeds, but the relation is not direct, particularly as equity issuance is measured historically. We find that analysts forecast coverage is negatively associated with changing, consistent with analysts' cash flow forecasts possibly serving some deterrent role. Similarly, those firms that have greater industry homogeneity and are cross-listed in the US are less likely to make an OCF-increasing classification change. These firms appear to be responding to external forces to maintain current OCF reporting choices.

4.3 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). To consider the possibility that classification choice is driven by auditor, we re-estimate our regressions including an indicator variable for each

of these four big auditors. Results show that none of the indicator variables are significant (not tabulated). Thus we do not find evidence that classification choice is associated with auditor choice.

We also examine the effect of including other variables but none are significant: credit risk, average market-to-book ratio, average returns, an indicator variable for earnings that are just positive, 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 Results of consequences of flexibility in OCF classification

5.1 Market pricing of the persistence of cash flows

Descriptive statistics and regression results related to the market pricing of the persistence of cash flows are presented in Table 9, panel A. All observations with all variables available are used in the regression.²⁹ The zero medians for the *FLEX* interaction variables are consistent with the majority of companies making U.S. GAAP consistent choices. Our findings are presented in Table 9, panel B. The coefficient on the interaction variable β_2 is positive 0.2956 ($p = 0.0021$), indicating

²⁹ The number of observations in the regressions is decreased from 6,046 to 4,006 because of the inclusion of future returns and lagged variables. Regression variables are winsorized at the top and bottom fifth percentiles.

that the magnitude of the relation of future returns with accruals is greater when OCF is reported under flexible classification. Similarly, the coefficient on β_4 is positive 0.3051 ($p = 0.0068$), indicating the magnitude of the relation of future returns with cash flows is also greater when OCF is reported under flexible classification choice.

Equation (2) is used in Kraft et al. (2007) to examine the market pricing of accruals and cash flows relative to rational expectations, and specifically the accrual anomaly, i.e. market overweighting accruals and underweighting operating cash flow. Under this specification, the accrual anomaly would be evidenced by a negative coefficient on accruals indicating overweighting and a positive coefficient on operating cash flow, indicating underweighting.³⁰ Although the existence or non-existence of an accrual anomaly under alternative classifications is not the primary focus of our paper, it can be revisited using our data. The accrual anomaly under non-flexible U.S. GAAP classification choices would be indicated by $\beta_1 < 0$ and $\beta_3 > 0$. The accrual anomaly under flexible classification choices would be indicated by $\beta_1 + \beta_2 < 0$ and $\beta_3 + \beta_4 > 0$. Our results do not show evidence of the accrual anomaly under either classification choice. Pincus et al. (2007) provide evidence that the accrual anomaly occurs in common law countries rather than code law countries which comprise 12 of the 13 countries in our sample.³¹

Results of the related analysis focusing on the comparison of the persistence parameters for accruals and cash flow components of earnings are presented in Table 10. For both groups, accruals are significantly less persistent than operating cash flows (similar to findings in prior research (Sloan 1996; Dechow, Richardson, and Sloan 2008)). The lower persistence of accruals is indicated

³⁰ “The coefficient on ACC_t in the OLS estimation is [negative and statistically significant] which is evidence of overweighting because a significant negative coefficient indicates that extreme positive (negative) total accruals in year t are followed by extreme negative (positive) returns in period $t+1$. The coefficient on CFO_t is [positive and statistically significant], which is evidence of underweighting because a significant positive coefficient indicates that extreme positive (negative) cash flows in year t are followed by extreme positive (negative) returns in period $t+1$ ” (Kraft et al. 2007, 1110).

³¹ The United Kingdom is the only common law country in our sample.

by the *FLEX* group's persistence parameter (i.e. forecasting coefficient) for accruals of 0.4302 compared to 0.6788 for operating cash flow (panel A). For the non-*FLEX* group, persistence parameters are 0.4339 and 0.6851 for accruals and operating cash flow, respectively (panel B).

The implications of the market-implied coefficients, however, differ for the two groups. The *FLEX* subsample's market-implied persistence of accruals (0.2325) is much lower than the persistence parameter (0.4302) and the market-implied persistence of cash flow (0.1922) is also much lower than the persistence parameter (0.6788), indicating underpricing of both components. (Pincus et al. 2007 similarly finding underweighting of both accruals and operating cash flows in four of the countries they study, two of which are European.) However, the *FLEX* subsample's market-implied persistence of accruals (0.2325) exceeds the market-implied persistence of operating cash flow (0.1922), indicating a higher pricing for accruals relative to cash flow.

In contrast, the non-*FLEX* subsample's market-implied persistence of accruals (0.4020) is roughly equivalent ($p = 0.6644$) to the persistence parameter of accruals (0.4339) in the forecasting equation, while the market-implied persistence of cash flow (0.4039) is lower than the persistence parameter (0.6851), indicating underpricing. (Pincus et al. 2007 similarly find underweighting of OCF but not accruals in eight of the countries they study, five of which are European.) Further, the market-implied coefficient of accruals is also roughly equivalent to the market-implied coefficient of cash flow. Overall, these results could be interpreted to suggest that investors value accruals more highly than cash flow – but only for the *FLEX* subsample.

