
Study on the association

between earnings management and value relevance based on the reporting method used for operating cash flows

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Abstract

This paper analyses the association between earnings management and value relevance of accounting information, for a number of 556 observations from a sample of 65 companies listed on the Bucharest Stock Exchange during a 10 year period: 2006-2015. Sampled companies are classified according to the method used for the reporting of operating cash flows. Findings confirm that entities using the indirect method have a higher level of discretionary accruals and are more tempted to opportunistically increase their earnings. As far as value relevance is concerned, results show that participants on the Romanian capital market place more weight on the information reported by entities experiencing higher levels of discretionary accruals.

Keywords: accounting quality, earnings management, value relevance, cash flows

JEL Classification: M41, M10

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Introduction

The common saying “information is power” is more accurate than ever in the current economic environment. The annual financial statements represent a crucial source of comprehensive quantitative information that plays an important role in the decision-making process. The quality of information contained in these financial reports influences the quality of current decisions, the perspective of making decisions and, implicitly, the results obtained after the decisions are made.

A central topic of the economic research dealing with accounting quality is the extent to which managers modify the reported earnings for their own benefit (Beneish, 2001). If managers are remunerated on the basis of the reported results, they will be tempted to apply techniques that will allow them to increase their personal benefits. In addition, as accounting rules allow alternatives, estimates and judgments, managers have a degree of flexibility in choosing the reporting solution best suited to the entity or their interests, without breaching any legal regulations. This technique, called *earnings management (EM)*, has been a long-debated topic. Hunton, Libby and Mazza (2006) show that more transparent financial reporting reduces the likelihood that managers engage in EM strategies. Financial statements are considered transparent only when interested parties have access to all relevant information [...] in a timely manner (Vladu, Amat and Cuzdriorean, 2014).

Another important topic investigated in accounting quality literature is related to the usefulness of accounting information to investors. This dimension is known as *value relevance*. From the investors’ perspective, accounting information is deemed value relevant when it helps assessing stock prices or returns. A significant number of studies try to answer this question: is accounting information relevant to investors that aim to estimate company value?

Our paper combines the two dimensions of accounting quality: accrual EM and value relevance. First, it investigates whether companies using the indirect calculation method for the cash flows from operations (CFO) are more likely to use EM practices than those applying the direct method. To achieve this, the sampled firms are separated in two groups based on the CFO reporting methods. As CFO is more objective and harder to manipulate if it is determined under the direct method

(Mironiuc, 2006), we expect less EM practices at companies applying it. Findings confirm that entities using the indirect method are more tempted to opportunistically increase their earnings.

The second part of the study attempts to identify the association between EM and value relevance of accounting numbers by using the price model. Previous research has shown that opportunistic behaviour of management alter the reporting value of accounting information (Callao, Cimini and Jarne, 2016). Our results contradict it as investors in the Romanian market find information reported by entities which experience high level of discretionary accruals to be more informative.

Our paper differs from others through a series of features: i) it addresses the EM issue in terms of CFO reporting method. Therefore, the study identifies a different setting in which EM may occur; ii) it extends literature about emerging countries, the case of Romania, analysing not only the existence of EM strategies, but also their impact on the usefulness and informative potential of the accounting figures; iii) it does not use the individual year’s estimation for the selected EM model as it is based on a small number of observations provided by the Romanian market which could generate contradictory results. To avoid this, it estimates the empirical model by pooling the observations across all 10 years of study.

The rest of the paper is organized as follows: section 1 deals with the literature review and the development of research hypotheses, section 2 presents the research methodology, section 3 describes the data used and the corresponding statistics, while section 4 discusses the results. Section 5 concludes the paper.

1. Literature review and development of hypotheses

The literature review reveals that there many definitions of EM. Healy and Wahlen (1999) assert that EM occurs when managers use judgement in financial reporting and structuring transactions in order to alter financial statements to either mislead investors about the economic performance of the company or to influence the contractual results that are conditional on achieving a certain level of accounting numbers. Roychowdhury (2006) states that EM is the deviation from the usual practices generated by the management’s motivation to

give investors the belief that the financial objectives were met in the normal course of business.

All definitions underlie the deliberate change in the company's performance made to achieve predefined profit targets. Generally, EM has a *negative* connotation because only certain users of accounting information benefit from it. Moreover, managers shape financial reporting in ways that allow them to hide the real performance of the company by creating artificial records or by overusing estimates. EM practices are deemed *positive* if and only if they are used by managers to improve the welfare of all stakeholders, increase investor confidence and allow for reliable financial numbers, without breaking any legal requirement.

