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# Earnings management using classification shifting of revenues<sup>\*</sup>

Kamran Malikov\*, Stuart Manson\*<sup>1</sup> and Jerry Coakley\*

## ABSTRACT

This paper examines a novel form of classification shifting as an earnings management tool using a sample of 12,804 UK listed firm-year observations for the 1995-2014 period. It proposes a new approach to classification shifting whereby firms have scope to misclassify revenues from non-operating activities as operating revenues. The results establish that firms engage in classification shifting of non-operating revenues to inflate operating revenues. They indicate that firms in the period following mandatory IFRS adoption are associated with an increase in this practice, consistent with IFRS offering greater scope for manipulation. Further tests reveal that classification shifting of revenues is more pervasive for firms that report operating losses or have low growth.

*Keywords:* classification shifting of revenues, operating revenues, non-operating revenues, IFRS

\*Essex Business School, University of Essex, Wivenhoe Park, Colchester, Essex, UK CO4 3SQ

<sup>1</sup> Corresponding Author; Stuart Manson, [manss@essex.ac.uk](mailto:manss@essex.ac.uk), +44(0) 1206872064

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## 1. Introduction

There is a huge literature on earnings management under which accounting information can be manipulated in various ways to mask firms' true economic performance. One recently established form of earnings management is classification shifting. This is based on the misclassification of items within the income statement but does not alter net income. McVay (2006) was the first to establish empirical evidence for classification shifting in the context of expense items. She found that US firms engage in this practice to manipulate core earnings by shifting core expenses from the cost of goods sold and selling, general, and administrative expenses to income-decreasing special items. Subsequent studies have also adduced empirical evidence that UK firms (Athanasakou, Strong, & Walker, 2011; Zalata & Roberts, 2016), as well as East Asian firms (Haw, Ho, & Li, 2011), misclassify core expenses as non-recurring expenses.

The above studies examine the understatement of core expenses, which typically appear in the income statement after sales revenue, for the purpose of increasing core earnings. Firms, however, can also overstate core earnings by shifting non-operating revenues to operating revenues.<sup>1</sup> In this paper, we examine this novel form of classification shifting as an earnings management tool. Specifically, we investigate and test whether firms misclassify non-operating revenues as operating revenues. The main theoretical motivation why firms may engage in classification shifting of revenues is based on investor perception of accounting information items. One strand of research proposes that investors assess the valuation relevance of earnings components based on their placement in the income statement (Bradshaw & Sloan, 2002; Davis, 2002). This suggests that investors appear to weight individual line items in the income statement differently and that operating revenues items

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<sup>1</sup> Throughout the paper we use the nomenclature 'non-operating revenues' to refer to those revenues that firms achieve from non-operating activities (e.g. rental income, interest income) including those from non-recurring items (e.g. gains on disposals of assets) whereas operating revenues are defined as the sum of sales revenue and other operating revenues.

tend to be accorded more weight since they have higher valuation relevance (e.g. Bartov & Mohanram, 2014).

Another related strand of the literature establishes that the ability of an income statement line item to predict future earnings depends on its position in the income statement (e.g. Fairfield, Sweeney, & Yohn, 1996). In particular, it shows that line items closer to sales revenue are more likely to help predict future earnings. In this context, the misclassification of revenue items can be employed to boost operating revenues. Indeed, McVay (2006) observed that firms may shift non-operating revenues up the income statement but she left this type of classification shifting for future research. Furthermore, Curtis, McVay, and Whipple (2014) provided some evidence of flagrant opportunism in disclosing core earnings. They showed that managers disclose core profit without excluding non-operating revenues especially in cases when the inclusion of the latter allows them to meet their core earnings' benchmark. Concern about reclassification has been shown by organisations such as the Securities and Exchange Commission (SEC). They were particularly worried about the misclassification of income statement line items such as improperly showing investment income or gains on disposals of assets as product or service revenue (SEC, 2000). As an anecdotal example, a global electrical engineering company ABB that has branches in countries such as the USA and the UK was able to misclassify continually revenues from the sale of fixed assets as operating revenues (Jones, 2011). Another example is IBM which shifted revenues from non-recurring items (gains on asset sales) up the income statement to inflate core earnings (Bulkeley, 2002).

Firms may have more incentives to inflate operating revenues than to understate core expenses through misclassification. This is because an increase in operating revenues is more valued by investors than a decrease in core expenses (Ertimur, Livnat, & Martikainen, 2003; Marguardt & Wiedman, 2004). Furthermore, analysts issue forecasts for sales revenue in

addition to core earnings. Managers can more readily meet both of these forecast targets by shifting non-operating revenues to sales operating revenues rather than misclassifying core expenses as non-recurring expenses. Kinney and Trezevant (1997) and Weiss (2001) document that firms are more likely to decrease non-recurring gains to influence investors' perceptions by providing a signal that their earnings are mainly based on recurring operations. These firms may reduce transitory gains by shifting them to operating revenues. Existing studies find that operating revenues are overestimated via real earnings management by offering price discounts or more lenient credit terms (e.g. Gunny, 2010; Roychowdhury, 2006). Examining classification shifting of revenues complements the previous work and can help market participants by alerting them to potential earnings management using revenue shifting for inflating operating revenues when a firm does not disclose the components of operating and non-operating revenues in its annual report. These factors highlight the importance of examining classification shifting of revenues in addition to expense misclassification.

We examine classification shifting of revenues in the context of the UK for two reasons. Firstly, UK firms followed Financial Reporting Standard No. 3: *Reporting Financial Performance* (FRS 3) to prepare their income statement under UK GAAP from 1993 until International Financial Reporting Standards (IFRS) adoption. FRS 3 required companies to show operating profit and revenues (sales) subtotals separately on the face of the income statement but it did not prescribe revenue categories (PWC, 2013). Thus, how they were defined was subject to managerial judgement suggesting that firms may have shifted non-operating revenues such as rental income, ancillary revenues, and investment income to operating revenues. Under FRS 3, firms were also required to distinguish between operating and non-operating exceptional items and to show only the latter on the face of the income statement. This suggests that FRS 3 offered some scope for managements' opportunistic

discretion regarding operating exceptional items (e.g. Choi, Lin, Walker, & Young, 2007), and hence firms may have used non-operating revenues from such non-recurring items for revenue shifting. Consequently, the flexibility afforded by FRS 3 makes the UK an interesting candidate for examining classification shifting of revenues.

Secondly, UK firms listed on the main stock exchange have followed IFRS since 2005 whereas those quoted on the Alternative Investment Market were required to adopt IFRS only from 2007 (Brochet, Jagolinzer, & Riedl, 2013). IFRS (IAS 1) has very limited disclosure requirements and guidance for non-recurring items as it only states that an entity should disclose such items either on the face of the income statement or in the notes when they are material (Zalata & Roberts, 2016). Furthermore, there is a specific standard on revenue, IAS 18, which defines revenue as ‘the gross inflow of economic benefit during the period arising in the course of ordinary activities.’ This, as Nobes (2012) has pointed out, allows management the opportunity to determine what constitutes revenue. This issue is exacerbated because IAS 18 does not define the term ‘ordinary activities’, thus giving managers scope to decide what items should be regarded as arising from their ordinary activities. Consequently, these aspects of IFRS suggest that it offers high latitude for the misclassification of the income statement items, and therefore focusing on the UK offers scope for investigating the impact of IFRS on classification shifting of revenues.

We develop an expectation model for decomposing operating revenues into expected and unexpected components similar to McVay’s (2006) core earnings model. Drawing on 12,804 firm-year observations from all UK listed firms for the 1995-2014 period, we find that non-operating revenues are associated with an unexpected rise in operating revenues. We also find that this increase in operating revenues reverses in the subsequent year. Together, these results provide evidence that firms shift non-operating revenues to operating revenues, consistent with classification shifting of revenues. The results show that firms engage in such activities

to a greater extent after mandatory IFRS adoption, suggesting that the latter offers more latitude for these practices compared to UK GAAP. This evidence supports Zalata and Roberts (2017) who document that IFRS allows firms to have more managerial discretion on the classification of non-recurring items. Further tests reveal that firms reporting operating losses or firms with low growth employ a greater degree of classification shifting of revenues. Overall, the results suggest that firms engage in classification shifting of revenues to increase operating revenues.