5.2 Models of OCF prediction

Table 11 presents regression results for two cash flow prediction models.³² In panel A, operating cash flows are regressed on prior year's sales and change in sales. The coefficients on the interaction terms with sales and change in sales are both positive and significant, implying that the classification choices matter when predicting future OCF. The positive sign is consistent with OCF using IFRS classification choice being higher on average than OCF using U.S. GAAP classification choices. The estimated coefficient on sales is positive and significant as expected. However, the coefficient on changes in sales is not significant.

In the past cash flows and accruals models in Table 11, panel B, the *FLEX* interaction with OCF and accruals is not significant indicating that the classification choices do not contribute to the prediction of future OCF in this model. This finding is consistent with past OCF and accruals also controlling for the firm's classification choices. Further, this finding suggests that this type of model may be more useful in the international context in which flexibility in cash flow classification exists.

5.3 Additional analyses

Our market tests do not provide evidence consistent with accruals anomaly. Pincus et al. (2007) provide evidence that the accrual anomaly occurs in common law countries rather than code law countries. Given that code law countries comprise 12 of the 13 countries in our sample, this finding is consistent. In the United Kingdom, the only common law country in our sample, we also find no evidence of the accruals anomaly. We explore whether the results of our market tests are sensitive to model specification. We find that results of market pricing tests in regression in Table 9, panel B, are not sensitive to excluding firm-specific control variables, $Size_t$, BM_t , and EP_t , or country, industry, and year effects. Results of our market pricing analysis in Table 10 are sensitive

³² In the past sales model in Table 11, panel A, the number of observations in the regressions, 4,006, is lower than the 6,046 firm-year observations in the total sample due to inclusion of lagged variables and changes in the lagged variables.

to model specification. In particular, when the forecasting and valuation models exclude firm-specific control variables ($Size_t$, BM_t , and EP_t), the overall conclusions are similar for both subsamples. These conclusions (based on untabulated results excluding the control variables) are: accruals are significantly less persistent than operating cash flows as in the base analysis, the market-implied coefficients reflect underpricing of both accruals and operating cash flow as in the base analysis, but the comparative magnitude of the market-implied coefficients shows no indication of the accrual anomaly (i.e., the coefficient on accruals does not exceed the coefficient on operating cash flow) regardless of the firm's cash-flow classification choice.

6 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 alternatives available only 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 an international setting, we build on and extend certain findings from the U.S.-only setting in Lee (2012). We find that firms with a higher likelihood of financial distress, that issue more equity, with higher leverage, and that are less profitable are more likely to make OCF-increasing classification choices. Our findings further suggest that cross-listed firms tend to make classification choices consistent with U.S. GAAP. Firms are more likely to make OCF-increasing classification changes when they have issued equity and less likely to change when they have analysts following, more peers making similar choices, and are cross-listed in the U.S. Overall, OCF-enhancing classification choices are associated with both financial and informational factors.

The flexibility under IFRS also has consequences. We provide evidence that the market's assessment of the persistence of OCF and accruals differs for groups of firms making different classification choices. However, results are sensitive to model specification. We also show that results of certain OCF prediction models differ for firms making different classification choices. When OCF prediction is based on past sales, results differ for firms making alternative classification choices. However, when OCF prediction is based on past OCF and accruals, results do not differ significantly for firms making alternative classification choices, likely because past OCF and accruals also control for firms' classification choices.

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 important. Our results show that cash flow classification flexibility within IFRS creates a non-comparability that is absent under the more rigid classification requirements of U.S. GAAP. Flexibility in classification of cash flow items introduces potential non-comparability into measurement of widely-used metrics such as accruals and free cash flow. Understanding the impact of non-comparability under IFRS on such metrics will facilitate appropriate inferences from research incorporating these metrics.

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APPENDIX
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	<i>(\$13.7)</i>	<i>(\$14.4)</i>	(\$8.4)	(\$11.6)
Investing	\$0.9	(\$56.8)	<i>(\$9.0)</i>	<i>(\$3.5)</i>	(\$8.1)	(\$60.3)
Financing	<u>(\$16.6)</u>	<u>\$34.5</u>	<u>\$22.7</u>	<u>\$17.9</u>	<u>\$6.1</u>	<u>\$52.4</u>
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.

Table 1 Sample selection

Country	Available Firms ^a	Number Selected ^b	Inaccessible Financial Statements ^c	Number of Sample Firms	Number of Sample Obs. ^d
Austria	52	52	21	31	235
Belgium	67	67	20	47	373
Denmark	67	67	31	36	276
Finland	102	102	59	43	341
France	406	122	16	105	811
Germany	419	127	26	109	742
Italy	206	100	55	45	352
Netherlands	103	103	37	66	485
Norway	103	103	60	43	328
Portugal	38	38	18	20	160
Spain	78	78	20	58	445
Sweden	201	99	32	67	519
<u>United Kingdom</u>	<u>973</u>	<u>146</u>	<u>18</u>	<u>128</u>	<u>979</u>
Total	2,815	1,204	413	798	6,046

^a Available firms are initially identified as the non-financial firms in Compustat Global that: report under IFRS, are based in European countries, and have key financial data (total assets, operating cash flow, and market value) for fiscal years 2005 to 2008.

