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THE VALUE RELEVANCE OF EARNING MANAGEMENT IN MANUFACTURING INDUSTRIES BEFORE AND DURING THE FINANCIAL CRISIS

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Abstract

This paper empirically investigates the value relevance of reported earnings during the period 2006-2011 for 193 firms (excluding banks and insurance companies) listed in the Milan Stock Exchange, representing about 91.28% of the stock exchange capitalisation (30 April 2012). The objective of the paper is to analyze: a) the value relevance of earnings, cash flow from operations, discretionary and non-discretionary accruals; b) the effect of Global Financial Crisis on the value relevance of accounting information. The paper contributes to examine different components of earnings and to filling a gap extending the analysis to the financial crisis. To test our hypotheses first, we determined the accruals by applying specific models proposed in the international literature, such as the Jones (1991) model and its subsequent amendments; second, we analysed the value relevance of earnings, cash flow and accruals basing the analysis on Ohlson (1995) model, extensively used in previous value relevance researches. The findings show that cash flow from operations, discretionary and non-discretionary accruals have different value relevance. In addition, the results describe the reduction of value relevance during the economic and financial crisis.

Keyword: Earnings Management, Value Relevance, Discretionary and Non-discretionary Accruals, Cash Flow from Operating, Global Financial Crisis

JEL Classification: M41

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I. Introduction

Capital markets rely on credible financial accounting information. Good-quality financial reporting helps investors to better assess firm value and performance and to make improved investment decisions. Financial scandals in the United State and in Europe (for example, Worldcom and Parmalat) have highlighted the importance of financial reporting quality, with special emphasis on earnings quality. Value relevance, earning management and audit quality are the three important elements of earnings quality (Azzali, 2012). Each of these elements are different areas of research in which researchers assess the elements that qualify the quality of earnings.

In particular, the value relevance studies are one of the most important area of "Accounting Studies on Capital Market" and all these studies analyze the Relevance of accounting information. Value relevance studies aim to verify the link between accounting numbers and market value. These studies demonstrate the usefulness of financial information for investors. Event or association studies are kind of value relevance studies developed all around the world with different methods, models, instruments, samples, observations but with a common general objective: to measure the earning quality with the degree of value relevance between accounting numbers and market value of the companies.

Also earning management is an important areas of "Accounting Studies on Capital Market". In this case, the studies evaluate the Neutrality of financial reporting information. Earning management shows the different way that manager employ to exercise the discretional judgment in the financial reporting process and is negatively related to neutrality of information. Earning management is exactly the opposite of neutrality even if neutrality does not means total absence of earning management. Financial reporting are usually characterized by a degree of earning management and neutrality demands the disclose of earning management practices to users. Earning management includes many classes of practices that may be classified for objective (earning smoothing, conservatism, analyst expectations, etc.) and for instruments (accruals divided in discretionary and non-discretionary, real earning management, etc.).

Finally, audit quality is the third area of "Accounting Research on Capital Market". These studies are directly related to earning quality and to the usefulness of

financial reporting information through the "Reliability" and "Completeness". Audit quality can be classified in external and internal audit quality. All these studies are directly related to reliability but the instruments that researchers employ to evaluate the degree of association are different. Audit opinion and audit fee are two of the main instruments used in external audit quality while controls deficiencies, significant deficiencies, material weaknesses or the audit cycle phases are the main instruments employed in internal audit quality. Finally, a way to study the completeness may be represented by all the researches that aiming to measure the compliance of financial reporting to the accounting standards principles and the required degree of disclosure in the accounting schemes and in the notes.

The main aim of our research is to analyze the value relevance of earnings management in manufacturing industries in Italy. In particular, this paper evaluates the relevance and the usefulness of components of earnings: operating cash flows, discretionary and non-discretionary accruals. "Usefulness" is defined as the statistically significant of coefficient of each components of earnings in the regression of market price on earning and its components. The survey was carried out in two phases. In the first, we have determined the accruals applying specific models proposed in the international literature. In particular, our study is based on the Jones (1991) model, and on its subsequent amendments, to determine the accruals. In second step, instead, we have analysed the value relevance of earnings, cash flow and accruals. This second study is based on Ohlson (1995) model which has been used extensively in previous value relevance research.

This study describes earning management and value relevance of a sample of 193 non-financial companies listed in the Milan Stock Exchange over a period of six years 2006-2011, before and during the economic and financial crisis. There are two different phases in this time period: the period preceding financial crisis (2006-2008) and the period of the financial crisis (2009-2011). In the aforementioned period the study investigates:

- the value relevance of components of earnings (cash flows from operations, discretionary accruals and non discretionary accruals);
- the effect of economic and financial crisis on value relevance of cash flows from operations, discretionary accruals and non discretionary accruals.

This paper extends prior work by examining the value relevance of components of earnings for a sample of industrial companies for which there is reasonable expectation of

earnings management. Our tests are designed to analyze whether earnings management impairs the extent to which accounting information is associated with firm value.

In particular, our study extends the literature on the value relevance of accounting information. Prior literature has examined the firm-specific factors that impact the roles of earnings and book value in determining stock price (Barth et al., 2008; Bartov et al., 2005; Cahan, 2000; So and Smith, 2009). We show that the presence of earning management and of accruals is another factor that affect the value relevance of accounting information.

The paper also extends the literature on discretionary and non-discretionary accruals by demonstrating that discretionary accruals are substantially ignored by investors, while non-discretionary accruals have a negative and statistically significant relation with market prices. Cotter (1996) reports that the associations between stock returns and earnings is higher than that with total cash flow for returns of between one and ten years. Balsam et al. (2002) find that for firms where there is ex post evidence of earnings management, discretionary accruals are negatively related to market price over a short window around the release of earnings component information. Our research, which are an association study based on price levels, is consistent with these findings.

Finally, our research extend the literature on effect of economic and financial crisis on the usefulness of accounting information. Choi et al. (2010) have examined the value relevance of earnings components around the period of the Asian Financial crisis. They find that the information value of discretionary accruals was significantly lower during the crisis than in the period pre-financial crisis. The authors argue that managerial incentives to influence contractual outcomes, and investors' pessimism over the quality of financial statements during a crisis, jointly encourage managers to use discretionary accruals more for earnings manipulation rather than for efficient signalling. Consequently, investors discount the value relevance of discretionary accruals, since transitory earnings obstruct them to efficiently evaluate firms' performance and exercise contractual rights during a crisis. Our results are consistent with these findings.

The main results of our research may be summarized as follows: 1) the earnings' components have different value relevance before the financial crisis; 2) discretionary and non-discretionary accruals are negatively related with market value before the crisis; 3) operating cash flow is the earnings' component more value relevant; 4) the economic and financial crisis negatively affects the value relevance of accounting information.

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II. Background

II.1. Earnings Management

The literature on Earnings Management derives from the first studies carried out in the 1980's in which authors developed models to separate the components most subjected to management, called accruals, from the more objective cash flow components.

McNichols et al. (1988) examined whether accounting managers manipulated earnings and how the provision of bad debts were reported in the absence of earnings management. The objective of that paper was to provide a model using the provision of bad debts as a possible setting. In the absence of a model showing how accounting numbers behave over changing economic conditions, the ability to draw inferences on earnings management is limited. By modelling the provision for bad debts, researchers have attempted to isolate a discretionary accrual proxy that is substantially free of non-discretionary components. They examined a sample of firms where receivables were an important subset of total assets and also where provision for bad debts was high in relation to earnings. Initially, they estimated several ratios related to receivables for all firms on the Compustat 1986 Industrials Tape. The final sample consisted of 2,038 firm-year observations covering the period 1967-85.

In the McNichols et al. (1988) model the part regarding discretionary accruals was the one representing the earnings management (PART = dummy variable that splits the sample into two groups in which one manages the earnings and the other one does not), depending on other variables (X), but because it could not be done directly, was measured by a proxy that included errors (v):

$$\mathbf{DA\ PROXY_t = \alpha + \beta\ PART_t + \Sigma^{K}_{k=1}\ \gamma_k\ X_{kt} + v_t + e_t}$$

Therefore, the discretionary accruals (DA) were measured indirectly by the difference between total accruals (TA) and non-discretionary accruals (NDA): DA = TA – NDA.

The total accruals were measured indirectly using the traditional relationship: TA = E – CF. The earnings (E) were the last line of the income statement before the extraordinary items so as to avoid their random influence. Instead, as far as the cash flow (CF) was concerned, the literature discussed the preference between the balance sheet and the cash flow statement approach. If we were to analyze the sample period, we could see that the balance sheet approach was the one used in the past but, when the cash flow

statement was present, the cash flow from operation disclosed by this document revealed to be better.

The non-discretionary accruals were measured by different models developed by the literature.

The first authors who considered this variable, used the total accruals as proxy for non-discretionary accruals, e.g. Healy (1985) who used the time average of the total accruals or DeAngelo (1986) who used the total accruals in the previous period.

Healy (1985) tested the association between managers' accrual and both accounting procedure decisions and their income reporting incentives. The accrual tests compared the actual sign of accruals for a particular company and year with the predicted sign given the managers' bonus incentives. The changes in accounting procedures tests analyzed the association of these changes and bonus plan incentives. The population selected for this study was made of companies listed on the 1980 Fortune Directory of the 250 largest U.S. industrial corporations over the period 1930-1980.The useable sample with the characteristics required to investigate bonus plans comprised 94 companies with 1527 companies-year observations. It was one of the first papers to use proxy for accruals and was a seminal paper widely cited and considered by the accounting literature.

DeAngelo (1986) investigated the accounting decisions made by managers of 64 New York and American Stock Exchange firms who proposed to purchase all publicly-held common stocks and "go private" during 1973-1982. These management buyouts may engender potentially severe conflicts of interest for insider-managers. As the courts and investment bankers employ earnings-based evaluation methods to assess fair value, managers have incentives to understate reported income in an attempt to reduce the buyout compensation. However, a variety of tests employing the recently developed accrual methodology reveal no indication that managers of sample firms systematically understated earnings in periods before a management buyout of public stockholders. As proxy he used the time series of accruals, suggesting another model to measure them.

The most diffused and accepted models in the accounting studies nowadays are the Jones (1991) model and all the versions that modified it, such as the Dechow et al. (1995) model that adds a consideration on receivables and the Kothari et al. (2005) model that adds the return on assets ROA as control variable.

