Earnings Quality and Firm Value: 30 Years of Portuguese Listed Firms

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Abstract:

Earnings are crucial indicators for investors and decision-makers. This study examines how seven key earnings attributes - Accrual Quality, Persistence, Predictability, Smoothness, Timeliness, Conservatism, and Value Relevance - affect market valuation, measured by Tobin's Q, for Portuguese listed firms over three decades. Considering firm characteristics like size, capital structure, capital intensity, growth opportunities, insider ownership, and holding structures, along with industry and year fixed effects, we analyze the relationship between earnings quality and firm value. Using data from 46 non-financial firms listed on the Lisbon Stock Exchange from 1987 to 2016, we find that accrual quality, predictability, and smoothness positively impact firm value, with accrual quality being the most significant. These findings are important for investors, financial managers, and stakeholders, highlighting the role of earnings quality in investment decisions and firm valuation.

JEL classification: G10; G14; G30

Keywords: Earnings Quality, Earnings Management, Corporate Performance

1. Introduction

In financial markets, information is vital. Investors navigate these markets by relying on various sources, with firms' financial statements and earnings reports among the most crucial. Earnings, in particular, provide key insights and significantly influence investor decision-making. However, while earnings serve as primary indicators of a company's financial health, an essential question arises: can earnings always be considered reliable?

There is a burgeoning literature on earnings management (EM) and earnings quality (EQ), two countervailing concepts, as high manipulation of earnings translates into poor quality of financial reports. Dechow *et al*. (2010) define higher quality earnings as earnings that provide more information about the features of a firm's financial and operating performance. While prior studies aimed to reveal socioeconomic and demographic factors influencing EQ on an international scale, findings worldwide have highlighted the significance of firms' characteristics to explain EQ. For example, size might explain earnings management because of firm risk. Larger firms, facing higher levels of scrutiny and operational complexity, may tend to engage in earnings management practices to manage perceptions of risk and maintain financial stability or growth expectations and ultimately preserve firm value.

Firm value is a topic that attracts the attention of managers, researchers and investors for a long time. A number of studies has analyzed the impact of information on firm value, yet the results are mixed and different measures have been used. Information, in its various forms, holds the potential to significantly impact the perceived and actual value of a firm in the eyes of stakeholders. Focusing on earnings management offers a lens through which the manner in which information is managed and communicated impacts on firm value.

Most studies on the influence of earnings management and firm value address developed markets, as the United States, China, Australia, and the United Kingdom (Ahmad *et al*., 2023). However, the results might differ from country to country, which makes it interesting to analyze understudied markets. We aim at filling this gap. Portugal is an open economy that has been attracting investors across borders and around the world despite facing challenges with its sovereign credit ratings after the Global Financial Crisis (GFC). The financial turmoil of the GFC led to downgrades in Portugal's credit ratings, affecting the perceived creditworthiness of its firms. These downgrades were a result of the increased risk perception and economic instability that followed the crisis (León *et al.,* 2017). Consequently, Portuguese firms have faced higher borrowing costs and greater scrutiny from traditional credit-rating agencies. However, the perceived risk of Portuguese issuers has increasingly decoupled from their formal credit ratings. This divergence has been appealing to yield-seeking investors who are willing to take on additional risk in exchange for higher returns. These investors are often searching for investment opportunities that offer better yields compared to those in more stable, highly-rated economies.

The attractiveness of Portuguese investments can be attributed to several factors. First, the country's economic fundamentals have shown signs of improvement, with GDP growth, increased exports, and a recovering job market. Second, the government has implemented structural reforms and fiscal policies aimed at stabilizing the economy and improving investor confidence. Third, Portugal's strategic location and membership in the European Union provide additional security and opportunities for investors.

Our study focusses on the Portuguese Stock Market, a public financial market that has been developing in the last 30 years, but rather unstudied. To our knowledge ours is the first study

relating the quality of earnings reported by firms listed in Portuguese Stock Index (PSI) and their value.