^b For those countries with 100 firms or less, we select 100% of the firms. For those countries with over 100 firms, we 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 the firms, or 146, using stratified sampling.

^c Firms with inaccessible financial reports consists primarily (94%) of firms whose annual reports are missing from Mergent Online Database and a smaller number of firms where the annual reports were unavailable in English, German, or Danish.

^d For the 798 firms in the resulting sample, we collect all available data for the period 2005 to 2012.

Table 2 Sample description by country, and comparison with other firms in the countryPanel A: Total assets in U.S. dollars (millions)^a

Country	<u>Sample Collected</u>			<u>Other Firms</u>		
	Number of firms	Mean	Median	Number of firms	Mean	Median
Austria	31	3,044	559	21	1,139	341
Belgium	47	5,558	674	20	1,175	198 ***
Denmark	36	3,832	593	31	285 *	103 ***
Finland	43	3,979	1,609	59	794 **	108 ***
France	105	16,620	5,186	301	2,476 ***	129 ***
Germany	109	21,981	2,535	310	999 ***	105 ***
Italy	45	14,020	5,756	161	2,237 **	362 ***
Netherlands	66	7,410	1,185	37	2,114 **	205 ***
Norway	43	4,441	635	60	515 ***	102
Portugal	20	5,595	1,766	18	1,128 *	271
Spain	58	13,813	2,555	20	4,419 *	943 **
Sweden	67	4,187	913	134	278 ***	49 ***
United Kingdom	<u>128</u>	<u>4,820</u>	<u>919</u>	<u>845</u>	<u>2,279</u> *	<u>59</u> ***
Total	798	9,748	1,665	2,017	1,810 ***	96 ***

Panel B: Net income divided by total assets^a

Country	<u>Sample Collected</u>			<u>Other Firms</u>		
	Number of firms	Mean	Median	Number of firms	Mean	Median
Austria	31	0.0123	0.0243	21	0.0087	0.0232
Belgium	47	0.0306	0.0320	20	0.0247	0.0129 *
Denmark	36	-0.0592	0.0485	31	0.0489	0.0063 ***
Finland	43	0.0432	0.0388	59	0.0168	0.0395
France	105	0.0285	0.0389	301	-0.0096 **	0.0247 ***
Germany	109	0.0380	0.0368	310	-0.0419 ***	0.0235 *
Italy	45	0.0315	0.0303	161	-0.0302 *	0.0099 ***
Netherlands	66	0.0121	0.0377	37	-0.0195	0.0382
Norway	43	0.0134	0.0308	60	-0.1419 *	-0.0205 ***
Portugal	20	-0.0145	0.0110	18	-0.0592	0.0013
Spain	58	0.0318	0.0335	20	0.0031	0.0146
Sweden	67	0.0373	0.0461	134	-0.0582 ***	0.0261 **
United Kingdom	<u>128</u>	<u>0.0175</u>	<u>0.0376</u>	<u>845</u>	<u>-0.1989</u> ***	<u>0.0049</u> ***
Total	798	0.0220	0.0368	2,017	-0.1032 ***	0.0149 ***

^a Fiscal 2008 amounts are used to compare net income and total assets for sample firms to other firms.

*, **, *** denote statistical significance of difference between sample firms and non-selected firms.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

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^a

Country	Interest Paid Classification				Interest Received Classification				Dividends Received Classification			
	Total	Operating	Investing	Financing	Total	Operating	Investing	Financing	Total	Operating	Investing	Financing
Austria	235	87%	0%	13%	187	80%	20%	0%	89	91%	9%	0%
Belgium	373	66%	0%	34%	272	49%	24%	27%	137	50%	43%	7%
Denmark	276	99%	0%	1%	187	98%	0%	2%	80	33%	66%	1%
Finland	341	100%	0%	0%	288	97%	3%	0%	259	70%	30%	0%
France	811	67%	0%	33%	198	77%	14%	9%	319	55%	40%	5%
Germany	742	68%	0%	32%	641	67%	21%	12%	361	67%	28%	5%
Italy	352	85%	0%	15%	175	72%	22%	6%	191	56%	40%	4%
Netherlands	485	93%	1%	6%	282	61%	30%	9%	168	43%	57%	0%
Norway	328	76%	0%	24%	175	55%	29%	16%	103	62%	30%	8%
Portugal	160	19%	0%	81%	138	4%	91%	5%	123	23%	77%	0%
Spain	445	67%	0%	33%	266	39%	52%	9%	188	58%	42%	0%
Sweden	519	96%	0%	4%	300	93%	1%	5%	95	92%	4%	4%
United Kingdom	<u>979</u>	<u>65%</u>	<u>2%</u>	<u>33%</u>	<u>841</u>	<u>33%</u>	<u>61%</u>	<u>6%</u>	<u>214</u>	<u>46%</u>	<u>54%</u>	<u>0%</u>
Total	6,046	76%	0.5%	23.5%	3,950	60%	31%	9%	2,327	57%	40%	3%