This study contributes to the earnings management literature in several ways. First, we extend the classification shifting literature by being the first to provide evidence that misclassification takes place not only among expense items (e.g. McVay, 2006) but also among revenue items. Second, we extend the mandatory IFRS adoption and earnings management literature (Doukakis, 2014) by providing evidence that IFRS increases the use of classification shifting among revenue items. Finally, existing studies identify factors that affect the extent of using real (accruals) earnings management or expense shifting (Fan & Liu, 2017; Roychowdhury, 2006). We extend this line of research by providing evidence that classification shifting of revenues is more pervasive among firms that report operating losses or have low growth.

This study proceeds as follows. Section 2 reviews the literature and develops the main hypotheses. Section 3 describes the research design and discusses the data and sample. Section 4 reports the empirical results and Section 5 concludes.

## **2. Literature review and hypothesis development**

### *2.1. Literature review*

Existing studies have examined three earnings management tools (e.g. Jones, 1991; Roychowdhury, 2006). These are accruals management, real earnings management, and



classification shifting.<sup>2</sup> The latter has been the main focus of several recent papers and McVay (2006), using a sample of US firms, was first to analyze the possibility of shifting items intentionally within the income statement. The main advantage of classification shifting is that it does not change bottom line earnings and does not affect long term firm value unlike discretionary accruals and real activities manipulation. This may limit the scrutiny of auditors and regulators. McVay finds that firms engage in classification shifting to increase core earnings by examining the relationship between core earnings and income-decreasing special items. She explains her results as being due to the shifting of core expenses from the cost of goods sold and selling, general, and administrative expenses to income-decreasing special items. Consistent with these results, Fan, Barua, Cready, and Thomas (2010) find that US firms use classification shifting and that managers shift core expenses to income-decreasing special items to a greater extent when they cannot manipulate earnings through accruals. Furthermore, Barua, Lin, and Sbaraglia (2010) document that US firms employ expense shifting using discontinued operations in addition to special items to increase core earnings. These studies examine classification shifting of expenses which allow firms to inflate their core earnings. However, classification shifting may also be possible by misclassifying non-operating revenues as operating revenues. This suggests that abnormal core earnings might also be driven by the potential for manipulation using classification shifting of revenues.

Several studies test whether firms outside the USA engage in classification shifting. Athanasakou, Strong, and Walker (2009) examine the use of classification shifting under UK GAAP. They find that large firms shift small core expenses to operating exceptional or to other non-recurring items to overstate core earnings to meet earnings targets. Zalata and Roberts (2016) test expense shifting for UK firms under IFRS and their results show that firms misclassify recurring expenses as non-recurring items to inflate core earnings. These

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<sup>2</sup> Dechow and Skinner (2000) and Kothari (2001) conduct studies that review the discretionary accruals literature while a review of the real earnings management literature can be found in Xu, Taylor, and Dugan (2007).

studies suggest that UK GAAP and particularly IFRS offer scope for UK firms to misclassify income statement line items. This implies that UK firms may also use revenue shifting to increase core earnings. Thus, their results may be due to the classification shifting of revenues as they examine the association between core earnings and total non-recurring items to test expense shifting.

Fan and Liu (2017) extend the reclassification research by showing that firms have incentives not only to inflate core earnings but also overestimate other top income statement line items. In particular, they find that firms misclassify cost of goods sold as income-decreasing special items to improve their gross margin. Their results underline the importance of managing top income statement line items, implying that firms may be motivated to inflate operating revenues via classification shifting. Another important contribution of their study is that they decompose core expenses into cost of goods sold and selling, general, and administrative expenses unlike prior classification shifting studies. Their results indicate that firms shift core expenses both from cost of goods sold and selling, general, and administrative expenses to income-decreasing special items for meeting/beating zero core earnings, prior period core earnings, and analyst forecasts.

## *2.2. Hypothesis development*

This study extends the classification shifting literature by examining whether firms misclassify revenue items to increase operating revenues. Firms are likely to have incentives to misclassify non-operating revenues as operating revenues in addition to expense shifting for a number of reasons. First, classification shifting of revenues inflates operating revenues while expense shifting decreases operating expenses. An increase in operating revenues is likely to be more appealing to investors than core expense reductions. Anthony and Ramesh (1992) and Ertimur et al. (2003) find that investors value a dollar of operating revenues surprises more highly than a dollar decrease in core expenses. Moreover, Bradshaw and Sloan

(2002) and Davis (2002) document that investors give more value to the sales revenue subtotal or to those individual line items in the income statement that are close to it. This suggests that operating revenues subtotal is one of the key indicators that investors consider in assessing a firm's financial performance. Second, analysts issue not only core earnings forecasts but also sales revenue forecasts. The implication is that if firms engage in revenue shifting they can meet sales revenue and earnings forecasts while expense shifting does not help them to meet both of these forecasts. Third, those firms that have transitory gains are likely to reduce them to signal that their income is mainly based on operating earnings. Such firms can reduce their transitory gains by shifting them to operating revenues. Kinney and Trezevant (1997) document that firms with gains from non-recurring operations tend to report them in footnotes rather than on the income statement to shift attention away from the transitory nature of these items. Consistent with this, Weiss (2001) find that firms try to decrease their transitory gains by recognizing income-decreasing special items. Fourth, showing gains from non-recurring items as part of non-operating activities reduces operating earnings which may not allow firms to meet/beat core earnings benchmarks. Shifting transitory gains to operating revenues may enable firms to achieve core earnings targets. Hsu and Kross (2011) document that firms predominately include transitory gains in core earnings; particularly they do this when the inclusion of such items helps to meet/beat zero core earnings or prior period core earnings. Similar results are found by Curtis et al. (2014) who provide evidence that some managers explicitly disclose core profit but exclude non-recurring expenses while including transitory gains.

While the above suggests that firms have incentives for engaging in classification shifting of revenues, it is an empirical question as to whether they have the opportunity to do so. The scope for firms' revenue shifting practices depends on the flexibility or strictness of accounting standards. UK GAAP (FRS 3) required firms to disclose operating profit and

revenues (sales) subtotals separately on the face of the income statement (Lin, 2006). It, however, did not prescribe revenue categories implying that their definitions were subject to managerial judgement. This suggests that FRS 3 may have offered opportunities for management to classify non-operating revenues such as rental income, ancillary revenues, and investment income as operating revenues.<sup>3</sup>

FRS 3 also required companies to distinguish between income from operating and non-operating exceptional items and to show the latter on the face of the income statement while the former either as footnotes or in the income statement. Specifically, it required that two types of income from non-operating exceptional items: profits on the sale or termination of an operation and profits on the disposal of fixed assets to be separately disclosed after operating profit on the face of the income statement. The implication is that FRS 3 had more flexible disclosure requirements for income from operating exceptional items than non-operating exceptional ones. Athanasakou, Strong, and Walker (2007) show that operating exceptional items have a broad scope under FRS 3 which allows firms flexibility in the classificatory choices of such items. They find that FRS 3 increases the practice of classificatory smoothing. The latter result is extended by Athanasakou, Strong, and Walker (2010) who show that flexibility in classificatory choices over exceptional items affects managers' preferences for the technique to use in income smoothing. Chan, Lin, and Strong (2011) find that FRS 3 is an effective standard that constrains discretionary accruals but not classificatory choices over exceptional items. Furthermore, companies were required to show gains from discontinued operations in the income statement under FRS 3 but the restrictive definition used for discontinued operations created room for managerial discretion. Choi et al. (2007) document that FRS 3 improves transparency with regard to non-operating exceptional items but still

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<sup>3</sup> Ancillary revenues are generated from the sale of products (services) that are not the main products (services) of the company. For example, baggage fees and food or beverage sales at petrol stations are ancillary revenues for airline and oil firms, respectively.

offers some latitude for managements' opportunistic discretion regarding operating exceptional items and discontinued operations. Taken together, these factors suggest that, under FRS 3, non-recurring items such as gains from discontinued operations and income from operating exceptional items (e.g. net foreign exchange gains) offered scope for classification shifting of revenues.