Jones (1991) tested whether firms that would benefit from import relief (e.g., tariff increases and quota reductions) would attempt to decrease earnings through earnings management during import relief investigations by the United States International Trade

Commission (ITC). The discretionary component of total accruals rather than that of a single accrual is more appropriate in this context because the ITC is interested in earnings before taxes, which includes the effects of all accrual accounts, and, as such, managers are likely to use several accruals to reduce reported earnings. The sample includes 23 firms in 5 industries extracted by Compustat with at least 14 years of data. This paper is the first one that try to include firm characteristics in the model and investigate the difference between cross sectional and time series models.

Dechow et al. (1995) evaluated alternative accrual-based models for detecting earnings management, comparing the specification and the power of commonly used test statistics and the application of the models to a random or a non-random sample of firm-years or alternatively by controlling or not for extreme financial performance. Finally, a modified version of the model developed by Jones (1991) showed to be the most effective in detecting earnings management.

Also Kothari et al. (2005) evaluated alternative accrual-based models for detecting earnings management by analysing the specifications and power of tests and making comparisons. The results suggest that performance-matched discretionary accrual measures enhances the reliability of inferences from earnings management research when the hypothesis being tested does not imply that earnings management will vary with performance, or when the controlled firms are not expected to have engaged in earnings management.

Although the authors have investigated different settings of earnings management, we are interested in their methodology considering it as the basis and have followed it in the subsequent accounting studies.

However, Cormier et al. (2000) underline that the procedures to estimate the coefficients in the model for non-discretionary accruals are less important in countries where the discretionary accruals have a higher magnitude.

Cormier et al. (2000) investigated the relevance of reported earnings in the context of an institutional environment, Switzerland, in which investors focused on dividends. The particularity of the financial reporting environment faced in Switzerland was a higher accounting discretion that managers of Anglo-Saxon firms typically had.

II.2. Value Relevance

In value relevance studies classifications and taxonomies of numerous and widely differing works have been proposed by many authors (Barth at al., 2001; Beaver, 2002;

Courteau, 2008; Holthausen and Watts, 2001; Kothari, 2001; Devalle, 2010). Some taxonomies isolate value relevance as a field of research lying within Capital Market Research (Beaver, 2002), while others consider it as an independent field (Kothari, 2001). In any case, when facing the topic of value relevance, a key problem is to define the concept because its definition is not unique. For example, Barth et. al. (2001) define value relevance as ''[...] the ability of financial statement information to capture or summarise information that affects share values''. Moreover Holthausen and Watts view value relevance as "the empirical relation between stock market values (or changes in values) and particular accounting numbers for the purpose of assessing or providing a basis for assessing the numbers' used or proposed use in an accounting standard" (Holthausen and Watts, 2001). In brief: methodologically speaking, value relevance indicates the correlation between prices or returns of shares quoted on regulated markets and accounting values (earnings and equity). Market values are dependent variables while accounting values are independent variables. For an accounting value, the more significant the correlation with the dependant variable, the more value relevant it is.

Since the second half of the nineties there has been a strong increase in value relevance studies evaluating the introduction of a set of alternative accounting standards (Harris and Muller, 1999; Ayers, 1998; Niskanen et al., 2000 Beisland, 2009), mostly based on the Ohlson (1995) model. In this study the R_2 is the main explanatory measurement of value relevance.

Methodological issues have sometimes been raised in relation to these studies. For instance, Brown et al. (1999), referring to researches carried out so far, have observed that the increases in value relevance could be a result of scale effects and that there would be a fall in value relevance should the scale effects be eliminated.

In other cases, the usefulness and validity of value relevance studies have been subjected to severe criticism (Holthausen and Watts, 2001). However, this criticism did not discourage researches on value relevance, but rather led to a clearer definition of the theoretical framework to which they referred to and to a clarification on their purpose and implications (Barth, 2001). Therefore, this field of analysis continues to this today and has produced valid contributions to multiple aspects of the quality of financial reporting (Barth et al., 2008).

In value relevance studies examining the effect of the change in accounting standards, a further distinction has been made between voluntary or mandatory adoption. In fact, many researchers have focused on voluntary adoption (Harris and Muller, 1999;

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Paananen and Lin, 2008; Christensen et al., 2008; Jermakowicz et al., 2007; Bartov et al., 2005). But since the decisions taken by many governments for mandatory adoption of IAS/IFRS, numerous studies have addressed the impact of mandatory regulation on value relevance (i.e.Horton and Serafeim, 2007, 2009; Soderstrom and Sun, 2007: p. 695; Chalmers et al.; 2011; Ghoncarov and Hodgson, 2011) and this line of research will probably increase further.

Since 2007 (IAS 1 revised, 2007) the IASB has also chosen an all-inclusive concept of income, thus making the problem of the comparison between comprehensive income and net income an important issue for countries under the mandatory adoption of IAS/IFRS. For this reason, many papers analyse the value relevance of the comprehensive income and other comprehensive incomes. The hypothesis is that the comprehensive income has more value relevance than net income (i.e. Biddle and Choi, 2006; Cahan et al., 2000; Brimble and Hodgson, 2005; Wang et al., 2006; Goncharov and Hodgson, 2008; Kanagaretnam et al., 2009). Moreover the results of current studies show mixed results as some authors find an increase in value relevance of the comprehensive income (i.e. Cahan et al., 2000; Biddle and Choi, 2006; Kanagaretnam et al., 2009), while other researchers find that the value relevance diminishes (i.e. Datsgir and Velashani, 2008; Dhaliwal et al., 1999; Lin et al., 2007; Goncharov and Hodgson, 2008; Brimble and Hdgson, 2005).

Some researchers have analyzed the relation between market value and accruals. In their papers the authors have evaluated if accruals are important information for investors' decisions in different contexts. For example, in a first work, using 1986-1995 data from manufacturing firms from 16 countries (including Italy), the authors explored relationship between measures of the value relevance of accounting information (including accruals) and several country-specific factors suggested in prior research (Ali and Hwang, 2000). In particular, the authors found that value relevance was lower for countries with a bank-oriented financial system, but didn't analyze the differences between discretionary and non-discretionary accruals.

In another work, the researchers (Cormier et al., 2000) investigated the relevance of reported earnings and accruals in the context of an institutional environment, in which investors focused on dividends, i.e. Switzerland. The results of this paper indicated that Swiss managers did engage in dividend-based earnings management, that earnings quality signals were used by managers to voluntarily constrain their accounting choices and that the value relevance of earnings was conditional to dividend payments. In particular, in this work the authors analyzed the relation between market value (price at six months after

year-end), cash flow from operations, and discretionary and non-discretionary accruals. In a context in which investors focused on dividends, the researchers found a statistically significant and positive link between accruals and price.

The analyses of value relevance of cash flows, current accruals and non-current accruals in UK is the aim of the paper publish by Akbar et al. in 2011. This study investigates whether various partitions of earnings involving combinations of a cash flow measure of performance and measures of current accruals and non-current accruals improve the ability to explain market value in the UK relative to using earnings alone. The authors show that current and non-current accruals have separate value relevance, but the results are still strongly in favour in this respect. In addition, the finding show that the main source of increase in explanatory power for market values is the separate inclusion of cash flow in the price regression.

Another paper examines the relative value relevance of earnings and book value in the presence of three alternative source of earnings management: short-term discretionary accruals, long-term discretionary accruals and total discretionary accruals (Whelan and McNamara, 2004). In this work, the authors demonstrate that earnings management has an impact on value relevance. In particular, long-term discretionary accruals has a greater impact on the value relevance of earnings and book value of equity than short-term discretionary accruals.

Marquardt and Wiedman (2004) examine whether opportunistic earnings management impairs the value relevance of accounting information as reflected in stock market prices. The authors find evidence of earnings management only for firms that do not voluntarily release a forecast and for other companies there is no evidence of earnings management or decreased value relevance of accounting information.

Cotter (1996) examines the relative ability of the accrual and cash flow accounting models to capture value relevant events. In particular, components of clean surplus accruals earnings (Easton et al., 1992) are compared with components of total cash flow to evaluate their abilities to recognise value relevant events in a timely manner. The results of this study show that the operating cash flows and current accruals recognise value relevant events in a timely manner. Instead, non-current and non-operating accruals become value relevant when longer return intervals are considered in the regression. Especially over longer return intervals, cash flows from financing and investing activities are less value relevant than the other components considered.

Subramanyam and Venkatachalam (2007) examine the importance of earnings and operating cash flows in equity valuation, using ex post intrinsic value of equity as the criterion for comparison. The results suggest that accrual-based earnings dominate operating cash flows as a summary indicator of ex post intrinsic value.

Finally, in the last paper considered, the authors (Lapointe-Antunes et al., 2006) examined whether voluntary disclosure by Swiss firms constrained the use of discretionary accruals to smoothen earnings and explored the effects of voluntary disclosure on the value relevance of earnings and accruals. The results suggested that Swiss firms used discretionary accruals to smoothen earnings but that this relation was reduced for firms that voluntarily disclosed more information in their annual report or that used IAS/IFRS or US Gaap.

Empirical researches on the value relevance in times of financial crisis have led to mixed results. Some studies reveal that the value relevance is significantly lower during the financial crisis (Lim and Lu, 2011). On the contrary, other studies show that the financial crisis has a positive impact on value relevance (Devalle, 2012). Finally one study argues that the same financial crisis can influence value relevance differently in separate countries depending on the country's specific factors (Özkan and Kaytmaz Balsari, 2010).

In conclusion, a high quality set of accounting principles should disclose financial crisis information regardless of the macro-economic condition although there is a possibility that the logical consequence of the deterioration of the macro-economic situation could be more emphasised by non-accounting information (Barth and Landsman, 2010). In this sense, we can assume that during the financial crisis, a set of high quality principles will not produce an increase in value relevance.

III. Hypothesis

Following the previous literature, our hypothesis connects the value relevance studies to the ones on earnings management. Firstly, following the Jones (1991), Dechow et al. (1995) and Kothari et al. (2005) models, the paper aims to discover the earnings management of discretionary and non-discretionary components of earnings. We have asked ourselves if property, plant and equipment, receivables and return on assets are all instruments employed to manage accounting numbers in the financial statement. Next, we wanted to link earnings management to value relevance. The first hypothesis we tested was related to the value relevance of the components of earnings. Following Kothari and Zimmerman (1995) we tested if operating cash flow, discretionary and non-discretionary

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accruals had the same value relevance. In other words we wanted to discover if the price of listed companies is mainly affected by one specific component of the net or comprehensive income or, alternatively, if earnings, operating cash flows, discretionary accrual (like property, plants and equipment) and non-discretionary accruals have the same importance. We expected both a positive relation between earnings, operating cash flows, non-discretionary accruals and prices of listed companies and a negative one from discretionary accruals and prices of listed companies. In the first case, we wanted to demonstrate that earnings and their more objective components are directly related to the companies' market value. Instead, discretionary accruals, are the main instruments through which the financial statement is managed. In this case the investor is aware of the risk associated with this kind of information thus leading us to expect a negative relation between discretionary accruals and the market value of the companies.