According to Gunny (2010), EM can be classified into two categories: *accruals management* and *real activities manipulation*. First category involves the selection of certain accounting methods when disclosing accruals in the financial statements, in a deliberate attempt to achieve the desired level of earnings, while real activities manipulation means modifying the timing and structuring of normal activities of the company in an effort to accomplish certain objectives.

There are two types of accrual-based EM: *opportunistic* and *informative* (Obigbemi et al., 2016). Opportunistic EM is driven by management compensation (e.g. increasing incentives such as bonus and commission), therefore it is used by managers to achieve personal objectives rather than organizational ones. The informative type, considered to bring gains to shareholders, is aimed at increasing the value of the company by revealing to investors managers' expectations about the firm's expected cash flows. In a study conducted by Libby and Seybert (2009), it was concluded that stock price and concerns about general reputation are the main drivers behind management' attempts to manipulate earnings. They further stated that other motives such as debt covenants, bonus compensation, and taxes play secondary roles in EM practices.

The central role of accounting accruals is to mitigate cash flow fluctuations so that net income reflects as accurately as possible the financial position of the company at year end (Dechow, 1994). Roychowdhury (2006) states that handling accruals is a convenient form of EM because it does not involve cash flows. Ronen and Yaari (2008) define accruals as non-monetary items

that can be manipulated by management such as depreciation, inventories, receivables and payables.

EM literature considers that total accruals include normal accruals (non-discretionary ones) and accruals generated by EM practices (discretionary accruals). *Non-discretionary accruals* are expected accruals according to the firm's conditions, while *discretionary accruals* include distortions induced by the application of accounting rules or EM (Dechow, Meyers and Shakespeare, 2010). Kothari, Leone and Wasley (2005) state that *discretionary accruals are synonymous with EM*.

For the determination of total accruals (TA), the literature mentions two approaches: the cash flow method (where TA are the difference between the operating cash flow (CFO) and the operating income after tax) and the balance sheet method (TA results from variations in some balance sheet structures). The cash flow method has become more known since it has been shown that the other one can lead to measurement errors (Hribar and Collins, 2002). Thus, researchers can erroneously conclude that there is EM in the case of entities affected by mergers, acquisitions or discontinued operations, which have an impact on current assets and liabilities, but not on earnings.

While total accruals are calculated from financial statements, discretionary and non-discretionary accruals are not directly observable. Yoon and Miller (2002, p.399) state that a model is needed to separate the discretionary component from total accruals. There are several models developed, the Jones model and its modified versions being the milestone in the accruals approach.

Literature examines accrual EM in the context of some specific events or incentives, such as (Mostafa, 2017): maximizing management compensation, gaining import relief, avoiding anti-trust or debt covenants violations, etc. In Romania, EM literature is quite scarce. Matis et al. (2010) argue that Jones model is the most significant EM model for the Romanian economic environment in terms of applicability. Brad et al. (2014) report a decrease in EM strategies in the year of the IFRS adoption by listed Romanian companies. Nechita (2015) does not find enough evidence to argue for EM through income smoothing strategies in the post IFRS adoption period. Nevertheless, the high negative connection between cash flows and items that do not impact cash, when IFRS are applied, might be a proof of EM as these items tend to decrease income volatility.

Due to the lack of information regarding the aforementioned specific events and incentives for the Romanian market, this paper analyses the level and impact of EM in the context of the two reporting methods used for operating cash flows. The direct method works with information about cash receipts and payments corresponding to transactions occurring in the firm during a financial year. The indirect method reconciles from net income to net cash provided by operating activities. It involves some adjustments made to the accrual net income, referring to (Revsine, Collins and Johnson, 2008, p. 957): items included in net income that did not affect cash in the current period and items excluded from the accrual-basis income that did affect operating cash flows in the current period.

There is quite a strong debate about which reporting CFO method provides more useful information. On the one side, the direct cash flow reporting format leads to better prediction of future firm performance and has a stronger association with share prices (Bradbury, 2011). It also lowers information asymmetry and leads to higher quality reporting. Harrison and Horngren (2008, p. 280) consider that direct method provides clearer information about the sources and uses of cash. According to Mironiuc (2006), the direct method is favoured by investors because: it is the starting point in predicting future cash-flows used to determine the firm's value; it provides intelligible and objective information, presenting the facts without leaving room for subjective interpretations; it eliminates the effect of using different accounting treatments for the same transactions and events; it does not take into account operating revenues and expenses that are not cash-related.

On the other side, it is argued that the purpose of the cash flow statement is to explain the difference between profits and operating cash flows, justifying the indirect approach (Bond, Bugeja and Czernkowski, 2012). Moreover, firms may prefer the indirect method if the use of the direct method discloses commercially sensitive information. According to Mironiuc (2006), it is easier to apply and preferred by managers who do not want to present to the external users the real picture of their business in terms of liquidity and solvability.