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^a

Industry	Interest Paid Classification				Interest Received Classification				Dividends Received Classification			
	Total	Operating	Investing	Financing	Total	Operating	Investing	Financing	Total	Operating	Investing	Financing
Mining and construction	373	76%	1%	23%	270	56%	39%	5%	184	58%	42%	0%
Food	328	80%	1%	19%	192	63%	31%	6%	147	68%	32%	0%
Textiles, printing and publishing	494	81%	0%	19%	341	70%	24%	6%	211	55%	42%	3%
Chemicals	214	67%	0%	33%	151	36%	39%	25%	112	65%	30%	5%
Pharmaceuticals	221	84%	0%	16%	141	63%	19%	18%	43	44%	56%	0%
Extractive industries	279	70%	1%	29%	194	63%	28%	9%	92	81%	12%	7%
Durable manufacturers	724	87%	0%	13%	445	71%	21%	8%	214	70%	25%	5%
Computers	591	72%	0%	28%	329	56%	43%	1%	118	51%	38%	11%
Transportation	637	73%	0%	27%	440	63%	33%	4%	349	48%	48%	4%
Utilities	204	71%	0%	29%	120	62%	36%	2%	110	38%	62%	0%
Retail	510	76%	0%	24%	326	54%	36%	10%	171	64%	36%	0%
Services	529	66%	1%	33%	370	48%	42%	10%	154	44%	52%	4%
Other	<u>942</u>	<u>76%</u>	<u>0%</u>	<u>34%</u>	<u>631</u>	<u>64%</u>	<u>24%</u>	<u>12%</u>	<u>422</u>	<u>60%</u>	<u>39%</u>	<u>1%</u>
<u>Total</u>	6,046	76%	0.5%	23.5%	3,950	60%	31%	9%	2,327	57%	40%	3%

^a The number of observations for each classification choice reflects the number of firms disclosing amounts for the item.

Table 4 Classification of interest paid, interest received, and dividends received in the statement of cash flows, by combination

Panel A: Classification for all items by section combinations^a

<u>Interest Paid</u>	<u>Interest Received</u>	<u>Dividends Received</u>	<u>Obs.</u>	<u>Percent</u>
Operating	Operating	Operating	804	42%
Financing	Investing	Investing	265	14%
Operating	Operating	Investing	262	14%
Operating	Investing	Investing	153	8%
Financing	Investing	Operating	86	5%
Financing	Financing	Operating	77	4%
Operating	Investing	Operating	62	3%
Financing	Operating	Operating	60	3%
Financing	Financing	Investing	52	3%
Financing	Operating	Investing	40	2%
Operating	Operating	Financing	27	1%
Other Combinations			<u>37</u>	<u>2%</u>
Total			1,925	100%

Panel B: Classification by section pairs^a

		<u>Interest Paid</u>			
		<u>Operating</u>	<u>Investing</u>	<u>Financing</u>	<u>Total</u>
Interest Received	Operating	1,093	0	103	1,196
	Investing	213	18	351	582
	Financing	<u>4</u>	<u>0</u>	<u>143</u>	<u>147</u>
		<u>1,310</u>	<u>18</u>	<u>597</u>	<u>1,925</u>
Dividends Received	Operating	868	11	225	1,104
	Investing	415	7	357	779
	Financing	<u>27</u>	<u>0</u>	<u>15</u>	<u>42</u>
		<u>1,310</u>	<u>18</u>	<u>597</u>	<u>1,925</u>
		<u>Interest Received</u>			
		<u>Operating</u>	<u>Investing</u>	<u>Financing</u>	<u>Total</u>
Dividends Received	Operating	862	157	81	1,104
	Investing	306	425	52	779
	Financing	<u>28</u>	<u>0</u>	<u>14</u>	<u>42</u>
		<u>1,196</u>	<u>582</u>	<u>147</u>	<u>1,925</u>

^a Includes only those observations where the firm discloses the classification choice for each of the three items.

Table 5 Comparison of reported to *pro forma* U.S. GAAP operating, investing, and financing cash flows

	<u>Mean</u>	<u>Std.Dev.</u>	<u>Median</u>
<i>Number of firm-year observations</i> 6,046			
OCF_Reported _t	0.0882	0.0631	0.0824
INV_Reported _t	-0.0666	0.0635	-0.0532
FIN_Reported _t	-0.0282	0.0725	-0.0215
OCF_Pro forma_USGAAP _t	0.0861	0.0639	0.0796
INV_Pro forma_USGAAP _t	-0.0679	0.0638	-0.0541
FIN_Pro forma_USGAAP _t	-0.0157	0.0766	-0.0191
OCF_Reported _t - OCF_Pro forma_USGAAP _t	0.0022***	0.0059	0**
INV_Reported _t - INV_Pro forma_USGAAP _t	0.0007***	0.0017	0*
FIN_Reported _t - FIN_Pro forma_USGAAP _t	-0.0028***	0.0062	0***

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Variable Definitions:

$OCF_Reported_t$ = operating cash flows as reported by the firm in time t .

$OCF_Pro\ forma_USGAAP_t$ = 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.

$INV_Reported_t$ = investing cash flows as reported by the firm in time t .

$INV_Pro\ forma_USGAAP_t$ = investing cash flows in time t adjusted to exclude interest paid, interest received, and dividends received.

$FIN_Reported_t$ = financing cash flows as reported by the firm in time t .