There are other compelling reasons to study firms listed in the Portuguese Stock Index, the most important index of the Euronext Lisbon formed in 2002, which, in turn, is part of Euronext pan-European exchange. Euronext Lisbon joined the new NYSE Euronext Group, the largest exchange in the world, resulting from the merger of Euronext and the New York Stock Exchange (NYSE). In June 2014, Euronext became again a standalone company, on the back of a successful initial public offering (IPO). These specificities of the benchmark stock index and the significant turnover of listed and delisted companies in PSI mainly due to free float, market capitalization and liquidity requirements constitute a fertile ground for research. Is the association between earnings quality and firm performance for PSI listed companies similar to what has been found for more developed markets? As the theory does not provide a clear-cut answer, this a question requiring an empirical analysis.

To conduct an empirical analysis encompassing the main events of the Portuguese stock market, we build a panel data set spanning 1987 to 2016, a 30-year period ending before negative interest rates changed the landscape in financial markets. By analyzing such a long period, we are able to single out 46 non-financial firms ever listed in the Portuguese Stock Index (PSI) during the period of analysis. These firms are the largest Portuguese companies in terms of market value and represent the ones for which entrenched managers have the most incentives to manipulate reported results, at the expense of earnings quality. At the same time these 46 firms are or were at a certain period subject to heightened scrutiny from investors and supervisors, which might have limited the manipulation of results.

We test whether the valuation of PSI listed companies is linked with earnings quality as proxied by the factors used in extant studies (accrual quality, persistence, predictability, smoothness, conservatism), alongside value relevance (Schipper, 1989; Barth *et al*., 2001; Tucker *et al*., 2006) and timeliness (Francis *et al*., 2004). Our findings document a statistically significant association between firm value and persistence. Contrary to studies on other markets, the attributes of accrual quality, predictability, smoothness or conservatism do not yield significant results. The limited market size and sophistication might mean that advanced accounting attributes are less influential on investment decisions. Additionally, the types of investors active in the Portuguese market may not prioritize or fully understand these attributes, leading to their diminished significance.

The rest of the paper is organized as follows. We develop our hypotheses in section 2. Section 3 describes the methodology and the variables. Section 4 discusses the empirical results and section 5 concludes.

2. Brief literature review

"Earnings management and earnings quality are central topics in theoretical and empirical research in accounting" (Beyer *et al.*, 2019: p. 77). However, firms can modify their accounting information to attract investment and to signal the attainment of an optimal level of reported earnings (Levitt, 1998; Prior *et al*., 2008; Ahmad *et al*., 2013; Di Meo *et al*., 2017). Even in heavily regulated industries, managers still have discretion to report earnings, using judgmental criteria which can mislead the stakeholders of the firm and hinder comparability across firms (Healy and Wahlen, 1999; Bushman and Smith, 2001; Dechow *et al*., 2010). In a similar vein, a highly cited

paper by Graham and Harvey (2005)[1] presents interview evidence that U.S. CFOs believe "every company manages earnings", even within GAAP and excluding fraudulent goals, to produce smooth, attainable earnings every year.

The most cited paper on earnings management is "Earnings Management: Reconciling the Views of Accounting Academics, Practitioners, and Regulators" by Patricia M. Dechow, Richard G. Sloan, and Amy P. Sweeney, published in 1995. Dechow et al. (1995) established a comprehensive framework that has paved the way for research on earnings management, bridging theoretical insights with practical implications for financial management decisions, investor perceptions, accounting practices, and regulatory policies. Dechow *et al*. (1995) is thus recognized as a seminal paper for its significant impact on the study of earnings management.

Most research focuses on the U.S. and other highly developed economies and financial centers. For example, Dye and Verrechia (1995) analyze managers opportunistic discretion in GAAP accounting policies; Francis and Krishnan (2010) analyze reports of high-accrual firms in the U.S.; while Gaio et al. (2022) examine the association between earnings management and CSR for European firms in 16 countries. However, the studies on emerging economies are gaining traction as documented by Ahmad *et al*. (2023). Namely, Ahmed et al. (2014) analyze the discretion of loan loss provisions and earnings management in Nigeria; Ozili (2017) examine African banks; Bansal and Kumar (2021) analyze earnings management strategies for Indian firms; Hung et al. (2020) investigate the impact level of earnings quality on firm value for listed firms on Vietnam

[1] Graham and Harvey (2005) surveyed more than 40 financial executives, and conducted detailed interviews with an additional 20, to analyze the key factors that drive decisions on reported earnings and voluntary disclosure.