Even though the rules recommend the direct method, they allow for the indirect one to be used. Researchers

have shown that when firms are provided with a choice between reporting formats for OCF, the vast majority of them typically use the indirect one (Clinch, Sidhu and Sin 2002). Romanian companies make no exception, as the majority use the indirect method.

In the context of these two reporting methods, the paper aims at testing the following research hypothesis.

H₁: There are EM practices at companies that determine their operational performance by using the indirect CFO reporting method.

Value relevance researchers believe that accounting information plays a key role in reflecting earnings or the economic value. Therefore, two major models exist: the price model and return model (Barth, Beaver and Landsman, 2001). According to the economic motivation of the research, these studies analyse: i) if a certain piece of accounting information is significantly related to equity market value – i.e. the price model or ii) how much of the change in equity market price is explained by accounting information – i.e. the return model.

As far as the impact of EM on value relevance is concerned, there are two flows of opinions in the literature (Jiraporn et al., 2008). One states the reduction of earnings quality in presence of opportunistic earnings handling (Lev, 1989). The other one argues for the opposite effect, if managers use earnings manipulation strategies to reflect more accurately the company performance.

Callao, Cimini and Jarne (2016) report a low value relevance of earnings of entities engaging in EM strategies. Nonetheless, the study shows an increase in usefulness of book value for entities using EM. Mostafa (2017) finds that earnings of firms involved in opportunistic EM techniques are less value relevant to investors who deem them less informative than the non-managed earnings. In Romania, Filip and Raffournier (2010) document a low quality of earnings reported by listed companies while Mironiuc and Huian (2016) show that other comprehensive income is value relevant.

In this context, considering discretionary accruals as a proxy that captures the existence of EM strategies and stock market price as a function of earnings and book value, we develop the following hypothesis:

H₂: Value relevance of accounting information is reduced in the presence of EM techniques at entities using the indirect CFO reporting method.

2. Research methodology

2.1. Operationalization of discretionary accruals

To evaluate EM, there are several models of discretionary accruals determination. Using the Jones (1991) model, Kothari, Leone and Wasley (2005) introduce an additional control variable that deals with the effect of performance on discretionary accruals: lagged rate of return on asset (ROA) (see equation 1).

$$TA_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \alpha_2 (\Delta REV/A_{t-1}) + \alpha_3 (PPE_t/A_{t-1}) + \alpha_4 ROA_{t-1} + \varepsilon \quad (1)$$

Where, TA_t – total accruals in year t ; A_{t-1} – lagged total assets; ΔREV – change in revenues; PPE_t – property, plant and equipment; ROA_{t-1} – lagged return on assets, α_0 – intercept, $\alpha_1, \alpha_2, \alpha_3$ – regression coefficients; ε – residual.

This model is based on the understanding that working capital accruals are related to changes in revenues and depreciation is linked to assets. The coefficient of PPE is expected to be negative because these assets generate depreciation expense. The coefficient of the change in revenues should be positive (Ronen and Yaari, 2008). Return on assets (ROA) is one of the company's main profitability ratios, measuring the efficiency of asset utilization. The error term (ε) represents the discretionary accruals (DA). The higher the DA are, the more evidence of EM exists.

2.2. Value relevance of earnings and book value

The model used to test the value relevance of accounting information in the presence of EM strategies is the one applied by Callao, Cimini and Jarne (2016). It is based on the Ohlson (1995) price model that is modified by adding to the original variables a proxy for EM, DA, which shows the level of discretionary accruals. Moreover, the net income and book value are interacted with a dummy variable for the use of EM (see equation 2).

$$P_{it} = \alpha_0 + \alpha_1 EPS_{it} + \alpha_2 dDA_{it} \times EPS_{it} + \alpha_3 BV_{it} + \alpha_4 dDA_{it} \times BV_{it} + \alpha_5 DA_{it} + \varepsilon_{it} \quad (2)$$

Where, P_{it} – stock market price of the firm i , 3 months after annual financial statements are released for year t ; EPS – earnings per share; dDA – a dummy variable that takes the value 1 if the company has high levels of discretionary accruals, i.e. use the indirect CFO method; BV – book value per share; DA – discretionary accruals (residuals of the Kothari, Leone and Wasley, 2005, model).