$FIN_Pro\ forma_USGAAP_t$ = 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 regressions of the difference in operating cash flows and interest paid in financing on incentives and reporting environment

Panel A: Descriptive statistics^a

Variable	Mean	Std. Dev.	Median
Number of firms $n = 538$			
$OCF_Reported_t$ less $OCF_Pro\ form_USGAAP_t$	-0.0007	0.0502	0.0003
<i>Interest Paid Reported in Financing</i>	0.2379	0.4262	0.0000
<i>Distress_Hi</i>	0.4329	0.4149	0.3750
<i>Equity Issues</i>	0.1142	0.2099	0.0408
<i>Leverage_Hi</i>	0.5260	0.4998	1
<i>Profitability</i>	0.0394	0.0466	0.0358
<i>Analysts Cash Flow Forecast</i>	0.4830	0.3478	0.5714
<i>Industry Homogeneity</i>	0.7005	0.0700	0.7185
<i>Cross-listed in U.S.</i>	0.0576	0.2332	0
<i>Size</i>	6.5950	1.9596	6.3279

Panel B: Regressions

$$OCF_Classification_i = a_0 + a_1 Distress_Hi_i + a_2 Equity\ Issues_i + a_3 Leverage_Hi_i + a_4 Profitability_i + a_5 Analysts\ Cash\ Flow\ Forecast_i + a_6 Industry\ Homogeneity_i + a_7 Cross-listed\ in\ US_i + a_8 Size_i + e_i$$

Dependent Variable	Expected Sign	<i>OCF_Reported_t</i> less <i>OCF_Pro forma_USGAAP_t</i>			<i>Interest Paid in Financing</i>		
		Estimate	Std. Error	<i>p</i> -value	Estimate	Std. Error	<i>p</i> -value
Number of firms $n = 538$							
<i>Intercept</i>		-0.4024	0.5978	0.5011	-122.0000	212.4000	0.5656
<i>Distress_Hi</i>	+	0.0028	0.0013	0.0156**	0.1535	0.3599	0.3349
<i>Equity Issues</i>	+	0.0049	0.0026	0.0297**	0.7526	0.7817	0.1678
<i>Leverage_Hi</i>	+	0.0017	0.0009	0.0245**	0.3661	0.2534	0.0743*
<i>Profitability</i>	?	-0.0173	0.0104	0.0478**	-0.6005	3.0771	0.8453
<i>Analysts Cash Flow Forecast</i>	?	0.0015	0.0013	0.1297	-0.1532	0.3710	0.6797
<i>Industry Homogeneity</i>	?	0.0058	0.0083	0.2416	1.7099	2.9559	0.5630
<i>Cross-listed in US</i>	-	0.0005	0.0018	0.7746	-0.8163	0.5666	0.0748*
<i>Size</i>	?	-0.0007	0.0003	0.0258**	0.0723	0.0907	0.4254
		<i>F</i> -value	4.19		Goodness of Fit	Chi-Square	<i>p</i> -value
		(<i>p</i> -value)	<0.0001		Likelihood		
		Adjusted R ²	0.1475		Ratio	71.5	0.0001
					Wald	51.1	0.0069

^a Sample excludes 99 firms that changed their classification choices during the period (2005 to 2012), firms from three countries with little variation in the classification of interest paid (Denmark, Finland, and Sweden), and firms missing data to compute all variables in regression.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. p -values are one-tailed for variables with directional hypotheses, and two-tailed for all others. Standard errors are clustered by firm. Country controls and industry controls are included.

Table 6 Descriptive statistics and regressions of the difference in operating cash flows and interest paid in financing on incentives and reporting environment (continued)

Variable Definitions:

OCF_Reported_t less *OCF_Pro forma_USGAAP_t* = 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 = 1 if the firm classifies interest paid in financing cash flows as of the last year reported, and zero otherwise.

Distress_Hi = 1 if the firm's financial distress computed using Altman's Z-score is less than 1.81, indicative of high distress, and zero otherwise.

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

Leverage_Hi = 1 if the firm's ratio of total liabilities over total assets at the beginning of the fiscal year, averaged over the sample period, is greater than the median, and zero otherwise.

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

Analysts Cash Flow Forecast = 1 if at least one analyst's cash flow forecast is available on IBES, and zero otherwise, averaged over the sample period.

Industry Homogeneity = 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 = 1 if the firm is cross-listed in the United States, and zero otherwise.

Size = the natural logarithm of the firm's beginning of year market capitalization in U.S. dollars, averaged over the sample period.

Table 7 Description of firms changing classification of interest paid, interest received, or dividends received in the statement of cash flows

Panel A: Reclassifications by country, change in OCF, and percent difference in operating cash flows in year of change

<u>Change in OCF</u>				
Results in:	<u>OCF-Increasing</u>	<u>No Change</u>	<u>OCF-Reducing</u>	<u>Total firms</u>
Austria	2	0	1	3
Belgium	7	0	0	7
Denmark	0	0	1	1
Finland	0	1	0	1
France	7	0	2	9
Germany	11	4	2	17
Italy	3	0	0	3
Netherlands	4	0	2	6
Norway	8	1	2	11
Spain	5	5	5	15
Sweden	2	0	0	2
United Kingdom	8	8	8	24
Total	57 (58%)	19 (19%)	23 (23%)	99

<u>Percent difference in operating cash flows in year of change</u>				
Mean	0.0120	0	-0.0042	0.0060
Median	0.0078	0	-0.0021	0.0015