In contrast to FRS 3, IFRS requires firms to disclose sales revenue but not operating profit in the income statement. IFRS, IAS 18 revenue recognition defines those transactions as revenue arising from the ordinary activities of an entity. It captures revenues from the sale of goods, the rendering of services, and the use by others of entity assets giving rise to interest, dividends and royalties. Nobes (2012) argues that the standard is too broad and should exclude items such as interest or dividends because they are not revenue as such but instead should be included as a component of income. A consequence of IAS 18 defining revenue as all-inclusive is that it allows scope for management to determine what is classified as revenue. IFRS (IAS 1) also does not require firms to present finance income separately on the face of the income statement and allows them to make their own judgments on the classification of such items.<sup>4</sup> This lack of guidance and requirements may allow firms to engage in classification shifting of revenues by classifying dividends or interest income as part of operating revenues. For example, European telecommunication company Deutsche Telekom AG classified dividends received as part of operating activities in the cash-flow statement in 2006 taking advantage of the flexibility in cash-flow classification under IFRS (Gordon, Henry, Jorgensen, & Linthicum, 2017). Although the company did not disclose where in the income statement they reported dividends received, the fact that they reported it as part of operating activities in the cash-flow statement suggests they included it as part of other operating income. Furthermore, IFRS does not require companies to disclose other

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<sup>4</sup> An entity may include finance income in operating revenues or in other income subtotals depending on the view they take.

operating profit or other income subtotals but allows them to do this without providing detailed guidance. Zalata and Roberts (2017) document that although companies contend that they disclose different types of subtotals allowed but not required by IFRS to help investors to understand their profitability, such disclosures may mislead investors. This flexibility is likely to offer scope for management to move income statement items between different subtotals based on their judgement. For instance, Next plc (Annual Report, 2012) shows rental income from operating leases as part of the top income statement line item while Morrison Supermarkets (Annual Report, 2013) shows it as part of other operating income.

The requirements for non-recurring items are more flexible and less rigid under IFRS than under UK GAAP. IAS 1 merely provides firms with guidance by stating that an entity should disclose non-recurring items either on the face of the income statement or in the notes when such items are material. Zalata and Roberts (2016) show that IFRS is less prescriptive regarding the disclosure and treatment of transitory items than UK GAAP. The implication is that IFRS may encourage firms to classify transitory gains (e.g. gains from the sale of assets/investments) as operating revenues without disclosing them. Alternatively, companies may disclose non-recurring gains but not necessarily as part of non-operating revenues depending on the view they take about such items allowed by IFRS. For example, one of the world's leading electric utility firms, E.ON, following IFRS shows gains on the disposal of equity investments and securities as well as those on the disposal of property, plant and equipment as part of operating revenues (Annual Report, 2014). Overall, IFRS permits companies to determine operating revenues and non-operating revenues based on the nature of their operations (PWC, 2013). This in turn is likely to create scope for potential classification shifting of revenues.

In summary, the above discussion suggests that firms have flexibility to employ classification shifting of revenues and the opportunities for this are greater after the

introduction of IFRS. Furthermore, this earnings management method may not be subject to extensive scrutiny by auditors. This is because the classification of some revenues can be subjective due to the flexibility afforded by standards which may limit auditors' ability to challenge managements' classification. Beattie, Fearnley, and Hines (2015) in their interviews with auditors find that when they discussed a particular accounting treatment a major concern was whether the treatment complied with the accounting standards or rules. Also, classification shifting of revenues does not change bottom-line income which auditors may perceive as less important and therefore they may spend less audit effort in identifying or adjusting such misclassification (Nelson, Elliott, & Tarpley, 2002). Thus, we expect that firms engage in revenue shifting to inflate their operating revenues. We also conjecture that IFRS increases this practice as it offers greater scope for classification shifting of revenues than UK GAAP, particularly due to its more flexible requirements for non-recurring items and higher flexibility in classification choices in revenue recognition. More formally:

**H1:** Firms engage in classification shifting of revenues by classifying non-operating revenues as operating revenues.

**H2:** Firms classify more non-operating revenues as operating revenues in the post-IFRS period compared to the pre-IFRS period.

### **3. Research design and data**

#### *3.1. Measuring classification shifting of revenues*

In this section, we develop a methodology to measure classification shifting of revenues. We expect that operating revenues of firms are inflated in the year in which the components of operating and non-operating revenues are not disclosed. We model the level of operating revenues and anticipate that unexpected operating revenues (reported operating revenues - defined as sales revenue plus other operating revenues - less expected operating revenues) in year  $t$  increase as non-operating revenues in year  $t$  decrease if managers use classification

shifting of revenues. Thus, we expect firms that engage in classification shifting of revenues to have higher than expected levels of operating revenues in year  $t$ . An alternative explanation for why non-operating revenues are negatively associated with unexpected operating revenues is because of real economic reasons. We distinguish between the two alternative explanations, misclassification and economic reasons, by adopting the approach taken by McVay (2006) and testing if an increase in operating revenues reverses in the following period. Further details of this are provided in section 4.4.2.

We develop the following model to estimate the expected level of operating revenues:

$$\frac{OR_{i,t}}{AT_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{OR_{i,t-1}}{AT_{i,t-2}} + \beta_3 MTB_{i,t-1} + \beta_4 \frac{AR_{i,t-1}}{AT_{i,t-2}} + \beta_5 \frac{AR_{i,t}}{AT_{i,t-1}} + e_{i,t} \quad (1)$$

where  $OR_{i,t}$  is operating revenues for firm  $i$  in year  $t$ , defined as the sum of sales revenue and other operating revenues;  $AT_{i,t-1}$  is total assets;  $MTB_{i,t-1}$  is the market-to-book ratio;  $AR_{i,t}$  is accounts receivable.

We construct model (1) based upon the factors that are likely to affect the expected level of operating revenues. Our first main variable is lagged operating revenues ( $OR_{i,t-1}$ ). We include this variable to control for operating revenues persistence, consistent with the approach taken by McVay (2006) who uses past core earnings to predict current core earnings. In general, previous year's operating revenues are likely to be a good proxy for predicting the following year's operating revenues. This, however, may be a noisy predictor of future operating revenues for high growth firms a factor that is not directly considered in the McVay (2006) core earnings model. In an attempt to remedy this deficiency, we include a lagged market-to-book ratio ( $MTB_{i,t-1}$ ) to control for growth opportunities (Abdelsalam, Dimitropoulos, Elnahass, & Leventis, 2016; Roychowdhury, 2006). Next, we include lagged accounts receivable ( $AR_{i,t-1}$ ) as Sloan (1996) finds that current accruals are negatively associated with future earnings performance. Since our model is concerned with estimating



operating revenues, it is more appropriate to use accounts receivable rather than total accruals<sup>5</sup> because the former is likely to be more directly related to operating revenues.<sup>6</sup>

DeAngelo, DeAngelo, and Skinner (1994) find that there is a positive correlation between extreme performance and accrual levels. This suggests that firms with unusually high operating revenues are likely to have high accounts receivable. We, thus, also include current-year accounts receivable ( $AR_{i,t}$ ) in our model. Moreover, a large value for accounts receivable can also be due to accruals earnings management and so, the inclusion of this variable should ensure that we only capture any excess operating revenues associated with classification shifting of revenues.<sup>7</sup> The inclusion of lagged and current accounts receivable are in line with the approach taken by McVay (2006) with the exception that she uses past and current total accruals in her model. Similar to studies that estimate earnings management measures, we further include a scaled intercept (e.g. Fan & Liu, 2017; Gunny, 2010; Roychowdhury, 2006).<sup>8</sup> This helps to avoid a spurious correlation between scaled operating revenues and scaled accounts receivable due to the variation in the scaling variable, total assets. Finally, we scale all variables by lagged total assets. We use the latter as a deflator following Roychowdhury (2006) and Fan and Liu (2017) who develop models for the expected level of core expenses.

We estimate model (1) cross-sectionally for each industry-year to control for macroeconomic and industry shocks similar to other earnings management models (e.g. Fan

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<sup>5</sup> The main results do not alter if we use working capital accruals or total accruals instead of accounts receivable in model (1). We also tried a model including the change in accounts receivable as an independent variable and obtained similar results.