Stock Exchange.

Although earnings quality is impacted by the manipulation of results, this manipulation can be detrimental of firms' value or not, as posited by Di Meo *et al*. (2017). On one hand, numerous studies suggest that earnings manipulation by entrenched managers for personal gain can harm firm value (Claessens *et* al., 2002; Gompers *et al*., 2010). This practice might mislead investors about the firm's true performance. On the contrary, earnings management might be used to highlight the firm's positive prospects, lessening the pressure for short-term results and potentially not harming long-term firm value (Zhao *et al*., 2012; Rigamonti *et al*., 2024)). These perspectives are supported by agency theory (Jensen and Meckling, 1976).

The burgeoning literature has come up with a number of factors that stand out in explaining the association of earnings quality with firm value. Earnings quality has been proxied by a number of features, claiming that high quality earnings should:

- limit the dependence on the use of accruals (Dechow *et al.*, 1995; Kothari *et al.*, 2005);
- show persistence, such that they become a good predictor for sustainable long-term earnings (Penman and Zhang, 2002; Dechow and Schrand, 2004; Melumad and Nissim, 2009);
- be a good predictor of future earnings (Schipper and Vincent, 2003) and be consistent with the nature of past, current and future Operating Cash Flows (Sloan, 1996; Dechow and Dichev, 2002);
- show smooth changes over time (Francis *et al*., 2004; Dechow and Schrand, 2004);

- be determined conservatively, both in the choice of accounting rules and in its application (Watts, 2003a, 2003b) not requiring the use of extraordinary or other non-recurring items (Dechow and Schrand, 2004; McVay, 2006).

3. Developing the testable hypotheses

Earnings are a fundamental part of financial information as they constitute the bottom line of the profit and loss statement and convey information on financial performance (Ahmad *et al*., 2023). The concept of earnings quality has been used in the accounting and finance literature with different interpretations, but researchers concur that it stems from efforts taken by managers to alter financial reports to mislead some stakeholders and influence outcomes based on reported accounting numbers (Healy and Wahlen, 1999; Ahmad *et al*., 2023).

From an investors' stand point, earnings are useful if they are able to reflect the firm's financial and economic position (Dechow and Schrand, 2004; Dechow *et al*., 2010). Reported earnings able to report in an accurate and unbiased manner the operating and financial position of the firm are of high quality.

On the other hand, if earnings are able to persist in the forthcoming periods, their quality is high as well (Richardson *et al*., 2005). The impact of higher quality earnings can be seen on many levels: in the ability to correctly allocate capital and mitigating information risk, lowering the cost of capital of the firm. Moreover, as Bushman and Smith (2001) posit, accounting information is important in order to allow the identification of investment opportunities, being useful as an instrument of internal control and to mitigate the asymmetries of information between managers and investors.

In light of these aspects, Dichev *et al*. (2013) in a survey of 169 CFOs showed that the most relevant features of reported earnings are: (i) sustainability and consistency, reflecting long term trends; (ii) exemption from the impact of extraordinary items and other one-off adjustments; (iii) accuracy in depicting the firm's economic and financial reality.

In addition to these perspectives, theoretical models such as those proposed by Easley and O'Hara (2004) and Leuz and Verrechia (2004) highlight the role of information risk as a non-diversifiable risk category. These models underscore the significance of information transparency and quality in mitigating risk and enhancing investor confidence, thereby influencing firm valuation. In fact, as Francis *et al*. (2004) show, higher quality earnings contribute to a reduction of the cost of capital and Bhattacharya *et al*. (2003) document that an increase in earnings opacity leads to an increase in the cost of capital. With respect to firm valuation Bitner and Dolan (1996) highlight that particular features of earnings (as smoothness) are associated with higher valuation (as measured by Tobin's Q).

In addition to the potential for a lower cost of capital, Rigamonti *et al.* (2024) assert that the reduction of information asymmetry between insiders (managers) and outsiders (investors) plays a pivotal role in bolstering stakeholder confidence in the firm. This leads to higher present value of future cash flows, as they are discounted at a lower opportunity cost of capital, and ultimately to a higher firm value.