H1: The components of earnings (cash flows from operations, discretionary accruals and non-discretionary accruals) have the same value relevance.

The aim of our second hypothesis was to develop the relation between earnings management and value relevance over two distinct time periods: the former before the financial crisis (2006 – 2008) and the latter during the financial crisis (2009 – 2011). We wanted to measure the effects the financial crisis had on the relation between earnings management and value relevance. Following the same literature used in the first hypothesis, we introduced a dummy variable to divide the two periods thus enabling us to test if earnings and its components (operating cash flows, discretionary and non-discretionary accruals) had lower value relevance during the financial crisis compared with the period prior to it.

We expected the same relation showed in H1. The financial crisis could have increased the discretionary components of earnings and, consequently, reduce the value relevance of this important class of information included in financial statement. The financial crisis increased the number of companies with negative performances in their income statement with a probable increase in earnings management to reduce these losses. Finally, we expected the higher level of earnings management negatively affects the value relevance, compared with the period prior to the financial crisis.

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H2: The components of earnings (cash flows from operations, discretionary and non-discretionary accruals) have lower value relevance during the financial crisis.

IV. Methodological aspects and sample

To test our hypothesis, the survey was carried out in two phases. During the first phase we determined the accruals by applying specific models proposed by the international literature. In particular, our study has been based on the Jones (1991) model and on its subsequent amendments, to determine the accruals. During the second phase, we analysed the value relevance of earnings, cash flow and accruals. This second study has been based on Ohlson (1995) model extensively used in previous value relevance researches.

IV.1. Earnings Management

In international earnings management studies the researchers usually describe the total accruals by using the following models:

$$TA_t/TAs_{t-1} = DA_t/TAs_{t-1} + NDA_t/TAs_{t-1} \quad [1]$$

Where: TA_t/TAs_{t-1} is the total accruals in year t scaled by total asset at t-1; NDA_t/TAs_{t-1} is the number of non-discretionary accruals in year t scaled by total asset at t-1; DA_t/TAs_{t-1} is the number of discretionary accruals in year t scaled by total asset at t-1.

In particular, total accruals at t is determined as the difference between earnings before extraordinary items in year t (from income statement) and operating cash flow in year t (from cash flow statement) scaled by total assets of the previous period. This variable has been built using Datastream/Worldscope database. Due to some errors in the operating cash flow and due to some missing data, the database has been completed adding data from the financial reporting of the firms in the sample.

The studies of earnings management [1] determine the discretionary accruals as the difference between TA_t/TAs_{t-1} and NDA_t/TAs_{t-1}, and suggest different models to determine the non-discretionary accruals.

In our study, we have used three models to determine the non-discretionary accruals. We repeated the analysis using a fixed effect estimator for panel data or an OLS estimator for pool data.

As there is no clear evidence in existing literature as to which methodology performs better, we have used both in order to have robust results.

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The first model we used is the Jones (1991) model:

$$\mathbf{NDA_t/TAs_{t-1} = \alpha_0 + \alpha_1(1/TAs_{t-1}) + \alpha_2(\Delta REV_t/TAs_{t-1}) + \alpha_3(PPE_t/TAs_{t-1})} \quad [2]$$

where: $\Delta REV_t/TAs_{t-1}$ is the difference between revenues in year t and revenues in year t-1 scaled by total asset at t-1; PPE_t/TAs_{t-1} is the gross, property plan and equipment in year t scaled by total asset at t-1. We included a constant (α_0) to reduce heteroskedasticity (Kothari et al. 2005).

The second one was suggested to us by the Dechow et al. model (1995), where the authors modified the Jones (1991) model by adding the following new variable: $\Delta REC_t/TAs_{t-1}$.

$$\mathbf{NDA_t/TAs_{t-1} = \alpha_0 + \alpha_1(1/TAs_{t-1}) + \alpha_2[(\Delta REV_t/TAs_{t-1}) - (\Delta REC_t/TAs_{t-1})] + \alpha_3(PPE_t/TAs_{t-1})} \quad [3]$$

In particular, $\Delta REC_t/TAs_{t-1}$ is the difference between net receivables in year t and net receivables in year t-1 scaled by total asset at t-1.

The Kothari et al. (2005) model is the third model we used to determine the accruals. In this case we used the Dechow et al. model (1995) and added a new variable represented by ROA (return on asset) at t-1. In this case, the non-discretionary accruals were determined by the following model:

$$\mathbf{NDA_t/TAs_{t-1} = \alpha_0 + \alpha_1(1/TAs_{t-1}) + \alpha_2[(\Delta REV_t/TAs_{t-1}) - (\Delta REC_t/TAs_{t-1})] + \alpha_3(PPE_t/TAs_{t-1}) + \alpha_4ROA_{t-1}} \quad [4]$$

The application of models presupposes the preliminary estimate of the coefficient "α". This happens through the regressions of the following equations:

- $TA_t = \alpha_0 + \alpha_1(1/TAs_{t-1}) + \alpha_2(\Delta REVt/TAs_{t-1}) + \alpha_3(PPE_t/TAs_{t-1}) + \varepsilon_t$, for the first and the second model;
- $TA_t = \alpha_0 + \alpha_1(1/TAs_{t-1}) + \alpha_2[(\Delta REV_t/TA_{st-1}) - (\Delta REC_t/TAs_{t-1})] + \alpha_3(PPE_t/TAs_{t-1}) + \alpha_4ROA_{t-1} + \varepsilon_t$, for the third model.

Then, the coefficients estimated with these regressions are applied to [2], to [3] and [4] to determine the discretionary, non-discretionary and the total accruals for each company of our sample.

The expected signs of the coefficients are identified according to their relation to the components of total accruals. The balance sheet approach allowed us to separately analyze each component of the accruals. For this reason, starting from the relationship with total accruals TA_t = {[(current $asset_t$ – current $asset_{t-1}$) – (cash and cash equivalentt - cash and cash $equivalent_{t-1}$)] – (current $liabilities_t$ – current $liabilities_{t-1}$) – depreciation and amortization expenset extraordinary items}, we have analyzed the relation with the different items:

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- change in working capital accounts (ΔWCA_t) [(current $asset_t$ – current $asset_{t-1}$) – (cash and cash equivalent$_t$ - cash and cash equivalent$_{t-1}$)] – (current $liabilities_t$ – current $liabilities_{t-1}$) from which we expected a positive relation with the revenue variation ($\alpha_2>0$) because an increase in revenues causes an increase in the receivables (or in the inventory) as a recurrent component of the working capital as well as being a non-discretionary component of the total accruals. Furthermore the Dechow et al (1995) model modified the Jones (1991) model subtracting the receivable variation from the revenue variation because it is more simple to manage earnings on the revenue recognition if they are credit rather than already collected as cash;
- depreciation and amortization expense ($D\&A_t$) from which we expected a negative relation with the property, plant and equipment ($\alpha_3<0$) because their increase would imply greater costs to amortize and largely assumed as recurrent and so non-discretionary. As a consequence higher amortization reduces the total accruals.

However, each of these components include a discretionary part, i.e. the inventory evaluation (LIFO, FIFO, ….) and the choice of the amortization period for the property plant equipment which could be a signal for earnings management. For this reason, the difference between the total accruals and the non-discretionary accruals (the residual of the regression in which the total accruals is the dependent variable) represents the discretionary accruals.

IV.2. Value Relevance of Earnings Management

The value relevance of reported earnings is examined using the price model (Kothari and Zimmerman, 1995). With this model the usefulness of accounting information is investigated as the relation between the market value and the earning and its components represented, in our study, by cash flows from operations and accruals.

In particular, to analyse the value relevance of earnings, cash flows and accruals, we have used the following models:

$$\boldsymbol{MV_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it}} \quad \textbf{[5]}$$

$$\boldsymbol{MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \varepsilon_{it}} \quad \textbf{[6]}$$

$$\boldsymbol{MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \varepsilon_{it}} \quad \textbf{[7]}$$

$$\boldsymbol{MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \varepsilon_{it}} \quad \textbf{[8]}$$

$$\boldsymbol{MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 OCFPS_{it}*D + \beta_4 TAPS_{it}*D + \beta_4 D + \varepsilon_{it}} \quad \textbf{[9]}$$

$$\boldsymbol{MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \varepsilon_{it}} \quad \textbf{[10]}$$

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where: MV_{it} is the market value, in this case, the price as of 30 April after the end of fiscal year; EPS_{it} is the earnings before extraordinary items per share; $OCFP_{it}$ is the operating cash flow per share; $TAPS_{it}$ is the total accruals per share; $DAPS_{it}$ is the discretionary accruals per share; $NDAPS_{it}$ is the non-discretionary accruals per share; D is a dummy variable that is equal 1 for the years after the start of the financial and economic crisis and 0 otherwise; ESP_{it}*D, $OCFP_{it}$*D, $TAPS_{it}$*D, $DAPS_{it}$*D and $NDPS_{it}$*D are the interaction terms that are equal 0 in the 2005-2008 period.

The value relevance of earnings, operating cash flow, discretionary and non-discretionary accruals is measured by the coefficients in model [5], [6] and [7]. In particular, we have analysed the statistical significance (t test and p-value) of each coefficient and, by using Wald's Test, we have analysed the statistical significance of the difference between these coefficients to evaluate those of the earnings' components (EPS_{it} = $OCFPS_{it}$ + $DAPS_{it}$ + $NDAPS_{it}$) is more value relevant.

Reported earnings comprise three components: cash flow from operations, discretionary accruals and non-discretionary accruals. In the Italian context, considering the legal, institutional and economic importance of dividends for investors and taking into account that dividends are based upon reported earnings, it is expected that all three components of reported earnings are positively related to market value in equation [5], [6] and [7].

In model [8], [9] and [10] we have also considered if the financial and economic crisis had affected the value relevance of the variables used in our models. This analysis permitted the identification of a potential change to the value relevance of earnings and accruals during the crisis. Coefficient of the interaction terms and the statistical significance of their difference with other variables (Wald's Test) are of interest in these models to evaluate if accruals are more value relevant before or during the financial and economic crisis.

In this case, we compared the two periods characterised by a different economic situation. Reference is made to the 2006-2008 period in which the financial crisis was not expected and the 2009-2011 period in which the financial crisis was evident. There is in fact a view expressed in literature that accounting values lose their relevance and reliability when extreme financial turbulence affects the real world economy (Barth et al., 2008; Barth and Landsman, 2010). We therefore empirically assessed whether and to what extent accounting information would still be useful for investors.