<sup>6</sup> Stubben (2010) also uses accounts receivable rather than total accruals in his model which is designed to detect revenue management via premature revenue recognition where the latter is defined as sales revenue recognized before cash is collected using an aggressive or incorrect application of Generally Accepted Accounting Principles.

<sup>7</sup> This, however, may not directly control for firms' accruals management practices to inflate operating revenues. Furthermore, the latter can also be manipulated via real earnings management (e.g. Gunny, 2010; Roychowdhury, 2006) and thus we directly control for firms' accruals and real earnings management practices when we regress unexpected operating revenues on non-operating revenues.

<sup>8</sup> Our main results do not change if we do not include the scaled intercept.

& Liu, 2017; McVay, 2006). Unexpected operating revenues are calculated as the difference between reported and expected operating revenues, where the latter are estimated using the coefficients from model (1).

### 3.2. Regression model

Hypothesis 1 states that firms reclassify non-operating revenues as operating revenues. Since we anticipate that unexpected operating revenues increase as non-operating revenues decrease if managers use classification shifting of revenues, the former is regressed on the latter along with the control variables to test Hypothesis 1. The regression equation is:

$$UE\_OR_{i,t} = \alpha_0 + \alpha_1 NOR_{i,t} + \alpha_2 A\_CFO_{i,t} + \alpha_3 A\_DISX_{i,t} + \alpha_4 A\_PROD_{i,t} + \alpha_5 A\_AC_{i,t} + \varepsilon_{i,t} \quad (2)$$

where  $UE\_OR_{i,t}$  is unexpected operating revenues for firm  $i$  in year  $t$ ;  $NOR_{i,t}$  is non-operating revenues, defined as income-increasing special items<sup>9</sup> and discontinued operations plus foreign exchange gains plus interest and related income plus other non-operating income including rental income divided by lagged total assets. This shows aggregated revenues that firms report from non-operating activities. Hypothesis 1 predicts a negative coefficient for  $\alpha_1$  in regression (2).

Classification shifting studies in general do not use control variables following the key paper by McVay (2006). They, however, do not directly consider the possibility that their results might be affected by other types of earnings management methods namely, real earnings management and accruals management (e.g. Jones, 1991; Roychowdhury, 2006). As we test whether firms inflate operating revenues through classification shifting, we need to control for firms' real activities manipulation and accruals management practices that may affect operating revenues. For instance, firms might engage in real earnings management by offering price discounts or more lenient credit terms which in turn inflates sales revenue.

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<sup>9</sup> Special items capture the major types of non-recurring items including operating exceptional items.

Consequently, we add proxies for real activities manipulation and accruals management as control variables to regression model (2). More specifically, abnormal levels of cash flows from operations ( $A\_CFO_{i,t}$ ), abnormal levels of discretionary expenses ( $A\_DISX_{i,t}$ ), and abnormal levels of production costs ( $A\_PROD_{i,t}$ )<sup>10</sup> are included as controls for the measures of real earnings management (Roychowdhury, 2006) while abnormal levels of accruals ( $A\_AC_{i,t}$ )<sup>11</sup> are added to control for the proxy of accruals management (Dechow, Sloan, & Sweeney, 1995).<sup>12</sup> Finally, we add year indicator variables to control for timing effects (Haw et al., 2011; Zalata & Roberts, 2016).

Hypothesis 2 states that firms classify more non-operating revenues as operating revenues in the post-IFRS period compared to the pre-IFRS period. To test this, we add an indicator variable, *IFRS*, that is equal to one for observations reporting under IFRS and zero otherwise, and its interaction with the non-operating revenues (*NOR*) variable to the previous regression model (2). Accordingly, the new regression equation is:

<sup>10</sup>  $A\_CFO_{i,t}$ ,  $A\_DISX_{i,t}$ , and  $A\_PROD_{i,t}$  are the residuals from the following regressions estimated cross-sectionally for each industry-year, respectively:

$$\frac{CFO_{i,t}}{AT_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{S_{i,t}}{AT_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{AT_{i,t-1}} + e_{i,t}$$

$$\frac{DISX_{i,t}}{AT_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{S_{i,t-1}}{AT_{i,t-1}} + e_{i,t}$$

$$\frac{PROD_{i,t}}{AT_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{S_{i,t}}{AT_{i,t-1}} + \beta_3 \frac{\Delta S_{i,t}}{AT_{i,t-1}} + \beta_4 \frac{\Delta S_{i,t-1}}{AT_{i,t-1}} + e_{i,t}$$

where  $CFO_{i,t}$  is cash flows from operations for firm  $i$  in year  $t$ ;  $AT_{i,t-1}$  is total assets;  $S_{i,t}$  is sales revenue;  $DISX_{i,t}$  is discretionary expenses, defined as selling, general, and administrative expenses plus R&D expenses;  $PROD_{i,t}$  is production costs, defined as cost of sales plus change in inventory.

<sup>11</sup>  $A\_AC_{i,t}$  is the residual from the following regression estimated cross-sectionally for each industry-year:

$$\frac{TA_{i,t}}{AT_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{\Delta SA_{i,t}}{AT_{i,t-1}} + \beta_3 \frac{PPE_{i,t}}{AT_{i,t-1}} + e_{i,t}$$

where  $TA_{i,t}$  is total accruals for firm  $i$  in year  $t$ , calculated as earnings before extraordinary items and discontinued operations minus cash flow from operations;  $AT_{i,t-1}$  is total assets;  $\Delta SA_{i,t}$  is the change in sales revenue minus the change in accounts receivable;  $PPE_{i,t}$  is the gross value of property, plant and equipment.

<sup>12</sup> Our main results do not change if we use working capital discretionary accruals rather than abnormal total accruals as the measure for accruals management.

$$\begin{aligned}
 UE_{OR}_{i,t} = & \alpha_0 + \alpha_1 NOR_{i,t} + \alpha_2 IFRS_{i,t} + \alpha_3 NOR_{i,t} \times IFRS_{i,t} + \alpha_4 A\_CFO_{i,t} + \alpha_5 A\_DISX_{i,t} + \\
 & \alpha_6 A\_PROD_{i,t} + \alpha_7 A\_AC_{i,t} + \varepsilon_{i,t}
 \end{aligned}
 \tag{3}$$

Hypothesis 2 predicts a negative coefficient for  $\alpha_3$  in regression model (3).

### 3.3. Data and sample

Data are obtained from Compustat Global for all UK (dead and live) listed firms for the period between 1994 and 2014.<sup>13</sup> The sample period begins in 1994 because UK firms were required to follow FRS 3 (UK GAAP) after June 23, 1993 until mandatory IFRS adoption. It is required that firm-years have positive operating revenues and total assets. Following prior studies, we exclude financial and utility firms because the former have a different financial reporting environment and the latter have more predictable earnings growth. The estimation of the expected operating revenues requires two years of lagged data and as a result, the data for 1994 are lost. Finally, to make sure that we have sufficient data for the estimation of expected operating revenues, we require, following Athanasakou et al. (2009), at least 6 observations per industry (Global Industry Classification Scheme) year. We winsorize all variables at the 1 percent and 99 percent levels to eliminate the impact of outliers. Consequently, our final sample contains 1,786 firms and 12,804 firm-year observations.

Table 1, Panels A and B show the descriptive statistics of the main variables for the full sample and the pre- and post-IFRS periods, respectively. Panel A indicates that the median (mean) of unexpected operating revenues is -0.003 (0.000).

[Table 1 around here]

The median (mean) of non-operating revenues is 0.005 (0.018) as shown in Panel A, implying that firms report small revenues from non-operating activities. Turning to Panel B, we find that the median (mean) non-operating revenues is significantly smaller (larger) for the post-

<sup>13</sup> Dead firms are included across the test period to avoid survivorship bias.

IFRS period than the pre-IFRS period.<sup>14</sup> Regarding the median (mean) unexpected operating revenues, there is no significant difference between the pre- and post-IFRS periods.

## 4. Empirical results

### 4.1. Main analysis

Table 2, Panels A and B provide univariate analysis and regression results for testing classification shifting of revenues, respectively.