H_2 is validated if the sum of the regression coefficients ($\alpha_1 + \alpha_2$) is lower and statistically different than the regression coefficient for earnings (α_1) reported by companies using the direct CFO method. According to Callao, Cimini and Jarne (2016), if value relevance of earnings decreases, investors put more weight on book value, due to the stock market value being a convex function of earnings and book value. So H_2 is fully validated if the sum of the regression coefficients ($\alpha_3 + \alpha_4$) is higher than the regression coefficient for book value (α_3) reported by companies using the direct CFO method.

3. Data, sample and descriptive statistics

Sample consists of all Romanian listed companies on the Bucharest Stock Exchange for a 10 year span: 2006-2015. Financial firms are excluded due to their different operations and regulations. Accounting data used to compute all study variables are extracted from the annual financial statements compiled by the Thomson Reuters Eikon database. The initial sample included 980 observations coming from 67 companies. After the eliminations of observations with incomplete data, 556 firm-year observations (from 65 companies) remained.

Based on the statement of cash flows, the CFO reporting method used is identified, which results in a number of 255 observations using the direct method (46% of all observations), whereas 301 apply the indirect method (54%). This confirms the findings of Istrate (2015) that Romanian companies use the direct method much more than entities from other European countries. In some Western European countries, the indirect method is used by approximately 80-90% of entities (Kvaal and Nobes, 2010). Therefore, the sample is divided into two sub-samples, one called DIR for the observations reported according to the direct method, the other one called INDIR.

To analyse the two sub-samples in terms of performance, we calculate three important indicators. As a measure of operational performance (Yoon and Miller, 2002), cash flows from operations over lagged total assets are used. Earnings per share (EPS) and return on assets (ROA) as indicators of stock market

performance and profitability are used to show performance based on accrual earnings. **Table no. 1** provides descriptive statistics. It is noticeable that in the case of the INDIR sample, both the cash-based and accrual-based performance are, on average, higher than for the DIR sample.

Table no. 1. Descriptive statistics

Variables	Mean	Median	Std. Deviation	Minimum	Maximum
<i>Direct CFO Method</i>			<i>N=255</i>		
ROA	0.0320	0.0349	0.1399	-1.102	0.8268
EPS	0.1158	0.0142	2.6392	-13.5204	31.7545
Cash flows from operations	-0.0235	0.0006	0.0709	-0.3791	0.0399
<i>Indirect CFO Method</i>			<i>N=301</i>		
ROA	0.0793	0.0678	0.0903	-0.6468	0.538
EPS	1.4691	0.0479	5.5357	-10.5065	42.6807
Cash flows from operations	0.1228	0.0982	0.0960	0.0400	0.9304
<i>Entire sample</i>			<i>N=556</i>		
ROA	0.0576	0.0550	0.1180	-1.1020	0.8268
EPS	0.8484	0.0297	4.4953	-13.5204	42.6807
Cash flows from operations	0.0557	0.0451	0.1123	-0.3791	0.9304

ROA is return on assets; EPS is earnings per share; Cash flows from operations is deflated by total assets; N is the number of firm-year observations for the two sub-samples and the entire sample

Source: Authors' projections

This makes us attempt to determine whether EM techniques could be one of the factors that might explain the superior level of performance for companies using the indirect method. In other words, we test whether the firms in the INDIR sample are more engaged in EM procedures, by using accounting options that increase their earnings, than those in the DIR sample.

4. Empirical results

4.1. Earnings Management

Table no. 2 shows total accruals and discretionary accruals for both sub-samples and the whole sample. Discretionary accruals are the residuals resulting of model described in equation (1).

Table no. 2. Results of EM testing

Variables	Mean	Median	Std. Deviation	Minimum	Maximum
<i>Direct CFO Method</i>			<i>N=255</i>		
Total accruals (TA)	0.0432	0.0400	0.1379	-0.7704	0.4785
Discretionary accruals (DA)	-0.00002	-0.00075	0.12602	-0.74009	0.44598
<i>Indirect CFO Method</i>			<i>N=301</i>		
Total accruals (TA)	-0.0405	-0.0276	0.1159	-0.8751	0.7499
Discretionary accruals (DA)	0.00015	0.01427	0.10961	-0.62335	0.8618
<i>Entire sample</i>			<i>N=556</i>		
Total accruals (TA)	-0.0021	-0.0045	0.1331	-0.8751	0.7499
Discretionary accruals (DA)	0.00007	0.0101	0.1173	-0.7400	0.8618

Total accruals scaled by lagged total assets are computed as operating earnings minus CFO; discretionary accruals scaled by lagged total assets are the residuals of the Kothari, Leone and Wasley (2005) model; N is the number of firm-year observations for the two sub-samples and the entire sample

Source: Authors' projections

Observations prepared under the direct method have a positive mean accrual of 0.0432 whereas those using the indirect method have a negative mean total accruals. But the variable that shows the level of EM is discretionary accruals (DA). The mean values of DA follow a different pattern than total accruals. **Table no. 2** shows that observations from the INDIR sample produce the highest level of discretionary accruals. This means the positive mean DA value indicates evidence of attempts to opportunistically increase earnings. The opposite situation is noticeable at companies using the direct CFO method that have a mean negative value for DA.