Scale bias and the heteroskedasticity represent two common problems in value relevance research. In line with previous researches (Barth and Kallapur 1996; Easton and Sommers, 2003; Barth and Clinch, 2009), this study has employed a per share specification to eliminate the scale bias. Subsequently, we also performed and reported our regression with OLS (Ordinary Least Squares), and, to eliminate the effect of heteroskedasticity, we used robust standard errors.

Another issue discussed in the survey concerned the multicollinearity of the model's variables (Verbeek, 2006). Said phenomenon occurs when the variables included in the regression model are correlated between them. In general, the term multicollinearity is used to describe the problem posed by the existence of an approximate linear relation between explanatory variables that generate unreliable regression estimates.

In particular, said relation can affect the independent variables which, however, may involve more than two and even all the variables considered in the model. In any case, in the presence of multicollinearity, the coefficients are estimated, but the results obtained are distorted and hard to comment on. In particular, the distortion increases as the correlation itself increases between the explanatory variables of the model.

In order to measure the existence and the intensity of multicollinearity, the calculation of a specific indicator called Variance Inflation Factors (VIF) is used. As a general rule, it is commonplace to consider a limit value of VIF equal to 4 resulting in greater values requiring interventions to deal with the issue. Consequently, we determined and assessed said indicator in order to measure the level of collinearity between independent variables. For values greater than 4 we calculated single regressions by each of the variables.

We also performed a sensitivity analysis in order to verify the robustness of our findings. In particular, we analyzed the impact of loss firms and of the size in the assessment of value relevance. Following some researchers (Mitra and Hossain, 2009; Entwistle at al., 2010), we have corrected each model by adding a dummy variable (Loss), that is equal 1 if net income is negative and 0 otherwise. Moreover, in order to consider the effect of size of firms, we also corrected the equations by adding another independent variable (Size), that is the natural logarithm of the book value of the total assets (So and Smith, 2009; Bartov et al., 2005). Finally, we have performed a sensitivity analysis in order to verify the robustness of our findings both to determine the accruals and value relevance. In particular, the continuous variables are winsorized at top and bottom 1%.

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IV.3. Sample

The survey considers a sample of 193 firms listed in the Milan Stock Exchange which, as of 30 April 2012, represented about 91.28% of the stock exchange capitalisation (excluding banks and insurance companies). From the listed companies (212(1) as of 30 April 2012) we have excluded the firms:

- with corporate address outside Italy, in order to avoid influence from contexts different from the Italian one;
- listed after 31 December 2006 and/or no longer listed as of 28 April 2012, to ensure availability of the figures for the whole period considered;
- not providing a consolidated financial statement, to ensure homogeneity of the financial statements considered;
- not closing the financial statements on 31 December, to ensure homogeneity of the date of closure and of the relevant correlations with the stock market capitalizations;
- that did not provide all the necessary information for the analysis;
- banks and the insurance companies.

The survey describes the value relevance of earning, cash flows and accruals for a period of six years (2006-2011). There are two different phases in this time period: the period preceding financial and economic crisis (2006-2008) and the period of crisis (2009-2011). This difference is important because we analysed if the crisis had affected the value relevance of reported earnings and its components.

Table 1 describes the composition of the sample. In Italy the industrial sector is composed of 16 sub-sectors considered in our survey.

Table 1 - The capitalization and frequency as of 30 April 2012 of each industrial sector

Industry FTSE Italy all-share	Frequency			Capitalization/millions		
	Total	Sample	%	Total	Sample	%
Oil and gas	7	7	100.00%	86,390.8	86,386.8	100.00%
Chemicals	3	3	100.00%	424.8	424.8	100.00%
Basic resources	1	1	100.00%	155.1	155.1	100.00%
Construction and materials	15	13	86.67%	5,895.3	5,822.0	98.76%

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Industrial goods and services	47	43	91.49%	32,793.0	22,012.7	67.13%
Automobiles and parts	9	9	100.00%	11,275.7	11,275.7	100.00%
Food and beverage	10	9	90.00%	6,533.6	6,526.2	99.89%
Personal and household goods	30	26	86.67%	24,240.2	19,464.4	80.30%
Health care	7	6	85.71%	3,941.8	3,936.7	99.87%
Retail	5	4	80.00%	1,252.1	651.1	52.00%
Media	15	15	100.00%	4,186.6	4,186.6	100.00%
Travell and leisure	9	9	100.00%	4,939.9	4,939.9	100.00%
Telecommunications	4	3	75.00%	16,188.6	16,017.0	98.94%
Utilities	18	16	88.89%	58,071.0	51,906.7	89.38%
Real estate	10	9	90.00%	1,516.6	1,482.6	97.75%
Technology	20	20	100.00%	1,546.6	1,546.6	100.00%
TOTAL	210	193	91.04%	259,351.7	236,734.61	91.28%

The information required in the survey was collected during a two-step process. In the first step, data sources consisted in the Datastream/Compustat databases for the accounting information and for the market values. In the second step, the missing data in the database was collected by the analysis of the:

- consolidated financial statement of the listed companies for accounting information;
- the Milan Stock Exchange website for market values.

The only companies we excluded from the sample were those with missing data also after the second step.

In our survey, we used the earnings, the accruals and their components, the cash flow from operations and the number of shares as of 31 December of each year considered.

Given that there is a time lag problem between the market value and accounting information, for the value relevance analysis, we chose to measure the market value as of April 30 of the year following the date of the financial statements. This guaranteed that the firms' capitalisation measured on this date fully incorporated the effects created by the

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disclosure of financial information of the previous year, thus ensuring that the accounting information would be of public domain thus absorbed by investors (Barth et al., 2008; Harris and Muller, 1999).

V. Summary Statistics

Table 2 shows descriptive statistics on earnings before extraordinary items, operating cash flows, sales, total asset, property, plan and equipment, receivables, equity, current assets, current liabilities and accruals from each model. For each variable, we have reported the mean, median, standard deviation, minimum and maximum value.

Earnings before extraordinary items per share, scaled by price (30 April after the year-end), has a median value of 0.087 and a mean of -0.010. As earnings contain large non-cash expenses like depreciation and amortization, we expect operating cash flow per share to exceed earnings per share. In fact, cash flow from operations has a greater mean than earnings. This is also expected for industrial companies because, in Italy, financial expenses are an important cost that reduce earnings but do not affect the cash flow from operations. The difference between earnings and cash flow is given by the average of total accruals per share that, as expected, is negative.

The mean and median of total assets are 14.35 and 6.353, respectively, whereas the mean and median of current assets and receivable are respectively only 6.548, 2.601 and 3.17, 1.269.

For each model considered, the mean and standard deviations of non-discretionary accruals are lower than that of discretionary accruals. In particular, in Italy total accruals mainly depend on non-discretionary accruals.

Table 2 - Descriptive statistics

Per share value	MEAN	MEDIAN	STD. DEV.	MAX.	MIN.
Price	6.502	2.844	12.57	255	0.04
Total asset	14.35	6.353	29.06	325.14	0.13
Property, plan and equipment	7.49	2.485	21.94	312.69	0.002
Sales	10.43	4.299	27.056	649.69	0.002
Receivables	3.17	1.269	6.77	132.88	0.010

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Earnings before extraordinary items	-0.010	0.087	1.99	7.03	-32.62
Operating cash flow	0.582	0.243	2.64	31.32	-38.88
Equity	4.34	1.99	7.05	79.15	0.0049
Current asset	6.548	2.601	12.92	161.79	0.054
Current liabilities	5.529	2.217	11.08	179.39	0.030
Jones model fixed effect:					
- non-discretionary accruals	-0.029	-0.016	0.508	4.701	-3.700
- discretionary accruals	-0.031	-0.001	1.043	9.891	-8.186
- total accruals	-0.060	-0.024	1.130	10.563	-8.292
Jones model pool:					
- non-discretionary accruals	-0.0239	-0.007	0.442	3.743	-3.876
- discretionary accruals	-0.0028	0.0085	1.303	11.028	-11.986
- total accruals	-0.0267	-0.006	1.372	12.944	-12.697
Dechow et al. model fixed effect:					
- non-discretionary accruals	-0.0556	-0.019	0.481	4.311	-5.051
- discretionary accruals	0.0213	0.0187	1.261	9.017	-8.472
- total accruals	-0.0342	-0.006	1.277	7.755	-8.328
Dechow et al. model pool:					
- non-discretionary accruals	-0.048	-0.011	0.407	3.650	-3.558
- discretionary accruals	0.021	0.013	1.324	14.979	-7.967
- total accruals	-0.027	-0.006	1.372	15.583	-8.328
Kothari et al. model fixed effect:					
- non-discretionary accruals	-0.038	-0.021	0.502	4.705	-4.144
- discretionary accruals	0.022	0.018	1.221	8.963	-7.923
- total accruals	-0.016	-0.006	1.327	12.944	-8.328
Kothari et al. model pool:					
- non-discretionary accruals	-0.037	-0.016	0.506	4.003	-6.298
- discretionary accruals	-0.010	0.012	1.117	8.458	-7.964
- total accruals	-0.047	-0.006	1.279	7.755	-9.171

In addition, the cash flow measure has higher standard deviations than earnings. One explanation for this pattern is that accruals off-set extreme negative and positive cash

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flow realizations associated with mismatched cash receipts and disbursements over short measurement intervals. If cash flows suffer from temporary mismatching of cash receipts and disbursements, then this suggests that changes in cash flows will show a negative autocorrelation. A large cash outflow during this period is more likely to be followed by a large cash inflow during the following one.

Therefore, changes in cash flows are likely to contain temporary components that are reversed over time. If accruals are used to match cash receipts and disbursements associated with the same economic event, then changes in accruals will also show negative autocorrelation and accruals will be negatively correlated with changes in cash flows, since the change in cash flows is expected to be temporary. This negative correlation is expected to decline over longer intervals as matching problems in cash flows become less severe.

VI. Results of empirical tests

VI.1. Earnings Management

The table shows the results for the model used to partition the total accruals in discretionary and non-discretionary accruals. The Jones (1991) and the Dechow et al (1995) models use the same estimates for the coefficients and then change the independent variable used. The Kothari et al (2005) model has different estimates because it considers the ROA as control variable that changes the magnitude of the other coefficients. For this reason, we are presenting two tables: one with the coefficient estimates for the first 2 models and one with the coefficient estimates for the third model.