[Table 2 around here]

Panel A shows that how unexpected operating revenues (*UE\_OR*) vary across the different quintiles of non-operating revenues (*NOR*). Firms in the first and second quintiles of non-operating revenues have positive means but negative medians with the values of the latter being close to zero for unexpected operating revenues. The mean and median for unexpected operating revenues increase and both become positive in the third quintile. The results for these quintiles can be explained by the firm undertaking revenue shifting and reporting small non-operating revenues but having, on average, unexpected high operating revenues. The mean (median) unexpected operating revenues becomes negative from the fourth quintile although it is close to zero for the latter. However, the mean (median) is large and negative in the fifth quintile. In these later quintiles firms have economically more significant non-operating revenues relative to the prior three quintiles.<sup>15</sup> Overall, the results suggest that firms reporting small non-operating revenues, on average, have positive unexpected operating revenues while those reporting relatively large non-operating revenues have negative unexpected operating revenues.

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<sup>14</sup> Although firms in our sample, on average, report non-operating revenues both in the pre- and post-IFRS periods we further check the frequency of disclosing such revenues in these periods. For example, we find that only 1,676 sample firm-year observations do not include interest and related income which is one of the main components of non-operating revenues. Of this total, 1,080 were in the post-IFRS period. Furthermore, 736 firm-year observations, that exclude interest and related income, include revenues from other non-operating activities.

<sup>15</sup> The results for the fifth quintile might be due to economic reasons where firms which are performing poorly restructure their operations creating large non-operating revenues whilst their operating revenues are declining.

The regression results in column (1) of Panel B show the findings without using controls variables to be consistent with existing classification shifting studies (e.g. McVay, 2006). Column (1) indicates a significantly negative association between unexpected operating revenues and *NOR* at the 1% significance level.<sup>16</sup> This implies that firms engage in classification shifting of revenues by misclassifying non-operating revenues as operating revenues. We also find very similar results for our main model that controls for firms' accruals and real earnings management practices as indicated by the significantly negative coefficient on *NOR* in column (2). The coefficients on *NOR* are also economically significant in both columns but that in column (2) decreases from -0.484 to the slightly lower value -0.373 when we account for the potential effects of other earnings management practices. The results are consistent with the proposition that financial statement users value income statement line items differently and give more value to operating revenues items (Bradshaw & Sloan, 2002; Davis, 2002). Overall, the results provide evidence in line with Hypothesis 1 that firms engage in classification shifting of revenue items.

#### 4.2. The effect of IFRS on classification shifting of revenues

Table 3 provides regression results for testing the effect of IFRS on classification shifting of revenues.

[Table 3 around here]

The table shows a significantly negative association between unexpected operating revenues and *NOR*, implying that firms misclassify non-operating revenues as operating revenues. The post-IFRS effect is explained by the sum of the coefficients on the *NOR* and *NOR*×*IFRS* variables. The *NOR*×*IFRS* coefficient is significantly negative for unexpected operating revenues and also economically significant. It indicates that firms employ classification

<sup>16</sup> Table 2 shows that adjusted  $R^2$  is 0.4% in column (1) while it is 1.7% in column (2). These are consistent with those reported in existing classification shifting studies (e.g. Fan & Liu, 2017; McVay, 2006).

shifting of revenues to a greater extent after mandatory IFRS adoption. The coefficient for *NOR* is -0.161 and that on *NOR*×*IFRS* is -0.337. Thus, the overall effect of non-operating revenues for the post-IFRS period is -0.498 (-0.161-0.337). This demonstrates that IFRS adoption increases the use of classification shifting of revenues and supports Hypothesis 2.

#### 4.3. *Firms with strong managerial incentives*

Existing classification shifting studies show that firms with strong managerial incentives such as meeting analyst core earnings forecasts or prior period core earnings use expense reclassification to a greater extent (Fan & Liu, 2017; McVay, 2006). Firms may use classification shifting of revenues to a greater degree when the benefits of misclassification are higher, such as, those situations where operating revenues are value relevant. The latter is the case for firms reporting losses (Kama, 2004), and so we expect that such firms are likely to engage in classification shifting of revenues to a greater degree to inflate operating revenues. The benefits of using revenue shifting may also be considerable for firms with low growth opportunities. This is because low growth firms are likely to be less closely monitored than high growth firms (Lai, 2009). We, therefore, expect that firms with low growth opportunities, as measured by low growth in property, plant, and equipment<sup>17</sup>, employ classification shifting of revenues to a greater extent. Alternatively, one might argue firms with high growth use more classification shifting of revenues than their counterparts with low growth as sales growth is important for the former in securities valuation. To test these conjectures, we create the following indicator variables. *LOSS* is equal to one for firm-years that have operating losses, and zero otherwise. *LOW\_GROWTH* is equal to one for firm-years that have a change in property, plant, and equipment below the sample median, and zero otherwise. We add these indicator variables and their interactions with the non-operating

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<sup>17</sup> We also use alternative measures of growth opportunities such as market-to-book ratio, R&D expenses and sales growth, and obtain similar results.

revenues (*NOR*) variable to regression model (3). The results are shown in Table 4, column (1).

[Table 4 around here]

The column shows significantly negative coefficient on the *NOR*×*LOSS* interaction variable. The implication is that firms reporting operating losses engage in classification shifting of revenues to a greater degree. Column (1) indicates that the coefficient on the *NOR*×*LOW\_GROWTH* interaction variable is significantly negative, suggesting that low growth firms use classification shifting of revenues to a greater extent.<sup>18</sup> We find similar results when we test whether firms with operating losses and firms with low growth employ more revenue shifting separately as indicated in columns (2) and (3). Overall, it appears that classification shifting of revenues is more pervasive among firms that report operating losses or have low growth.

#### 4.4. Robustness checks

##### 4.4.1. Alternative specifications for the operating revenues expectation model

We include accounts receivable in the operating revenues expectation model to control for extreme performance. McVay (2006) documents that her core earnings expectation model may give biased results due to the inclusion of total accruals. Specifically, she argues that noncash income-decreasing special items are part of total accruals and the use of the latter in the expectation model may lead to a mechanical relationship between the income-decreasing special items and unexpected core earnings. In our study, we may also have a similar issue since accounts receivable which we use for estimating unexpected operating revenues may include receivables from non-operating activities. In addition, there may be several factors

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<sup>18</sup> We also directly test the alternative view that firms with high growth use more classification shifting of revenues by adding an indicator variable, *HIGH\_GROWTH*, which is equal to one for firm-years that have a change in property, plant, and equipment above the sample median and zero otherwise, and its interaction with the non-operating revenues (*NOR*) variable to regression model (3). The results do not support this alternative view.



other than the ones we consider in our expectation model that affect operating revenues and the omission of these factors may influence our main results. These factors include the change in inventories and the change in property, plant, and equipment. Thomas and Zhang (2002) document firms with inventory increases have higher growth in operating revenues over the prior five years and this trend reverses after the change in inventory. An increase in property, plant, and equipment in year  $t-1$  is likely boost operating revenues in year  $t$ . This is because firms may buy new fixed assets to increase production in the following year.

Considering the above issues, we test the validity of our main results by estimating unexpected operating revenues using three alternative specifications. The first alternative specification excludes current-year accounts receivable from the operating revenues expectation model as they may contain receivables from non-operating revenues. The second specification replaces current-year accounts receivable with current-year production costs and discretionary expenses in the expectation model since the latter two items are likely to affect operating revenues. The third alternative specification includes the change in inventories in year  $t-1$  and the change in property, plant, and equipment in year  $t-1$ <sup>19</sup> in the operating revenues expectation model as they may affect operating revenues. We regress these three sets of alternative dependent variables on non-operating revenues along with the control variables used in the main analysis. The results are presented in Table 5, Panel A.

[Table 5, Panel A around here]

The table shows significantly negative coefficients on the *NOR* variable in all columns. These results indicate that firms reclassify non-operating revenues as operating revenues under all sets of alternative variables used to calculate unexpected operating revenues, which is in line with classification shifting of revenues. This suggests that our main findings are not sensitive to the alternative specifications for the operating revenues expectation model.

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<sup>19</sup> The results do not change if we use the change in capital expenditures in year  $t-1$  rather than the change in property, plant, and equipment in year  $t-1$ .