Panel B: Classification before and after change, by change in operating cash flow

	<u>Interest Paid</u>		<u>Interest Received</u>		<u>Dividend Received</u>	
	Firms	Percent	Firms	Percent	Firms	Percent
Into Operating	7	7%	16	16%	4	4%
Out of Operating	49	49%	27	37%	5	5%
No Change in Operating	<u>43</u>	<u>43%</u>	<u>56</u>	<u>57%</u>	<u>90</u>	<u>91%</u>
	99	100%	99	100%	99	100%

Table 7 Description of firms changing classification of interest paid, interest received, or dividends received in the statement of cash flows (continued)

Panel C: Comparison of firms that do not change classification with firms that change classification

Variable	<u>No Change</u> (<i>n</i> = 538 firms)		<u>Changer</u> (<i>n</i> = 99 firms)	
	Mean	Median	Mean	Median
<i>OCF_Reported_t less</i> <i>OCF_Pro forma_USGAAP_t</i>	-0.0007	0.0003	-0.0457	0.0056***
<i>Interest Paid Reported in Financing</i>	0.2379	0.0000	0.5055***	0.5 ***
<i>Distress_Hi</i>	0.4329	0.3750	0.4908	0.5
<i>Equity Issues</i>	0.1142	0.0408	0.0831	0.0451
<i>Leverage_Hi</i>	0.5260	1	0.5859*	1 *
<i>Profitability</i>	0.0394	0.0358	0.0121	0.0263*
<i>Analysts Cash Flow Forecast</i>	0.4830	0.5714	0.5563	0.6667*
<i>Industry Homogeneity</i>	0.7005	0.7185	0.6916	0.6957
<i>Cross-listed in US</i>	0.0576	0	0.0421	0
<i>Size</i>	6.5950	6.3279	6.6528	6.6727

*, **, *** denote statistical significance of difference between firms that do not change classification and firms that change classification (“changer”).

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

Table 8 Analyses of OCF-enhancing classification change on incentives and reporting environment

Panel A: Comparison of OCF-increasing firms (before and after change) with control sample

Variable	OCF-increasing Changer (<i>n</i> =57 firms)				Control (<i>n</i> =109 firms) ^b	
	Pre-Change		Post-Change ^a		Mean	Median
	Mean	Median	Mean	Median		
<i>OCF_Reported_t</i> , less						
<i>OCF_Pro forma_USGAAP_t</i> *	0.0008	0.0001	0.0118***	0.0081***	-0.0115	-0.0013***
<i>Interest Paid Reported in Financing</i>	0.0414	0	0.7716***	1***	0*	0**
<i>Distress_Hi</i>	0.4438	0.3333	0.4708	0.2857	0.3562	0.1250
<i>Equity Issues</i>	0.2500	0.1380	0.1236***	0.0734*	0.1673*	0.0926
<i>Leverage_Hi</i>	0.5263	1	0.5790	1	0.4954	0
<i>Profitability</i>	0.0587	0.0447	0.0316*	0.0405*	0.0457	0.0447
<i>Analysts Cash Flow Forecast</i>	0.2357	0	0.5937***	0.6667***	0.4791***	0.6000***
<i>Industry Homogeneity</i>	0.6901	0.6976	0.6901	0.6976	0.6975	0.7185
<i>Cross-listed in US</i>	0.0175	0	0.0175	0	0.0275	0*
<i>Size</i>	6.9109	6.6955	6.9597	6.6955	6.6029	6.123

Panel B: Dependent variable: OCF-increasing classification change

$$\begin{aligned}
 OCF\text{-Increasing_Classification_Change}_i &= a_0 + a_1 Distress_Hi_i + a_2 Equity_Issues_i + a_3 Leverage_Hi_i \\
 &+ a_4 Profitability_i + a_5 Analysts_Cash_Flow_Forecast_i \\
 &+ a_6 Industry_Homogeneity_i + a_7 Cross\text{-listed in US}_i + a_8 Size_i + e_i
 \end{aligned}$$

	Expected Sign	Estimate	Std. Error	<i>p</i> -value	
<i>(n</i> = 166 firms) ^c					
<i>Intercept</i>		10.3129	7.1011	0.1464	
<i>Distress_Hi</i>	+	0.7159	0.6742	0.1442	
<i>Equity Issues</i>	+	1.3219	0.9750	0.0876	*
<i>Leverage_Hi</i>	+	-0.2031	0.4951	0.3408	
<i>Profitability</i>	?	5.4415	3.4679	0.1166	
<i>Analysts Cash Flow Forecast</i>	?	-3.1941	0.8008	<.0001	***
<i>Industry Homogeneity</i>	?	-0.1657	0.0961	0.0847	*
<i>Cross-listed in US</i>	-	-2.7321	1.8925	0.0744	*
<i>Size</i>	?	0.1707	0.1985	0.3900	
		Goodness of Fit	Chi-Square	<i>p</i> -value	
		Likelihood Ratio	68.0	0.0001	
		Wald	31.7	0.3319	

^a Compares statistical significance of means and medians of pre-change and post-change variables.

^b Compares statistical significance of means and medians of pre-change and control samples.