The results are consistent with the expectations. The coefficients are significant and the coefficient for property, plant and equipment has a negative sign while the coefficient for revenue/receivables has a positive sign. The R^2 is significant and, as expected, the Kothari et al. (2005) model including the profitability as control variable, increased the explanatory power (bigger R^2). Including the year fixed effect, the magnitude (in absolute value) of the coefficient for property, plant and equipment became bigger compared to the magnitude of the coefficient for revenues/receivables but the results are confirmed in both methodologies.

The results are consistent with the literature. The magnitude of the coefficient for property, plant and equipment in Italy is very similar to that of the same coefficient in the US sample contained in the Jones paper (specific sample with only the firms affected by

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the import relief investigation). The magnitude of the coefficient in the Jones paper is -0.033 (mean) while ours is -0.0337082/-0.0285799. However, in Italy the magnitude or the coefficient for revenues/receivables is higher (0.0962279/0.1125611) compared to the that showed in the Jones paper (0.035 in mean). This coefficient is more consistent with the findings of Denis et al. (2010) for Switzerland (0.16/0.21).

Table 3 - Accruals Jones (1991) and Dechow et al. (1995) model

Independent variables	*Predicted sign*	Cross sectional – time series OLS regression fixed effect coefficient (t-stat)	Pooled cross sectional OLS regression coefficient (t-stat)
1/ ASSETS		1527.186 (1.86)*	750.597 (1.33)
PPE / ASSETS	-	-.0337082 (-2.02)**	-.0285799 (-4.12)***
ΔREV / ASSETS	+	.0962279 (3.88)***	.1125611 (4.67)***
Costant		.002135 (0.28)	.004621 (0.87)
Year fixed effects		Included	Not included
Adj. R^2		0.07***	0.08***
Sample size		1105	1105

Table 4 - Accruals Kothari et al. (2005) model

Independent variables	*Predicted sign*	Cross sectional – time series OLS regression fixed effect coefficient (t-stat)	Pooled cross sectional OLS regression coefficient (t-stat)
1/ ASSETS		1611.369 (1.94)**	1014.658 (1.79)*

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PPE / ASSETS	-	-.0332676 (-1.92)**	- .0272289 (-4.07)***
ΔREV-ΔREC / ASSETS	+	.0950585 (3.78)***	.0929902 (4.02)***
ROA		.115741 (0.78)	.2282174 (3.27)***
Costant		-.0019442 (-0.18)	-.0039778 (-0.76)
Year fixed effects		Included	Not included
Adj. R^2		0.11***	0.13***
Sample size		1105	1105

VI.2. Value Relevance of Earnings Components

The following tables show the results of value relevance analysis. In particular:

- table 5 describes the estimate of [5], [6], [7], [8], [9] and [10] models using the accruals determined with Jones model (1991);
- table 6 describes the value relevance analysis on the accruals calculated with Dechow et al. model (1995);
- table 7 describes the estimate of value relevance model using the accruals determined with the Kothari et al. model (2005).

Before estimating each model we have eliminated all outliers. We have repeated the analysis using a fixed effect estimator for panel data or a OLS estimator for pool data. For each value relevance model we have also performed a sensitivity analysis in order to verify the robustness of our findings. In particular, we have analyzed the impact of loss firms and of the size in the assessment of value relevance and the continuous variables are winsorized at top and bottom 1%. In each table, this analysis is represented by the models marked with the letter "a" (i.e., model [5a], [6a], [7a], [8a], [9a] and [10a]). The estimation of these models confirms the results that emerge without sensitivity analysis.

For each table, models [5], [5a], [6], [6a], [7] and [7a] were estimated to test H1, instead, we used models [8], [8a], [9], [9a], [10] and [10a] to analyze H2.

In addition, the tables show the calculation of the VIF to measure the presence of multicollinearity. The determination of values above or close to 4 for VIF suggested to

estimate simplified models that correlate the price with each independent variable. This way of proceeding allows to reduce the VIF calculated for each independent variable and consequently to break down the problems arising from the estimation multicollinearity. In the analysis below, the VIF has never reached values greater than or equal to 4. It was therefore necessary to estimate a regression for each independent variable.

VI.2.1 Results H1

Consistent with previous studies (Barth et al., 2008; Devalle, 2010; Goncharov and Hodgson, 2011), the analysis shows a positive and statistically significant relation (at 1% level) of earnings with the market value. On the contrary, for each model used to determine the accruals, our first hypothesis is not confirmed because the components of earnings do not have the same value relevance. In particular, some components are not value relevant while the remaining have different coefficients.

Using Jones (1991) model to calculate the accruals and using a fixed effect estimator (panel A in table 5), only operating cash flows and discretionary accruals are value relevant. The regression has an adjusted R2 of 0.189 (model 7, table 5) versus 0.093 when only earnings is used as an explanatory variable (model 5, table 5). As expected, the coefficient of operating cash flows is positive ($p < 0.01$), while the coefficient of discretionary accruals is negative ($p < 0.1$). In addition, the coefficient of the operating cash flow is greater and more value relevant than that of earnings and discretionary accruals. These results have not been confirmed using pool data for Jones (1991) model (panel B in table 5). In this case, only earnings ($p < 0.01$) and cash flow from operations ($p < 0.01$) are value-relevant with positive coefficients.

The results for the value relevance model using accruals calculated with Dechow et al. (1995) model are presented in table 6. In particular, panel A shows the results of the fixed effect estimator. All estimated models are significant at 1% level. The relation between market price and operating cash flows, discretionary and non-discretionary accruals (R2: 0.182; model 7) is greater than that of model 5 (R2: 0.123). In addition, we find a positive and significant association ($p < 0.001$) between cash flow and price. Our results also show a negative and significant association ($p < 0.1$) between non-discretionary accruals and market price. Instead, discretionary accruals are not statistically significant therefore neither value relevant. In panel B of table 6, we have re-estimated the models using pool data and the results have not changed.

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Also using the Kothari et al. model for accruals, cash flow from operations ($p < 0.001$) and non-discretionary accruals ($p < 0.1$) are value relevant and discretionary accruals are not statistically significant. As expected, the coefficients of cash flows is positive. Instead, the coefficient of non-discretionary accruals is negative.

Finally, consistent with another research (Cormier, 2000), our findings show that operating cash flows is the earnings component which is more value relevant. Instead, although accruals are value relevant, their relation with market price is negative.

VI.2.2 Results H2

During the financial and economic crisis, the earnings components have lower value relevance confirming our second hypothesis (H2). For this analysis, the coefficients of interaction terms with those of other variables need to be compared.

Using Jones (1991) model and fixed effect estimator (panel A in table 5), only the operating cash flow does not change its value relevance during the economic and financial crisis. In particular, the coefficient of cash flow from operating and that of interaction term (OCFPS*D) are different, but this difference is not statistically significant (Wald's test $p > 0.1$). Instead, other independent variables are not value relevant during the crisis, because the coefficients of interaction terms are not statistically significant.

With Dechow et al. (1995), Kothari et al. (2005) model and with pool data using Jones (1991) model during the crisis each variable considered in the analysis is not value relevant. In fact, each coefficient of each interaction term is not statistically significant.

VII. Conclusions

The research contributes to verify the value relevance of earnings and their components (cash flows from operations, discretionary accruals and non discretionary accruals) in a significant sample of listed companies in Italy in the period 2006 – 2011.

First, results confirm a positive and statistically significant relation of earnings with market values (H1) but the different components of earnings do not have the same value relevance: operating cash flows are positive related to market values (Jones, Dechow et al. and Kothari et al. model), discretionary accruals are negatively related to market values (Jones model) and non discretionary accruals are negatively related to market values (Dechow et al. and Kothari et al. model). More objective information (cash flows from operation) seem to be more value relevant with all the model employed; the other components of earnings (discretionary and non discretionary accruals) presents a

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lower value relevance, probably because more connected with earning management strategies.

Second, H2 is confirmed and the results show that financial crisis decrease the value relevance of earnings and their components with market prices (Jones model). Specifically only the operating cash flows maintain the value relevance during the financial crisis. This result means that financial crisis is not neutral on value relevance and emphasize the previous results: only the objective components of earnings (cash flows from operations) maintain their value relevance. The main instruments of earnings management, instead, during the financial crisis loss their value relevance because investors are afraid that these information are not reliable. For discretionary accruals, our results are consistent with Choi et al. (2010). These authors find that the discretionary accruals was significantly lower during the financial crisis. In particular, they argue that managerial incentives to influence contractual outcomes and investors' pessimism over the quality of financial statements during a crisis, jointly encourage managers to use discretionary accruals more for earnings manipulation rather than for efficient signalling. Consequently, investors discount the value relevance of discretionary accruals, since transitory earnings obstruct them to efficiently evaluate firms' performance and exercise contractual rights during a crisis. For non-discretionary accruals, instead, our results are not consistent with Choi et al. (2010). In fact, also these values are not value relevant during the financial crisis because, for us, the investors consider mainly reliable values.

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Table 5 - The value relevance of earnings components from Jones (1991) model

Model 5: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it}$															
Model 5a: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 Loss + \beta_3 Size + \varepsilon_{it}$															
Model 6: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \varepsilon_{it}$															
Model 6a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 Loss + \beta_4 Size + \varepsilon_{it}$															
Model 7: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \varepsilon_{it}$															
Model 7a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 Loss + \beta_5 Size + \varepsilon_{it}$															
Model 8: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \varepsilon_{it}$															
Model 8a: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \beta_4 Loss + \beta_5 Size + \varepsilon_{it}$															
Model 9: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 D + \beta_4 OCFPS_{it}*D + \beta_5 TAPS_{it}*D + \varepsilon_{it}$															
Model 9a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 D + \beta_4 OCFPS_{it}*D + \beta_5 TAPS_{it}*D + \beta_6 Loss + \beta_7 Size + \varepsilon_{it}$															
Model 10: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \varepsilon_{it}$															
Model 10a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \beta_8 Loss + \beta_9 Size + \varepsilon_{it}$															
Panel A: Price specification – OLS robust standard errors – Jones model – Fixed effect															
Model	Constant	EPS_{it}	$EPS_{it}*D$	$OCFPS_{it}$	$OCFPS_{it}*D$	$TAPS_{it}$	$TAPS_{it}*D$	$DAPS_{it}$	$DAPS_{it}*D$	$NDAPS_{it}$	$NDAPS_{it}*D$	D	Loss	Size	R^2 adj.	VIF
5	5.497 (17.142)***	3.098 (2.541)**													0.093 (106.224)***	
5a	6.613 (2.938)***	3.033 (2.036)**											-0.413 (-0.357)	-0.074 (-0.415)	0.092 (35.510)***	EPS: 1.317 Loss: 1.358 Size: 1.105