H_1 is validated. Results confirm that companies applying the indirect CFO reporting method are more tempted to use earning-increasing techniques that might explain their overall better performance in terms of cash flows and accrual accounting income.

4.2. Value relevance testing

Table no. 3 shows some surprising results. Value relevance of earnings reported by companies from the DIR sample is lower ($\alpha_1 = 2.062$) than that of companies using the indirect CFO method (sum of $\alpha_1 + \alpha_2 = 3.305$). This means, according to the price model, that investors find earnings of entities that manipulate them more useful for their decision-making. This contradicts findings of Mostafa (2017) and Callao, Cimini and Jarne (2016). Nevertheless, it confirms results of Hunton, Libby and Mazza (2006) who argue that in less transparent settings (which is the case of the indirect CFO method) EM strategies are not obvious to investors. Moreover, these strategies improve stock market prices and do not alter management's reputation in terms of financial reporting.

Variables	Coefficient	T-statistic	P-value
Constant	1.235	1.741	0.082
EPS _{it}	2.062	5.068	0.000
dDA _{it} xEPS _{it}	1.243	2.136	0.033
BV _{it}	0.425	6.554	0.000
dDA _{it} xBV _{it}	-0.107	-1.355	0.176
DA _{it}	-9.999	-1.688	0.092
R ² = 0.727		F-statistic = 292.405 (p-value 0.000)	
P _{it} is stock market price of the firm <i>i</i> , measured 3 months after annual financial statements are released for year <i>t</i> ; EPS is earnings per share; dDA is a dummy variable controlling for the levels of discretionary accruals; BV is book value per share; DA is discretionary accruals calculated with the Kothari, Leone and Wasley (2005) model			

Source: Authors' projections

Due to the convexity of the function describing the relationship between market price, earnings and book value (Callao, Cimini and Jarne, 2016), results of the model show a transfer of explanatory power from book value to earnings. That is, when earnings have a high value relevance, investors tend to place less weight on book value. This is shown by the fact that, for the INDIR sample, sum of $\alpha_3 + \alpha_4 = 0.318$ is lower than the coefficient displayed by the DIR sample ($\alpha_3 = 0.425$). This means that EM practices are associated with less useful information regarding book value. It is worth mentioning that DA is statistically significant only at 10% which shows investors rather ignore the EM attempts.

As the overall usefulness of accounting information in the determination of stock prices increases in presence of EM strategies, H_2 is not validated.

Conclusions

This paper analyses the association between EM and the value relevance of accounting information for a sample of 556 observations from 65 companies listed on the Bucharest Stock Exchange during 2006-2015. The authors firstly test whether firms using the indirect method in determining operational cash flows (which also report higher performance) are more prone to earnings growth strategies than companies using the

direct method (that have lower performance). After confirming that companies applying the indirect method are tempted to adopt EM strategies (which generate higher performance), the authors assess whether the association between stock market prices and accounting figures is changed by the opportunistic behaviour of these firms.

Findings show that discretionary accruals are positive and significantly higher for firms using the indirect CFO method than for firms that apply the direct method. These results indicate that companies with high operational performance generated by the indirect method use more EM practices to expedite their earnings and mislead investors. However, results show that regression coefficients are higher for the earnings of entities using the indirect CFO reporting method. This suggests that because of the lower transparency of the information provided by the indirect method, investors do not observe manipulative practices and do not penalize managers who show an opportunistic behavior to increase earnings. In other words, earnings of companies that have achieved both operational and market performance or high profitability, due to the

opportunistic EM strategies they are involved in, have a higher value relevance than firms providing more transparent CFO information (by using the direct method). Managers of these companies escape with unaltered reputation in terms of financial reporting integrity. Moreover, the discretionary accruals information that captures the level of EM is not, according to the results, a predictor that investors take into account when assessing the value of listed companies.

These findings are relevant to investors who should pay attention to the CFO reporting method that might explain to some extent the reported performance level. They should penalize managers and firms that use the indirect method as an EM technique.

Limitations of the paper refer to the small number of observations used, which is a common problem among studies investigating emergent economies such as Romania and the lack of analysis of specific incentives or events that could shed some light on the reasons behind the opportunistic EM behaviour.

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