^c Consists of 57 firms that made an OCF-increasing change and 109 firms that are not currently maximizing reported OCF but did not make a classification change.

* *p* < 0.10, ** *p* < 0.05, *** *p* < 0.01. *p*-values are one-tailed for variables with directional hypotheses, and two-tailed for all others. Standard errors are clustered by firm. Country controls and industry controls are included.

Variable Definitions: *OCF-increasing classification change* = 1 if a firm made an OCF-increasing classification firm, and 0 otherwise. See Table 6 for the remaining variable definitions.

Table 9 Regression of future returns on accruals and operating cash flow under alternative classification choices

Panel A: Descriptive statistics

Variable ($n = 4,006^a$)	Mean	Std. Dev	Median
<i>Returns_{t+1}</i>	0.0050	0.3639	-0.0046
<i>ACCR_Reported_t</i>	-0.0465	0.0565	-0.0410
<i>ACCR_Reported_t*FLEX</i>	-0.0202	0.0589	0
<i>OCF_Reported_t</i>	0.0876	0.0617	0.0820
<i>OCF_Reported_t*FLEX</i>	0.0325	0.0619	0
<i>FLEX</i>	0.3693	0.4827	0
<i>Size_t</i>	7.1392	2.2792	6.8051
<i>BM_t</i>	0.9363	1.0585	0.6375
<i>EP_t</i>	0.0920	0.1717	0.0699

Panel B: Regression results

$$\text{Returns}_{t+1} = \beta_0 + \beta_1 \text{ACCR_Reported}_t + \beta_2 \text{FLEX} \times \text{ACCR_Reported}_t + \beta_3 \text{OCF_Reported}_t + \beta_4 \text{FLEX} \times \text{OCF_Reported}_t + \beta_5 \text{FLEX} + \beta_6 \text{Size}_t + \beta_7 \text{BM}_t + \beta_8 \text{EP}_t + \varepsilon_{t+1}$$

	Estimate	Std. Error	p-value
$(n = 4,006^a)$			
<i>Intercept</i>	-0.3648	0.0379	<0.0001***
<i>ACCR_Reported_t</i>	0.2046	0.1099	0.0628*
<i>FLEX x ACCR_Reported_t</i>	0.2956	0.0959	0.0021***
<i>OCF_Reported_t</i>	0.6220	0.1012	<0.0001***
<i>FLEX x OCF_Reported_t</i>	0.3051	0.1127	0.0068***
<i>FLEX</i>	-0.0081	0.0141	0.5664
<i>Size_t</i>	0.0145	0.0028	<0.0001***
<i>BM_t</i>	0.0043	0.0054	0.4249
<i>EP_t</i>	0.3659	0.0355	<0.0001***
	<i>F-value</i>		93.88
	<i>(p-value)</i>		<0.0001
	<i>R²</i>		0.4735

Panel C: Test of combined coefficients

	F-value	p-value
<i>ACCR_Reported_t + ACCR_Reported_t*FLEX</i>	21.57	<0.0001 ***
<i>OCF_Reported_t + OCF_Reported_t*FLEX</i>	71.15	<0.0001 ***

Table 9 Regression of Future Returns on Accruals and Operating Cash Flow under Alternative Classification Choices (Continued)

^aThe number of observations is based on the availability of accounting and market data to compute future returns and other variables, including lagged variables, in the model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. p -values are two-tailed. Errors are clustered by firm. Regressions include country, industry, and year controls.

Variable Definitions:

$Returns_{t+1}$ = annual return computed 6 months after year end.

$ACCR_Reported_t$ = the amount of accruals, calculated as net income less reported operating cash flows at time t divided by the average of total assets at time t and $t-1$.

$ACCR_Reported_t * FLEX$ = the interaction between accruals and the indicator variable $FLEX$ at time t .

$OCF_Reported_t$ = the reported amount of operating cash flow at time t divided by the average of total assets at time t and $t-1$.

$OCF_Reported_t * FLEX$ = the interaction between accruals and the indicator variable $FLEX$ at time t .

$FLEX$ = 1 if the firm's classification choices for operating cash flow reflect the flexibility available under IFRS rather than the classifications requirements of U.S. GAAP, and zero otherwise.

$Size_t$ = the natural logarithm of the firm's market capitalization in U.S. dollars at the beginning of time t .

BM_t = the firm's book to market ratio, calculated as the ratio of the firm's shareholders' equity divided by its market capitalization at the beginning of time t .

EP_t = the firm's net income divided by its market capitalization at the beginning of time t .