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6	3.829 (11.491)***			3.492 (6.817)***		-1.266 (-1.992)**									0.178 (112.432)***	OCFPS: 1.011 TAPS: 1.011
6a	11.971 (5.731)***			3.666 (6.447)***		-1.265 (-2.007)**							-1.489 (-2.536)**	-0.593 (-3.879)***	0.189 (61.115)***	OCFPS: 1.220 TAPS: 1.011 Loss: 1.131 Size: 1.218
7	3.826 (11.445)***			3.470 (6.922)***				-1.152 (-1.896)*		-1.719 (-1.518)					0.178 (75.109)***	OCFPS: 1.017 NDAPS: 1.018 DAPS: 1.009
7a	11.925 (5.766)***			3.646 (6.567)***				-1.165 (-1.929)*		-1.662 (-1.463)			-1.481 (-2.505)**	-0.589 (-3.904)***	0.189 (49.000)***	OCFPS: 1.227 NDAPS: 1.019 DAP

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																S: 1.009 Size: 1.219 Loss: 1.131
8	6.051 (11.836)***	4.294 (3.982)***	-1.959 (-1.059)												0.106 (41.947)***	EPS: 2.891 EPS *D: 2.858 D: 1.044
8a	7.240 (3.353)***	4.380 (3.696)***	-2009 (-1.112)									-1.297 (-2.092)**	0.042 (0.047)	-0.093 (-0.603)	0.105 (25.198)***	EPS: 3.468 EPS *D: 2.928 D: 1.059 Loss: 1.391 Size: 1.121
9	5.359 (10.217)***			2.396 (3.937)***	2.175 (2.022)*	-2.762 (-2.042)**	2.318 (1.573)					-3.042 (-4.585)***			0.209 (55.204)***	OCF PS: 1.873 OCF PS* D: 2.10

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																2 D: 1.281 TAPS: 2.203 TAPS*D: 2.175
9a	12.528 (5.930)***			2.628 (4.147)***	2.146 (1.994)**	-2.689 (- 1.994)**	2.212 (1.504)					-2.859 (- 4.399)***	-0.925 (- 1.680)*	-0.541 (-3.617)***	0.216 (41.558)***	OCFPS: 2.035 OCFPS*D: 2.121 D: 1.323 TAPS: 2.207 TAPS*D: 2.178 Loss: 1.169 Size: 1.224
10	5.343 (10.129)***			2.373 (3.872)***	2.195 (2.080)**			-2.581 (- 2.014)** *	2.143 (1.507)	-3.465 (- 1.678)*	2.998 (1.281)	-3.026 (- 4.562)***			0.208 (39.521)***	OCFPS: 1.876 OCFPS*

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																D: 2.119 D: 1.282 NDAPS: 2.117 DAPS: 2.237 NDAPS* D: 2.123 DAPS*D: 2.222
10a	12.453 (5.945)***			2.606 (4.107)***	2.164 (2.052)**			-2.528 (-1.979)**	2.052 (1.448)	-3.317 (-1.595)	2.828 (1.201)	-2.845 (-4.381)***	-0.925 (-1.676)*	-0.536 (-3.612)***	0.215 (32.372)***	OCFPS: 2.040 OCFPS* D: 2.137 D: 1.324 NDAPS: 2.122 DAPS: 2.240 NDA

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																PS*D: 2.127 DAPS*D: 2.224 Loss: 1.169 Size: 1.226
Panel B: Price specification – OLS robust standard errors – Jones model – Pool																
5	5.251 (16.946)***	3.986 (3.464)***													0.123 (143.706)***	
5a	7.004 (3.1832)***	4.129 (2.789)***											0.225 (0.210)	-0.141 (-0.822)	0.122 (48.188)***	EPS: 1.388 Loss: 1.410 Size: 1.115
6	3.717 (10.985)***			3.825 (7.127)***		-0.259 (-0.556)									0.172 (107.135)***	OCFPS: 1.001 TAPS: 1.001
6a	12.607 (5.897)***			4.055 (6.718)***		-0.273 (-0.590)							-1.491 (-2.470)**	-0.653 (-4.179)***	0.187 (59.175)***	OCFPS: 1.211 TAPS: 1.00

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																4 Loss: 1.13 5 Size: 1.22 2
7	3.661 (10.848)***			3.817 (7.282)***				-0.025 (-0.054)		-2.360 (-1.553)					0.181 (75.864)***	OCF PS: 1.00 6 NDA PS: 1.00 6 DAP S: 1.00 0
7a	12.560 (5.948)***			4.048 (6.915)***				-0.039 (-0.083)		-2.373 (-1.565)			-1.483 (-2.459)**	-0.653 (- 4.236)* **	0.194 (50.096)***	OCF PS: 1.21 8 NDA PS: 1.00 7 DAP S: 1.00 3 Size: 1.22 3 Loss: 1.13 5
8	6.315 (11.630)***	3.208 (2.402)**	1-714 (0.795)									-1.984 (- 3.159)** *			0.136 (54.298)***	EPS: 1.69 5 EPS *D: 1.68

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																7 D: 1.03 0
8a	7.497 (3.433)***	3.431 (2.228)**	1.815 (0.817)										-2.041 (- 3.268)** *	0.715 (0.730)	-0.108 (- 0.657)	0.135 (32.939)***	EPS: 1.97 3 EPS *D: 1.71 1 D: 1.05 2 Loss: 1.45 2 Size: 1.11 9
9	5.322 (9.449)***			3.061 (5.795)***	1.633 (1.523)	-1.091 (-1.250)	1.308 (1.292)						-3.144 (- 4.612)** *			0.196 (50.722)***	OCF PS: 1.84 7 OCF PS* D: 2.09 7 D: 1.28 5 TAP S: 2.46 5 TAP S*D: 2.45 8
9a	13.381 (6.003)***			3.348 (6.041)***	1.597 (1.498)	-1.084 (-1.259)	1.280 (1.277)						-2.942 (- 4.400)**	-0.986 (-1.695)*	-0.611 (- 3.987)*	0.206 (38.849)***	OCF PS: 2.00

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												*		**		6 OCFPS*D: 2.117 D: 1.326 TAPS: 2.468 TAPS*D: 2.460 Loss: 1.171 Size: 1.226
10	5.152 (9.384)***			3.159 (5.701)***	1.506 (1.434)			-0.666 (-0.756)	0.943 (0.917)	-4.099 (-1.733)*	3.639 (1.259)	-2.972 (-4.448)***			0.204 (38.380)***	OCFPS: 1.847 OCFPS*D: 2.111 D: 1.288 NDAPS: 1.996 DAPS: 2.577 NDA

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																PS*D: 2.004 DAPS*D: 2.573
10a	13.166 (5.993)***			3.443 (5.979)***	1.468 (1.416)			-0.664 (-0.767)	0.925 (0.909)	-4.058 (-1.722)*	3.524 (1.225)	-2.772 (-4.298)***	-0.987 (-1.714)*	-0.608 (-3.968)***	0.215 (31.909)***	OCFPS: 2.009 OCFPS*D: 2.130 D: 1.330 NDAPS: 2.003 DAPS: 2.583 NDAPS*D: 2.011 DAPS*D: 2.573 Loss: 1.172 Size: 1.231

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	Wald(1)	Wald(2)	Wald(3)	Wald(4)	Wald(5)	Wald(6)	Wald(7)	Wald(8)	Wald(9)	Wald(10)	Wald(11)	Wald(12)
6	34.954***	29.303***	-	-	-	-	-	-	-	-	-	-
6a	32.545***	27.886***	-	-	-	-	-	-	-	-	-	-
7	39.756***	29.316***	15.738***	12.532***	-	-	-	-	-	-	0.343	2.331
7a	37.540***	29.271***	14.915***	12.564***	-	-	-	-	-	-	0.256	2.352
8	5.663**	0.223	-	-	-	-	-	-	-	-	-	-
8a	6.214**	0.243	-	-	-	-	-	-	-	-	-	-
9	19.526***	20.687***	-	-	0.021	1.025	3.369*	1.738	-	-	-	-
9a	19.581***	22.728***	-	-	0.104	1.618	3.150*	1.731	-	-	-	-
10	21.428***	16.942***	8.716***	8.795***	0.014	1.351	3.212*	2.383	2.286	2.382	0.349	2.121
10a	22.224***	20.277***	8.436***	9.080***	0.088	2.053	3.040*	2.309	2.036	2.308	0.269	2.192

*,** and *** indicate statistical significance at the 10%. 5% and 1% level.

(1)Wald's Test between β1 and β2 fixed effect estimator

(2)Wald's Test between β1 and β2 pool data

(3)Wald's Test between β1 and β3 fixed effect estimator

(4)Wald's Test between β1 and β3 pool data

(5)Wald's Test between β1 and β4 fixed effect estimator

(6)Wald's Test between β1 and β4 pool data

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(7)Wald's Test between β2 and β5 fixed effect estimator												
(8)Wald's Test between β2 and β5 pool data												
(9)Wald's Test between β3 and β6 fixed effect estimator												
(10)Wald's Test between β3 and β6 pool data												
(11)Wald's Test between β2 and β3 fixed effect estimator												
(12)Wald's Test between β2 and β3 pool data												

Table 6 - The value relevance of earnings components from Dechow et al. (1995) model

Model 5: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it}$																
Model 5a: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 Loss + \beta_3 Size + \varepsilon_{it}$																
Model 6: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \varepsilon_{it}$																
Model 6a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 Loss + \beta_4 Size + \varepsilon_{it}$																
Model 7: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \varepsilon_{it}$																
Model 7a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 Loss + \beta_5 Size + \varepsilon_{it}$																
Model 8: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \varepsilon_{it}$																
Model 8a: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \beta_4 Loss + \beta_5 Size + \varepsilon_{it}$																
Model 9: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 D + \beta_4 OCFPS_{it}*D + \beta_5 TAPS_{it}*D + \varepsilon_{it}$																
Model 9a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 D + \beta_4 OCFPS_{it}*D + \beta_5 TAPS_{it}*D + \beta_6 Loss + \beta_7 Size + \varepsilon_{it}$																
Model 10: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \varepsilon_{it}$																
Model 10a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \beta_8 Loss + \beta_9 Size + \varepsilon_{it}$																
Panel A: Price specification – OLS robust standard errors – Dochow et al. model – Fixed effect																
Model	Constant	EPS_{it}	$EPS_{it}*D$	$OCFPS_{it}$	$OCFPS_{it}*D$	$TAPS_{it}$	$TAPS_{it}*D$	$DAPS_{it}$	$DAPS_{it}*D$	$NDAPS_{it}$	$NDAPS_{it}*D$	D	Loss	Size	R^2 adj.	VIF