#### 4.4.2. Real economic changes as an alternative explanation

In this paper, evidence of classification shifting of revenues is presented by documenting that there is a negative relationship between unexpected operating revenues and non-operating revenues. It is possible, however, that such negative association is due to real economic changes. For instance, poorly performing firms may dispose of unprofitable segments or subsidiaries which in turn are likely to increase gains from asset disposals. Alternatively, they might use the assets of these segments or subsidiaries to generate other sources of income, such as rental income, which would result in an increase in non-operating revenues. Both cases would yield a negative association between unexpected operating revenues and non-operating revenues. In order to distinguish between earnings management and real economic changes, we examine whether an increase in operating revenues associated with non-operating revenues in year  $t$  reverses in year  $t+1$  in a similar vein to other classification shifting studies (e.g. Fan & Liu, 2017; McVay, 2006) which also consider alternative explanations for their expense shifting evidence. A reversal of the improvement in operating revenues is consistent with a firm's temporary classification shifting practices rather than with real economic changes as non-operating revenues are less likely to arise again in the next year. To test this issue, we first estimate unexpected change in operating revenues in year  $t+1$  by including change in operating revenues in year  $t-1$  in our operating revenues expectation model (1) and replacing the dependent variable of operating revenues in year  $t$  with change in operating revenues in year  $t+1$ . We then regress unexpected change in operating revenues in year  $t+1$  ( $UE\_AOR$ ) on non-operating revenues in year  $t$  along with the control variables used in the main analysis. A negative relationship between them supports classification shifting of revenues as it indicates there is a reversal in the following year whereas a positive relationship supports the persistence of real economic changes. The results are presented in Table 5, Panel B.

[Table 5, Panel B around here]

The table shows that there is a negative relationship between unexpected change in operating revenues in year  $t+1$  and non-operating revenues in year  $t$ . This implies that firms engage in classification shifting of revenues to inflate operating revenues and this reverses in the following year. Overall, the findings suggest that our main results should be due to firms' classification shifting of revenues practices.

#### 4.4.3. Firms with zero non-operating revenues

We find that in our sample 940 firm-years have zero non-operating revenues.<sup>20</sup> Firms reporting zero non-operating revenues might be the ones that successfully shift all their non-operating revenues to operating revenues. Table 6, Panel A indicates that such firms have positive mean (median) unexpected operating revenues while firms with non-operating revenues have negative mean (median) unexpected operating revenues.

[Table 6 around here]

Furthermore, firms with non-operating revenues have significantly higher mean (median) non-operating revenues but significantly lower mean (median) unexpected operating revenues. This may lead to the expectation that firms reporting zero non-operating revenues employ revenue shifting to a greater extent than their counterparts reporting non-operating revenues. To test this, we create an indicator variable, *ZERO\_NOR*, that is equal to one for those firm-years that have zero non-operating revenues, and zero otherwise. We regress unexpected operating revenues on this indicator variable along with the control variables used in the main analysis. Table 6, Panel B indicates that the coefficient on *ZERO\_NOR* is significantly positive, suggesting that firms reporting zero non-operating revenues employ more revenue shifting than those that report non-operating revenues.

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<sup>20</sup> Out of these, 586 firm-years have zero non-operating revenues in the post-IFRS period. This suggests that the frequency of non-disclosed non-operating revenues increases following IFRS adoption.

## 5. Conclusions

This paper examines a novel form of classification shifting as an earnings management tool. More specifically, it is the first study that directly investigates whether firms use classification shifting of revenues by misclassifying non-operating revenues as operating revenues. Firms have incentives to employ this manipulation method as financial statement users value income statement line items differently and they give more value to operating revenues items (Bradshaw & Sloan, 2002; Davis, 2002). Moreover, an increase in operating revenues is valued more highly by investors than a corresponding decrease in operating expenses (Ertimur et al., 2003; Marguardt & Wiedman, 2004). Using a sample of 12,804 UK listed firm-year observations for the 1995-2014 period, we find that firms engage in classification shifting of revenues to inflate operating revenues, in line with the incentives for increasing such income statement line items.

The paper also examines the effect of mandatory IFRS adoption on the use of classification shifting of revenues to determine if it has changed the scope for management to engage in this particular form of earnings management. The results indicate that firms engage in classification shifting of revenues more to increase operating revenues in the post-IFRS period compared to the pre-IFRS period. This suggests that IFRS offers more scope for the misclassification of income statement items, in line with Zalata and Roberts (2017). Furthermore, our supplementary tests show that classification shifting of revenues is more pervasive for firms that report operating losses or have low growth. Overall, the results provide evidence that misclassification takes place not only using expense items (Fan & Liu, 2017; McVay, 2006) but also using revenue items.

Our results have important implication for both investors and accounting standard setters. They can alert investors to a new earnings management tool using classification shifting of revenues for inflating operating revenues. This is most likely to occur when a firm does not

disclose the components of operating and non-operating revenues in its annual report. Our findings imply that, for standard setters, mandatory IFRS adoption has not precluded the opportunity with regard to the classification of income statement items. The scope for differing interpretations of revenue has recently been recognized by IASB in their publication of IFRS 15 Revenue from Contracts with Customers which comes in to force in 2018 and seeks to improve consistency in the reporting of revenue. Finally, although our results show evidence of classification shifting of revenues, it is possible that strong corporate governance or firms audited by the big four audit firms are deterred from engaging in such earnings management method. We leave the investigation of this to future research. Given that the UK is an interesting institutional setting but not unique for examining classification shifting of revenues, this research issue could also be investigated in other countries. The USA would be a particularly interesting setting because of the change in pro-forma reporting after Enron and the introduction of the Sarbanes-Oxley Act (Heflin & Hsu, 2008). One would expect that greater revenue shifting occurs prior to the above events but this would need to be investigated in a further study.

**Table 1**  
**Summary statistics**

**Panel A: Descriptive statistics for the full sample**

Variables	(1) Mean	(2) 25 <sup>th</sup>	(3) Median	(4) 75 <sup>th</sup>	(5) Std. Dev
$OR_{i,t}$	1.389	0.727	1.188	1.770	0.965
$OR_{i,t-1}$	1.441	0.757	1.221	1.836	1.023
$MTB_{i,t-1}$	7.483	0.896	1.941	4.591	28.40
$AR_{i,t}$	0.239	0.103	0.199	0.320	0.191
$AR_{i,t-1}$	0.252	0.107	0.206	0.332	0.211
$UE\_OR_{i,t}$	0.000	-0.115	-0.003	0.111	0.266
$NOR_{i,t}$	0.018	0.001	0.005	0.016	0.040
$A\_CFO_{i,t}$	0.002	-0.053	0.002	0.065	0.121
$A\_DISX_{i,t}$	-0.004	-0.151	-0.027	0.105	0.252
$A\_PROD_{i,t}$	0.000	-0.131	0.035	0.175	0.325
$A\_AC_{i,t}$	0.000	-0.042	0.006	0.052	0.105
Observations	12,804				

**Panel B: Descriptive statistics for the pre-IFRS and post-IFRS periods**

Variables	Pre-IFRS period		Post-IFRS period		Difference in	
	Mean	Median	Mean	Median	Means ( <i>t</i> -test)	Medians (Wilcoxon test)
$OR_{i,t}$	1.480	1.289	1.307	1.093	***	***
$OR_{i,t-1}$	1.536	1.327	1.358	1.127	***	***
$MTB_{i,t-1}$	3.602	1.777	10.94	2.245	***	***
$AR_{i,t}$	0.248	0.209	0.231	0.191	***	***
$AR_{i,t-1}$	0.262	0.218	0.242	0.197	***	***
$UE\_OR_{i,t}$	-0.001	-0.006	0.000	-0.001	***	***
$NOR_{i,t}$	0.017	0.006	0.019	0.004		
$A\_CFO_{i,t}$	0.001	0.001	0.002	0.005		
$A\_DISX_{i,t}$	-0.003	-0.021	-0.005	-0.033		*
$A\_PROD_{i,t}$	0.001	0.058	-0.001	0.019		***
$A\_AC_{i,t}$	0.000	0.006	0.000	0.006		
Observations	6,029		6,775			