Table 10 Simultaneous estimation of persistence parameters for accruals and operating cash flow and the parameters implied by stock returns, for subsamples making alternative classification choices

$$EARNINGS_{t+1} = \alpha_0 + \alpha_1 ACC_Reported_t + \alpha_2 OCF_Reported_t + Controls_t + v_t$$

$$Returns_{t+1} = \beta (EARNINGS_{t+1} - \alpha_0^* - \alpha_1^* ACC_Reported_t + \alpha_2^* OCF_Reported_t + \phi Controls_t) + \varepsilon_t$$

Panel A: $FLEX = 1$ ($n=1,425$)^a

<u>Forecasting Coefficients</u>		<u>Valuation Coefficients</u>		Test of market efficiency a_i = a_i^* Wald statistic (p -value)
Parameter	Coefficient estimate (standard error)	Parameter	Coefficient estimate (standard error)	
a_1	0.4302 (0.0273)	α_1^*	0.2325 (0.1019)	3.5127 (0.0609)**
a_2	0.6788 (0.0259)	α_2^*	0.1922 (0.1062)	19.8111 (0.0000)***
β		β	1.9164 (0.1862)	
<i>Controls</i>	Yes	<i>Controls</i>	Yes	

Panel B: $FLEX = 0$ ($n=2,581$)^a

<u>Forecasting Coefficients</u>		<u>Valuation Coefficients</u>		Test of market efficiency a_i = a_i^* Wald statistic (p -value)
Parameter	Coefficient estimate (standard error)	Parameter	Coefficient estimate (standard error)	
a_1	0.4339 (0.0233)	α_1^*	0.4020 (0.0699)	0.1882 (0.6644)
a_2	0.6851 (0.0207)	α_2^*	0.4039 (0.0643)	17.3206 (0.0000)***
β		β	2.1548 (0.1271)	
<i>Controls</i>	Yes	<i>Controls</i>	Yes	

^a *Controls* _{t} Control variables included are: $Size_t$, BM_t , and EP_t

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. p -values are two-tailed. Errors are clustered by firm.

Variable Definitions:

$EARNINGS_{t+1}$ = net income at time t divided by the average of total assets at time t and $t-1$.

All other variables are defined in Table 9.

Table 11 Regressions with future operating cash flows as dependent variable

Panel A: Regression of future operating cash flows on sales and change in sales

$$OCF_{t+1} = \gamma_0 + \gamma_1 I/TA_t + \gamma_2 S_t/TA_t + \gamma_3 FLEX \times S_t/TA_t + \gamma_4 \Delta S_t/TA_t + \gamma_5 FLEX \times \Delta S_t/TA_t + \gamma_6 FLEX + \gamma_7 Size_t + \gamma_8 BM_t + \gamma_9 EP_t + \varepsilon_{t+1}$$

	Estimate	Std. Error	p-value
<i>(n = 4,006^a)</i>			
<i>Intercept</i>	0.0543	0.0180	0.0025***
<i>I/TA_t</i>	-0.3690	0.1158	0.0015***
<i>S_t/TA_t</i>	0.0963	0.0630	0.0634*
<i>FLEX S_t/TA_t × FLEX</i>	0.1307	0.0794	0.0998*
<i>ΔS_t/TA_t</i>	-0.0161	0.0552	0.7709
<i>FLEX ΔS_t/TA_t × FLEX</i>	0.0932	0.0660	0.0791*
<i>FLEX</i>	0.0267	0.0100	0.0077***
<i>Size_t</i>	0.0008	0.0005	0.0632*
<i>BM_t</i>	-0.0152	0.0012	<.0001***
<i>EP_t</i>	0.1309	0.0074	<.0001***
<i>F-value</i>			15.88
<i>(p-value)</i>			<0.0001
<i>R²</i>			0.1351

Table 11 Regressions with future operating cash flows as dependent variable (continued)

Panel B: Regression of future operating cash flows on current accruals and cash flows

$$OCF_{t+1} = \gamma_0 + \gamma_1 I/TA_t + \gamma_2 S_t/TA_t + \gamma_3 FLEX \times S_t/TA_t + \gamma_4 \Delta S_t/TA_t + \gamma_5 FLEX \times \Delta S_t/TA_t + \gamma_6 FLEX + \gamma_7 Size_t + \gamma_8 BM_t + \gamma_9 EP_t + \varepsilon_{t+1}$$

	Estimate	Std. Error	p-value
<i>(n = 5,128^a)</i>			
<i>Intercept</i>	0.0251	0.0056	<.0001***
<i>ACCR_Reported_t</i>	0.2373	0.0165	<.0001***
<i>FLEX x ACCR_Reported_t</i>	0.0019	0.0164	0.9098
<i>OCF_Reported_t</i>	0.7809	0.0148	<.0001***
<i>FLEX x OCF_Reported_t</i>	0.0230	0.0191	0.2302
<i>FLEX</i>	-0.0019	0.0023	0.4236
<i>Size_t</i>	0.0007	0.0004	0.0906*
<i>BM_t</i>	-0.0015	0.0009	0.0935*
<i>EP_t</i>	0.0067	0.0058	0.2493
	<i>F-value</i>		141.21
	<i>(p-value)</i>		<0.0001
	<i>R²</i>		0.5132

^a The number of observations is based on the availability of accounting and market data to compute variables, including lagged variables, in the model.

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$. p -values are two-tailed. Errors are clustered by firm. Regressions include country, industry, and year controls.

Variable definitions:

I/TA_t = 1 divided by the average of total assets at the beginning and end of time t .

S_t/TA_t = sales revenue during time t divided by average total assets.

$S_t/TA_t * FLEX$ is the interaction between sales revenue and the indicator variable $FLEX$ at time t .

$\Delta S_t/TA_t$ is change in sales revenue from time $t-1$ to time t divided by average total assets.

$\Delta S_t/TA_t * FLEX$ is the interaction between change in sales divided by average total assets and the indicator variable $FLEX$ at time t .

See Table 9 for remaining variable definitions.