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5	5.054 (17.392)***	5.064 (5.194)***													0.161 (195.787)***	
5a	7.908 (3.727)***	5.686 (4.567)***											1.286 (1.478)	-0.257 (-1.648)*	0.165 (67.980)***	EPS: 1.472 Loss: 1.464 Size: 1.127
6	3.715 (10.983)***			3.839 (7.183)***		-0.269 (-0.577)									0.174 (108.363)***	OCFPS: 1.003 TAPS: 1.003
6a	12.586 (5.885)***			4.068 (6.753)***		-0.281 (-0.606)							-1.494 (-2.467)**	-0.651 (-4.167)***	0.188 (59.774)***	OCFPS: 1.215 TAPS: 1.004 Loss: 1.135 Size: 1.222
7	3.646 (10.925)***			3.750 (7.265)***				-0.088 (-0.191)		-2.213 (-2.068)**					0.182 (76.780)***	OCFPS: 1.030 NDAPS: 1.056 DAPS: 1.026
7a	12.778 (5.921)***			3.984 (6.910)***				-0.092 (-0.202)		-2.311 (-2.140)**			-1.418 (-2.520)**	-0.671 (-4239)***	0.197 (50.895)***	OCFPS: 1.244 NDAPS: 1.056 DAPS: 1.027 Size: 1.222 Loss: 1.135
8	5.838 (11.354)***	4.937 (4.473)***	0.023 (0.011)									-1.50 (-2.487)**			0.165 (68.187)***	EPS: 2.037 EPS*D: 2.019 D: 1.052
8a	8.191 (3.838)***	5.598 (4.577)***	0.032 (0.016)									-1.567 (-2.582)**	1.497 (1-693)*	-0.221 (-1.461)	0.170 (42.699)**	EPS: 2.477 EPS*D: 2.026 D: 1.072 Loss:1.486 Size: 1.136
9	5.325 (9.438)***			4.064 (5.799)***	1.658 (1.561)	-1.103 (-1.251)	1.306 (1.282)					-3.150 (-4.620)***			0.198 (51.254)***	OCFPS: 1.882 OCFPS*D: 2.126 D: 1.284 TAPS: 2.737 TAPS*D: 2.719
9a	13.358 (5.990)***			3.350 (6.035)***	1.626 (1.538)	-1.091 (-1.254)	1.272 (1.262)					-2.948 (-4.406)***	-0.979 (-1.678)*	-0.609 (-3.971)***	0.208 (39.213)***	OCFPS: 2.044 OCFPS*D: 2.143 D: 1.326 TAPS: 2.737

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																TAPS*D: 2.721 Loss:1.172 Size: 1.227
10	5.187 (9.549)***			3.051 (5.669)***	1.573 (1.527)			-0.902 (-1.050)	1.215 (1.207)	-3.935 (-2.055)**	3.078 (1.392)	-3.032 (-4.552)***			0.206 (38.847)*** *	OCFPS: 1.917 OCFPS*D: 2.182 D: 1.285 NDAPS: 2.232 DAPS: 2.827 NDAPS*D: 2.227 DAPS*D: 2.827:
10a	13.385 (6.011)***			3.343 (6.030)***	1.528 (1.501)			-0.889 (-1.052)	1.194 (1.200)	-3.927 (-2.047)**	2.907 (1.315)	-2.831 (-4.361)***	-0.986 (-1.693)*	-0.622 (-4.006)***	0.217 (32.366)*** *	OCFPS: 2.088 OCFPS*D: 2.198 D: 1.328 NDAPS: 2.236 DAPS: 2.828 NDAPS*D: 2.235 DAPS*D: 2.808 Loss: 1.173 Size: 1.231
Panel B: Price specification – OLS robust standard errors – Dechow et al. model – Pool																
5	5.255 (16.948)*** *	3.986 (3.464)***													0.123 (143.597)*** **	
5a	6.975 (3.167)***	4.126 (2.787)***											0.219 (0.205)	-0.138 (-0.805)	0.122 (48.136)*** *	EPS: 1.391 Loss: 1.413 Size: 1.111
6	3.719 (10.987)*** *			3.825 (7.125)*** *		-0.251 (-0.533)									0.172 (106.943)*** **	OCFPS: 1.008 TAPS: 1.008
6a	12.599 (5.875)***			4.054 (6.709)*** *		-0.269 (-0.576)							-1.491 (-2.472)**	-0.652 (-4.156)***	0.186 (59.059)*** *	OCFPS: 1.192 TAPS: 1.009 Loss: 1.119 Size: 1.212

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7	3.625 (10.689)***			3.781 (7.301)***				-0.0616 (-0.128)		-2.749 (-1.773)*					0.182 (76.292)***	OCFPS: 1.027 NDAPS: 1.028 DAPS: 1.004
7a	12.689 (5.916)***			4.019 (6.942)***				-0.075 (-0.159)		-2.831 (-1.818)*			-1.486 (-2.464)**	-0.667 (-4.217)***	0.196 (50.509)***	OCFPS: 1.215 NDAPS: 1.027 DAPS: 1.005 Size: 1.213 Loss: 1.119
8	6.315 (11.631)***	3.208 (2.403)**	1.715 (0.7955)									-1.977 (-3.147)***			0.136 (54.226)***	EPS: 1.697 EPS*D: 1.688 D: 1.029
8a	7.474 (3.419)***	3.429 (2.227)**	1.815 (0.817)									-2.035 (-3.258)***	0.711 (0.725)	-0.106 (-0.645)	0.135 (32.885)***	EPS: 1.977 EPS*D: 1.712 D: 1.052 Loss:1.457 Size: 1.115
9	5.322 (9.449)***			3.061 (5.795)***	1.633 (1.522)	-1.091 (-1.250)	1.321 (1.298)					-3.138 (-4.595)***			0.196 (50.636)***	OCFPS: 2.104 OCFPS*D: 2.342 D: 1.263 TAPS: 2.272 TAPS*D: 2.260
9a	13.372 (5.979)***			3.348 (6.038)***	1.597 (1.497)	-1.084 (-1.259)	1.285 (1.275)					-2.939 (-4383)***	-0.987 (-1.696)*	-0.610 (-3.962)***	0.206 (38.776)***	OCFPS: 2.282 OCFPS*D: 2.346 D: 1.296 TAPS: 2.275 TAPS*D: 2.262 Loss:1.150 Size: 1.217
10	5.105 (9.452)***			3.091 (5.595)***	1.059 (1.032)			-0.762 (-0.878)	1.059 (1.489)	-4.791 (-1.987)**	4.004 (1.329)	-2.939 (-4.384)***			0.206 (38.680)***	OCFPS: 2.127 OCFPS*D: 2.387 D: 1.267 NDAPS: 2.089 DAPS: 2.289 NDAPS*D: 2.113 DAPS*D: 2.279

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10a	13.241 (5.949)***			3.382 (5.939)***	1.512 (1.471)			-0.755 (-0.885)	1.031 (1.016)	-4.781 (-1.993)**	3.831 (1.278)	-2.741 (-4.221)***	-0.992 (-1.719)*	-0.617 (-3.941)***	0.216 (32.207)***	OCFPS: 2.314 OCFPS*D: 2.392 D: 1.301 NDAPS: 2.097 DAPS: 2.292 NDAPS*D: 2.123 DAPS*D: 2.281 Loss: 1.151 Size: 1,221

	Wald(1)	Wald(2)	Wald(3)	Wald(4)	Wald(5)	Wald(6)	Wald(7)	Wald(8)	Wald(9)	Wald(10)	Wald(11)	Wald(12)				
6	29.798***	28.858***	-	-	-	-	-	-	-	-	-	-				
6a	28.198***	27.409***	-	-	-	-	-	-	-	-	-	-				
7	29.174***	28.653***	21.828***	13.708***	-	-	-	-	-	-	4.994**	3.082*				
7a	28.516***	28.513***	21.668***	13.810***	-	-	-	-	-	-	5.339**	3.223*				
8	3.173*	0.222	-	-	-	-	-	-	-	-	-	-				
8a	4.212**	0.242	-	-	-	-	-	-	-	-	-	-				
9	20.344***	20.687***	-	-	1.005	1.026	1.722	1.752	-	-	-	-				
9a	22.243***	22.716***	-	-	1.583	1.617	1.701	1.733	-	-	-	-				

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10	24.454***	16.978***	13.494***	10.483***	1.130	1.178	1.390	1.001	3.097*	2.917*	3.454*	3.065*				
10a	25.565***	20.235***	13.851***	10.848***	1.831	1.878	1.385	0.993	2.939*	2.833*	3.446*	3.114*				
*,** and *** indicate statistical significance at the 10%. 5% and 1% level.																
(1)Wald's Test between β1 and β2 fixed effect estimator																
(2)Wald's Test between β1 and β2 pool data																
(3)Wald's Test between β1 and β3 fixed effect estimator																
(4)Wald's Test between β1 and β3 pool data																
(5)Wald's Test between β1 and β4 fixed effect estimator																
(6)Wald's Test between β1 and β4 pool data																
(7)Wald's Test between β2 and β5 fixed effect estimator																
(8)Wald's Test between β2 and β5pool data																
(9)Wald's Test between β3 and β6 fixed effect estimator																
(10)Wald's Test between β3 and β6pool data																
(11)Wald's Test between β2 and β3 fixed effect estimator																
(12)Wald's Test between β2 and β3 pool data																

Table 7 - The value relevance of earnings' components from Kothari et al. (2005) model

Model 5: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \varepsilon_{it}$								
Model 5a: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 Loss + \beta_3 Size + \varepsilon_{it}$								
Model 6: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \varepsilon_{it}$								
Model 6a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 Loss + \beta_4 Size + \varepsilon_{it}$								
Model 7: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \varepsilon_{it}$								
Model 7a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 Loss + \beta_5 Size + \varepsilon_{it}$								

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Model 8: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \varepsilon_{it}$

Model 8a: $MV_{it} = \beta_0 + \beta_1 EPS_{it} + \beta_2 EPS_{it}*D + \beta_3 D + \beta_4 Loss + \beta_5 Size + \varepsilon_{it}$

Model 9: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 D + \beta_4 OCFPS_{it}*D + \beta_5 TAPS_{it}*D + \varepsilon_{it}$