**Notes:**

This table reports the summary statistics of the variables used in the study. Panels A and B show the descriptive statistics of the main variables for the full sample and for the pre- and post-IFRS periods, respectively.  $OR_{i,t}$  is operating revenues,  $MTB_{i,t-1}$  is market-to-book ratio,  $AR_{i,t}$  is accounts receivable,  $UE\_OR_{i,t}$  is unexpected operating revenues,  $NOR_{i,t}$  is non-operating revenues,  $A\_CFO_{i,t}$  is abnormal levels of cash flows from operations,  $A\_DISX_{i,t}$  is abnormal levels of discretionary expenses,  $A\_PROD_{i,t}$  is abnormal levels of production costs,  $A\_AC_{i,t}$  is abnormal levels of accruals. See Appendix A for detailed variable definitions and calculations. \*\*\*/\*\*/\* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

**Table 2**  
**Classification shifting of revenues**

**Panel A: Univariate analysis**

Quantiles	$NOR_{i,t}$		$UE_{OR}_{i,t}$	
	Mean	Median	Mean	Median
First (1)	0.001	0.000	0.005	-0.001
Second (2)	0.002	0.002	0.002	-0.001
Third (3)	0.005	0.005	0.013	0.002
Fourth (4)	0.013	0.012	-0.001	-0.003
Fifth (5)	0.069	0.041	-0.021	-0.022

**Panel B: Testing classification shifting of revenues**

Variables	(1)	(2)
	$UE_{OR}_{i,t}$	$UE_{OR}_{i,t}$
$NOR_{i,t}$	-0.484*** (-8.141)	-0.373*** (-6.199)
$A\_CFO_{i,t}$		0.033 (1.558)
$A\_DISX_{i,t}$		0.093*** (9.239)
$A\_PROD_{i,t}$		0.037*** (4.674)
$A\_AC_{i,t}$		-0.195*** (-8.265)
Constant	0.002 (0.139)	-0.000 (-0.023)
Year dummies	Yes	Yes
Observations	12,804	12,804
Adjusted R-squared	0.4%	1.7%

**Notes:**

This table shows our analysis for classification shifting of revenues. Panel A provides univariate analysis of classification shifting of revenues. Panel B shows regression results with year dummies for testing classification shifting of revenues.  $UE_{OR}_{i,t}$  is unexpected operating revenues,  $NOR_{i,t}$  is non-operating revenues,  $A\_CFO_{i,t}$  is abnormal levels of cash flows from operations,  $A\_DISX_{i,t}$  is abnormal levels of discretionary expenses,  $A\_PROD_{i,t}$  is abnormal levels of production costs,  $A\_AC_{i,t}$  is abnormal levels of accruals. See Appendix A for detailed variable definitions and calculations.  $t$ -statistics are reported in parentheses. \*\*\*/\*\*/\* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

Table 3

## The effect of IFRS on classification shifting of revenues

Variables	$UE_{OR_{i,t}}$
$NOR_{i,t}$	-0.161* (-1.649)
$IFRS_{i,t}$	0.011 (0.682)
$NOR_{i,t} \times IFRS_{i,t}$	-0.337*** (-2.759)
$A\_CFO_{i,t}$	0.032 (1.517)
$A\_DISX_{i,t}$	0.092*** (9.173)
$A\_PROD_{i,t}$	0.037*** (4.639)
$A\_AC_{i,t}$	-0.200*** (-8.435)
Constant	-0.003 (-0.260)
Year dummies	Yes
Observations	12,804
Adjusted R-squared	1.7%

**Notes:**

This table shows regression results with year dummies for the effect of IFRS on classification shifting of revenues.  $UE_{OR_{i,t}}$  is unexpected operating revenues,  $NOR_{i,t}$  is non-operating revenues,  $IFRS_{i,t}$  is a dummy variable that is equal to one for observations reporting under IFRS and zero otherwise,  $A\_CFO_{i,t}$  is abnormal levels of cash flows from operations,  $A\_DISX_{i,t}$  is abnormal levels of discretionary expenses,  $A\_PROD_{i,t}$  is abnormal levels of production costs,  $A\_AC_{i,t}$  is abnormal levels of accruals. See Appendix A for detailed variable definitions and calculations.  $t$ -statistics are reported in parentheses. \*\*\*/\*\*/\* indicate significance at 1%/5%/10% (two tailed) levels, respectively.



**Table 4****Firms with strong managerial incentives**

Variables	(1) <i>UE_OR<sub>i,t</sub></i>	(2) <i>UE_OR<sub>i,t</sub></i>	(3) <i>UE_OR<sub>i,t</sub></i>
<i>NOR<sub>i,t</sub></i>	0.376*** (2.914)	0.066 (0.618)	0.161 (1.316)
<i>LOSS<sub>i,t</sub></i>	-0.066*** (-7.858)	-0.070*** (-8.423)	
<i>NOR<sub>i,t</sub> × LOSS<sub>i,t</sub></i>	-0.256** (-2.055)	-0.239* (-1.937)	
<i>LOW_GROWTH<sub>i,t</sub></i>	-0.006 (-1.055)		-0.007 (-1.398)
<i>NOR<sub>i,t</sub> × LOW_GROWTH<sub>i,t</sub></i>	-0.499*** (-3.961)		-0.513*** (-4.063)
<i>IFRS<sub>i,t</sub></i>	0.017 (1.014)	0.018 (1.077)	0.010 (0.584)
<i>NOR<sub>i,t</sub> × IFRS<sub>i,t</sub></i>	-0.276** (-2.234)	-0.364*** (-2.990)	-0.250** (-2.021)
<i>A_CFO<sub>i,t</sub></i>	-0.059** (-2.500)	-0.063*** (-2.707)	0.031 (1.446)
<i>A_DISX<sub>i,t</sub></i>	0.091*** (8.916)	0.096*** (9.543)	0.087*** (8.498)
<i>A_PROD<sub>i,t</sub></i>	0.036*** (4.485)	0.038*** (4.718)	0.035*** (4.425)
<i>A_AC<sub>i,t</sub></i>	-0.275*** (-10.921)	-0.276*** (-11.097)	-0.202*** (-8.454)
Constant	-0.001 (-0.107)	-0.003 (-0.203)	-0.001 (-0.097)
Year dummies	Yes	Yes	Yes
Observations	12,604	12,604	12,604
Adjusted R-squared	2.6%	2.5%	1.9%

**Notes:**

This table shows regression results with year dummies for firms that have strong incentives to use classification shifting of revenues. *UE\_OR<sub>i,t</sub>* is unexpected operating revenues, *NOR<sub>i,t</sub>* is non-operating revenues, *LOSS<sub>i,t</sub>* is equal to one for firm-years that have operating losses and zero otherwise, *LOW\_GROWTH<sub>i,t</sub>* is equal to one for firm-years that have a change in property, plant, and equipment below the sample median and zero otherwise, *IFRS<sub>i,t</sub>* is a dummy variable that is equal to one for observations reporting under IFRS and zero otherwise, *A\_CFO<sub>i,t</sub>* is abnormal levels of cash flows from operations, *A\_DISX<sub>i,t</sub>* is abnormal levels of discretionary expenses, *A\_PROD<sub>i,t</sub>* is abnormal levels of production costs, *A\_AC<sub>i,t</sub>* is abnormal levels of accruals. See Appendix A for detailed variable definitions and calculations. *t*-statistics are reported in parentheses. \*\*\*/\*\*/\* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

Table 5

## Robustness checks

## Panel A: Alternative specifications for the operating revenues expectation model

Variables	(1) <i>UE_OR_ALTER_1<sub>i,t</sub></i>	(2) <i>UE_OR_ALTER_2<sub>i,t</sub></i>	(3) <i>UE_OR_ALTER_3<sub>i,t</sub></i>
<i>NOR<sub>i,t</sub></i>	-0.719*** (-8.755)	-0.376*** (-8.781)	-0.403*** (-7.101)
<i>A_CFO<sub>i,t</sub></i>	-0.022 (-0.765)	0.174*** (11.524)	0.062*** (3.090)
<i>A_DISX<sub>i,t</sub></i>	0.198*** (14.390)	-0.157*** (-21.896)	0.093*** (9.803)
<i>A_PROD<sub>i,t</sub></i>	0.022** (2.030)	-0.316*** (-55.641)	0.040*** (5.307)
<i>A_AC<sub>i,t</sub></i>	0.177*** (5.498)	0.157*** (9.342)	-0.160*** (-7.179)
Constant	0.0016 (0.096)	0.0022 (0.246)	0.0018 (0.152)
Year dummies	Yes	Yes	Yes
Observations	12,804	12,804	12,804
Adjusted R-squared	2.3%	24%	1.8%