Model 9a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 TAPS_{it} + \beta_3 D + \beta_4 OCFPS_{it}*D + \beta_5 TAPS_{it}*D + \beta_6 Loss + \beta_7 Size + \varepsilon_{it}$

Model 10: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \varepsilon_{it}$

Model 10a: $MV_{it} = \beta_0 + \beta_1 OCFPS_{it} + \beta_2 DAPS_{it} + \beta_3 NDAPS_{it} + \beta_4 OCFPS_{it}*D + \beta_5 DAPS_{it}*D + \beta_6 NDAPS_{it}*D + \beta_7 D + \beta_8 Loss + \beta_9 Size + \varepsilon_{it}$

Panel A: Price specification – OLS robust standard errors – Kothari et al. model – Fixed effect

Model	Constant	EPS_{it}	$EPS_{it}*D$	$OCFPS_{it}$	$OCFPS_{it}*D$	$TAPS_{it}$	$TAPS_{it}*D$	$DAPS_{it}$	$DAPS_{it}*D$	$NDAPS_{it}$	$NDAPS_{it}*D$	D	Loss	Size	R^2 adj.	VIF
5	5.352 (12.950)***	4.687 (4.526)***													0.0800 (89.237)***	
5a	8.880 (3.812)***	5.566 (4.461)***											1.879 (1.761)*	-0.325 (-1.918)*	0.084 (32.339)**	EPS: 1.472 Loss: 1.467 Size: 1.123
6	4.057 (8.489)***			3.645 (6.458)***		-0.391 (-0.807)									-0.092 (52.424)***	OCFPS: 1.001 TAPS: 1.001
6a	13.548 (5.795)***			4.008 (6.622)***		-0.410 (-0.848)							-0.822 (-0.909)	-0.721 (-4.226)***	0.099 (29.046)***	OCFPS: 1.209 TAPS: 1.022 Loss: 1.133 Size: 1.219
7	4.009 (8.381)***			3.598 (6.542)***				-0.195 (-0.396)		-1.956 (-1.688)*					0.0946 (36.354)***	OCFPS: 1.012 NDAPS: 1.012 DAPS: 1.001
7a	13.604 (5.821)***			3.959 (6.778)***				-0.208 (-0.424)		-2.021 (-1.740)*			-0.859 (-0.951)	-0.728 (-4.266)***	0.102 (24.145)***	OCFPS: 1.223 NDAPS: 1.012 DAPS: 1.003 Size: 1.219 Loss: 1.133
8	5.838 (11.354)***	4.937 (4.473)***	-0.675 (-0.321)									-0.983 (-1.234)			0.080 (30.625)***	EPS: 2.018 EPS*D: 1.998 D: 1.050

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8a	9.095 (3.944)***	5.830 (4.668)***	-0.656 (-0.309)									-0.656 (-0.309)	2.011 (1.928)*	-0.305 (-1.773)*	0.085 (20.000)***	EPS: 2.454 EPS*D: 2.005 D: 1.068 Loss:1.488 Size: 1.131
9	5.325 (9.438)***			3.064 (5.799)***	1.246 (1.089)	-1.103 (1-.251)	1.116 (1.077)					-2.477 (-2.586)***			0.099 (23.317)***	OCFPS: 1.849 OCFPS*D: 2.103 D: 1.283 TAPS: 2.396 TAPS*D: 2.391
9a	14.159 (5.971)***			3.454 (6.050)***	1.257 (1.119)	-1.094 (-1.257)	1.074 (1.044)					-2.366 (-2.670)***	-0.409 (-0.499)	-0.686 (-3.996)***	0.105 (18.123)***	OCFPS: 2.007 OCFPS*D: 2.122 D: 1.325 TAPS: 2.400 TAPS*D: 2.394 Loss:1.170 Size: 1.225
10	5.228 (9.546)***			3.023 (5.622)***	1.264 (1.130)			-0.836 (-0.972)	0.921 (0.882)	-3.571 (-1.976)**	3.053 (1.300)	-2.391 (-2.503)**			0.102 (17.457)***	OCFPS: 1.870 OCFPS*D: 2.124 D: 1.284 NDAPS: 1.912 DAPS: 2.540 NDAPS*D: 1.07 DAPS*D: 2.539
10a	14.093 (5.968)***			3.414 (6.029)***	1.271 (1.165)			-0.828 (-0.977)	0.890 (0.857)	-3.559 (-1.972)**	2.930 (1.248)	-2.281 (-2.594)***	-0.415 (-0.506)	-0.689 (-3.999)***	0.108 (14.736)***	OCFPS: 2.034 OCFPS*D: 2.143 D: 1.326 NDAPS: 1.917 DAPS: 2.544 NDAPS*D: 1.913 DAPS*D: 2.539 Loss: 1.170 Size: 1.228
Panel B: Price specification – OLS robust standard errors – Kothari et al. model – Pool																
5	5.046 (17.411)**	5.031 (5.094)***													0.157 (190.172)*	

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	*														**	
5a	7.815 (3.677)***	5.648 (4.474)***											1.278 (1.456)	-0.250 (-1.602)	0.161 (66.002)***	EPS: 1.415 Loss: 1.433 Size: 1.114
6	3.702 (10.917)***			3.831 (7.095)***		-0.177 (-0.370)									0.172 (106.278)***	OCFPS: 1.000 TAPS: 1.000
6a	12.556 (5.824)***			4.064 (6.673)***		-0.198 (-0.415)							-1.469 (-2.422)**	-0.651 (-4.124)***	0.185 (58.695)***	OCFPS: 1.209 TAPS: 1.004 Loss: 1.136 Size: 1.216
7	3.641 (10.779)***			3.815 (7.216)***				0.193 (0.375)		-2.066 (-1.651)*					0.179 (74.707)***	OCFPS: 1.002 NDAPS: 1.017 DAPS: 1.015
7a	12.430 (5.849)***			4.042 (6.821)***				0.170 (0.334)		-2.073 (-1.662)*			-1.487 (-2.468)**	-0.645 (-4156)***	0.192 (49.271)***	OCFPS: 1.211 NDAPS: 1.017 DAPS: 1.018 Size: 1.216 Loss: 1.136
8	5.838 (11.354)***	4.937 (4.473)***	-0.064 (-0.031)									-1.526 (-2.530)**			0.162 (66.443)***	EPS: 2.289 EPS*D: 2.257 D: 1.050
8a	8.104 (3.795)***	5.590 (4.566)***	-0.047 (-0.023)									-1.595 (-2.633)***	1.491 (1.664)*	-0.214 (-1.414)	0.167 (41.591)***	EPS: 2.764 EPS*D: 2.273 D: 1.068 Loss:1.452 Size: 1.127
9	5.325 (9.438)***			3.064 (5.799)***	1.655 (1.530)	-1.103 (-1.251)	1.492 (1.457)					-3.180 (-4.658)***			0.197 (50.822)***	OCFPS: 1.904 OCFPS*D: 2.135 D: 1.275 TAPS: 2.741 TAPS*D: 2.729
9a	13.319 (5.908)***			3.352 (6.033)***	1.629 (1.514)	-1.091 (-1.254)	1.444 (1.424)					-2.988 (-4.457)***	-0.939 (-1.609)	-0.607 (-3.901)***	0.207 (38.856)***	OCFPS: 2.068 OCFPS*D: 2.153 D: 1.320 TAPS: 2.741 TAPS*D: 2.734

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																Loss:1.175 Size: 1.222
10	5.253 (9.525)***			3.014 (5.602)*** **	1.723 (1.604)			-0.760 (-0.859)	1-552 (1.414)	-3.417 (-1.821)*	2.091 (0.824)	-3.165 (-4.654)***			0.205 (38.255)*** *	OCFPS: 1.920 OCFPS*D: 2.143 D: 1.277 NDAPS: 2.503 DAPS: 2.590 NDAPS*D: 2.517 DAPS*D: 2.615
10a	13.174 (5.936)***			3.297 (5.949)*** **	1.695 (1.593)			-0.752 (-0.864)	1.509 (1.391)	-3.371 (-1.809)*	2.012 (0.798)	-2.971 (-4.479)***	-0.958 (-1.659)*	-0.601 (-3.914)***	0.214 (31.747)*** *	OCFPS: 2.090 OCFPS*D: 2.160 D: 1.321 NDAPS: 2.509 DAPS: 2.592 NDAPS*D: 2.528 DAPS*D: 2.616 Loss: 1.175 Size: 1.225

	Wald(1)	Wald(2)	Wald(3)	Wald(4)	Wald(5)	Wald(6)	Wald(7)	Wald(8)	Wald(9)	Wald(10)	Wald(11)	Wald(12)				
6	28.353***	27.188***	-	-	-	-	-	-	-	-	-	-				
6a	28.554***	25.871***	-	-	-	-	-	-	-	-	-	-				
7	27.470***	23.596***	16.278***	16.049*** *	-	-	-	-	-	-	2.437	2.823*				
7a	28.432***	23.584***	17.381***	15.999*** *	-	-	-	-	-	-	2.566	2.817*				
8	3.898**	3.217*	-	-	-	-	-	-	-	-	-	-				

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8a	5.137**	4.245**	-	-	-	-	-	-	-	-	-	-				
9	20.344***	20.344***	-	-	1.539	0.989	1.445	1.992	-	-	-	-				
9a	22.792***	22.250***	-	-	2.273	1.552	1.414	1.951	-	-	-	-				
10	17.585***	15.774***	13.847***	12.276***	1.459	0.824	0.933	1.507	2.866*	1.787	2.998*	2.220				
10a	21.151***	18.451***	14.684***	12.767***	2.249	1.357	0.913	1.482	2.759*	1.727	2.998*	2.183				

*,** and *** indicate statistical significance at the 10%. 5% and 1% level.

(1)Wald's Test between β1 and β2 fixed effect estimator

(2)Wald's Test between β1 and β2 pool data

(3)Wald's Test between β1 and β3 fixed effect estimator

(4)Wald's Test between β1 and β3 pool data

(5)Wald's Test between β1 and β4 fixed effect estimator

(6)Wald's Test between β1 and β4 pool data

(7)Wald's Test between β2 and β5 fixed effect estimator

(8)Wald's Test between β2 and β5pool data

(9)Wald's Test between β3 and β6 fixed effect estimator

(10)Wald's Test between β3 and β6pool data

(11)Wald's Test between β2 and β3 fixed effect estimator

(12)Wald's Test between β2 and β3 pool data

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End Notes

1. As of 30 April 2012, 234 shares were listed in the Milan Stock Exchange issued by 210 companies. In fact, 24 firms have listed ordinary shares and savings/privileged shares

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