## Panel B: Real economic changes as an alternative explanation

Variables	<i>UE_ΔOR<sub>i,t+1</sub></i>
<i>NOR<sub>i,t</sub></i>	-0.132** (-2.045)
<i>A_CFO<sub>i,t</sub></i>	0.275*** (12.083)
<i>A_DISX<sub>i,t</sub></i>	0.019* (1.884)
<i>A_PROD<sub>i,t</sub></i>	0.035*** (4.461)
<i>A_AC<sub>i,t</sub></i>	0.283*** (11.130)
Constant	0.002 (0.200)
Year dummies	Yes
Observations	11,144
Adjusted R-squared	1.6%

## Notes:

This table reports regression results for robustness checks. Panel A shows regression results with year dummies for classification shifting of revenues using three alternative dependent variables. Panel B indicates regression results with year dummies for the alternative explanation of classification shifting of revenues practices. *UE\_OR\_ALTER\_1<sub>i,t</sub>* is

unexpected operating revenues under the first alternative specification,  $UE\_OR\_ALTER\_2_{i,t}$  is unexpected operating revenues under the second alternative specification,  $UE\_OR\_ALTER\_3_{i,t}$  is unexpected operating revenues under the third alternative specification,  $NOR_{i,t}$  is non-operating revenues,  $A\_CFO_{i,t}$  is abnormal levels of cash flows from operations,  $A\_DISX_{i,t}$  is abnormal levels of discretionary expenses,  $A\_PROD_{i,t}$  is abnormal levels of production costs,  $A\_AC_{i,t}$  is abnormal levels of accruals,  $UE\_ΔOR_{i,t+1}$  is unexpected change in operating revenues. See Appendix A for detailed variable definitions and calculations.  $t$ -statistics are reported in parentheses. \*\*\*\* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

Table 6

## Firms with zero non-operating revenues

Panel A: Descriptive statistics of key variables for firms reporting zero non-operating revenues and for firms reporting non-operating revenues

Variables	Firms reporting zero non-operating revenues		Firms reporting non-operating revenues		Difference in	
	Mean	Median	Mean	Median	Means ( <i>t</i> -test)	Medians (Wilcoxon test)
$NOR_{i,t}$	0.000	0.000	0.023	0.006	***	***
$UE\_OR_{i,t}$	0.018	0.007	-0.002	-0.005	**	***
Observations	940		11,864			

Panel B: Testing firms with zero non-operating revenues

Variables	$UE\_OR_{i,t}$
$ZERO\_NOR_{i,t}$	0.016* (1.722)
$A\_CFO_{i,t}$	0.039* (1.848)
$A\_DISX_{i,t}$	0.094*** (9.291)
$A\_PROD_{i,t}$	0.037*** (4.658)
$A\_AC_{i,t}$	-0.218*** (-9.322)
Constant	-0.007 (-0.522)
Year dummies	Yes
Observations	12,804
Adjusted R-squared	1.4%

## Notes:

Panel A shows the descriptive statistics of key variables for firms reporting zero non-operating revenues and for firms reporting non-operating revenues. Panel B gives regression results with year dummies for testing classification shifting of revenues for firms reporting zero non-operating revenues.  $UE\_OR_{i,t}$  is unexpected operating revenues,  $NOR_{i,t}$  is non-operating revenues,  $ZERO\_OR_{i,t}$  is equal to one for firm-years that have zero non-operating revenues and zero otherwise,  $A\_CFO_{i,t}$  is abnormal levels of cash flows from operations,  $A\_DISX_{i,t}$  is abnormal levels of discretionary expenses,  $A\_PROD_{i,t}$  is abnormal levels of production costs,  $A\_AC_{i,t}$  is abnormal levels of accruals. See Appendix

A for detailed variable definitions and calculations.  $t$ -statistics are reported in parentheses.

\*\*\*/\*\*/\* indicate significance at 1%/5%/10% (two tailed) levels, respectively.

ACCEPTED MANUSCRIPT

## Appendix A

## Variables definitions

Variable	Definition
$A\_AC_{i,t}$	Abnormal levels of accruals in year $t$ , derived using the modified Jones (1991) model (Dechow, Sloan, & Sweeney, 1995)
$A\_CFO_{i,t}$	Abnormal levels of cash flows from operations in year $t$ , derived using the Roychowdhury (2006) model
$A\_DISX_{i,t}$	Abnormal levels of discretionary expenses in year $t$ , derived using the Roychowdhury (2006) model
$A\_PROD_{i,t}$	Abnormal levels of production costs in year $t$ , derived using the Roychowdhury (2006) model
$AR_{i,t}$	Accounts receivable in year $t$
$AT_{i,t-1}$	Total assets in year $t-1$
$CFO_{i,t}$	Cash flows from operations in year $t$
$DISX_{i,t}$	Discretionary expenses in year $t$ , calculated as the sum of selling, general, and administrative and R&D expenses
$IFRS_{i,t}$	Indicator variable that is equal to one for observations reporting under IFRS, and zero otherwise
$LOSS_{i,t}$	Indicator variable that is equal to one for firm-years that have negative operating income before depreciation, and zero otherwise
$LOW\_GROWTH_{i,t}$	Indicator variable that is equal to one for firm-years that have a change in property, plant, and equipment below the sample median, and zero otherwise
$MTB_{i,t-1}$	The ratio of market value of equity to book value of equity in year $t-1$
$NOR_{i,t}$	Non-operating revenues in year $t$ , defined as income-increasing special items and discontinued operations plus foreign exchange gains plus interest and related income plus other non-operating income including rental income divided by lagged total assets
$OR_{i,t}$	Operating revenues in year $t$ , defined as the sum of sales revenue and other operating revenues
$PPE_{i,t}$	Gross value of property, plant and equipment in year $t$
$PROD_{i,t}$	Production costs in year $t$ , calculated as the sum of cost of sales and change in inventory
$S_{i,t}$	Sales revenue in year $t$
$TA_{i,t}$	Total accruals in year $t$ , calculated as earnings before extraordinary items and discontinued operations minus cash flows from operations
$UE\_OR_{i,t}$	Unexpected operating revenues in year $t$ , calculated as the difference between reported and expected operating revenues, where the latter are estimated using the coefficients from the operating revenues expectation model below:
	$\frac{OR_{i,t}}{AT_{i,t-1}} = \alpha_0 + \beta_1 \frac{1}{AT_{i,t-1}} + \beta_2 \frac{OR_{i,t-1}}{AT_{i,t-2}} + \beta_3 MTB_{i,t-1} + \beta_4 \frac{AR_{i,t-1}}{AT_{i,t-2}} + \beta_5 \frac{AR_{i,t}}{AT_{i,t-1}} + e_{i,t}$
$UE\_OR\_ALTER\_1_{i,t}$	Unexpected operating revenues in year $t$ under the first alternative specification, derived by excluding current-year accounts receivable from the operating revenues expectation model
$UE\_OR\_ALTER\_2_{i,t}$	Unexpected operating revenues in year $t$ under the second alternative specification, derived by replacing current-year accounts receivable with current-year production costs and discretionary expenses in the operating

$UE\_OR\_ALTER\_3_{i,t}$	revenues expectation model Unexpected operating revenues in year $t$ under the third alternative specification, derived by including the change in inventories in year $t-1$ and the change in property, plant, and equipment in year $t-1$ in the operating revenues expectation model
$UE\_ΔOR_{i,t+1}$	Unexpected change in operating revenues in year $t$ , derived by including change in operating revenues in year $t-1$ in the operating revenues expectation model and replacing the dependent variable of operating revenues in year $t$ with change in operating revenues in year $t+1$ .
$ZERO\_NOR_{i,t}$	Indicator variable that is equal to one for firm-years that have zero non-operating revenues, and zero otherwise.

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