Thus, we hypothesize:

H 1a, b, c, d, e, f, g: there is a positive association between high quality earnings - (a) accrual quality; (b) persistence; (c) predictability; (d) smoothness; (e) Timeliness; (f) Conservatism; (g) Value Relevance – and firm value for PSI listed companies.

The intuition behind these hypotheses is:

Accrual Quality (H1a): High accrual quality indicates that earnings are more reflective of the firm's actual financial performance, reducing information asymmetry and increasing investor confidence, thus positively impacting firm value.

Earnings Persistence (H1b): Persistent earnings suggest stability and predictability in a firm's performance, making the firm more attractive to investors who value consistent returns, thereby increasing firm value.

Earnings Predictability (H1c): Predictable earnings allow investors to make more accurate forecasts about a firm's future performance, reducing uncertainty and perceived risk, which can lead to a higher firm value.

Earnings Smoothness (H1d): Smooth earnings reduce the perception of risk by indicating that a firm's performance is stable and less volatile. This can attract risk-averse investors, enhancing firm value.

Earnings Timeliness (H1e): Timely earnings provide up-to-date information that helps investors make more informed decisions, potentially leading to better investment choices and higher firm value.

Earnings Conservatism (H1f): Conservative earnings reflect a cautious approach to recognizing profits and losses, which can protect against future negative surprises and enhance investor trust, positively impacting firm value.

Value Relevance (H1g): Earnings that are highly relevant to the firm's stock price provide useful information for valuation, aiding investors in making better investment decisions, which can increase firm value.

Overall, we anticipate that these high-quality earnings attributes improve transparency, reduce uncertainty, and build investor confidence, all of which contribute to higher firm value.

4. Data, method and variables

4.1 Data

We obtained accounting and the yearly financial data on companies listed in the Portuguese Stock Index from Refinitiv, Worldscope, spanning 30 years (1987 to 2016). We consider all non-financial firms that traded on Euronext Lisbon, the main stock exchange of Portugal, during the period of analysis.

Our sample encompasses 46 non-financial firms from various sectors of activity, with a total of 938 firm/year observations. We exclude financial firms, because they use different accounting standards and are subject to specific regulatory requirements and supervision. Specifically, financial firms often follow distinct accounting rules, particularly in areas like revenue recognition, asset valuation, and risk management. These differences can make it challenging to compare their earnings quality with that of non-financial firms. In terms of regulatory requirements, financial institutions are subject to stringent regulatory oversight and reporting requirements from entities like central banks and financial regulatory authorities. These regulations can influence their financial reporting practices, potentially leading to disparities in earnings attributes. By excluding financial firms, the study aims to maintain consistency and comparability in the analysis of earnings attributes and their impact on firm value, ensuring that the results are not skewed by the unique accounting and regulatory environment of the financial sector.

4.2 Method

We use Tobin's q as a proxy of firm valuation. Tobin's q measures market valuation premia over the replacement value of assets. We calculate this measure as it is common in the literature: the ratio of market value of assets to their replacement value (see for example Linderberg and Ross (1981) for an early reference or Gulamhussen *et al.* (2017) for a more recent one).

We calculate the earnings measures over firm-specific seven-year rolling windows. This firm-year specific technique ensures more reliable measures for non-stationary time-series data, avoiding overfitting.

$$Tobin's\ q_{i,t} = b_0 + b_1 Earnings\ quality_{i,t} + b_2 Firm\ characteristics_{i,t} + b_3 Z_{i,t} + \varepsilon_{i,t} \quad (1)$$

In our model, *i* represents a firm and *t* represents a year; Tobin's q is the valuation measure; Earnings quality corresponds to a specific or a set of earnings attribute measures; firm characteristics are firm-level control variables; Z comprises a set of unobserved variables represented by dummy variables (industry and year); and ε is the error term.

4.3 Variables

4.3.1 Independent variable

We use Tobin's q as a proxy for firm valuation, along the lines of corporate finance literature. Tobin's q is based on the concepts of market value of the firm and replacement cost of its assets. Tobin's q is a widely recognized measure of firm valuation because it captures the market's assessment of the firm's growth potential and profitability relative to the cost of replicating its assets. A Tobin's q greater than 1 indicates that the market values the firm's assets

more than their replacement cost, suggesting that the firm has profitable investment opportunities or competitive advantages. Conversely, a Tobin's q less than 1 implies that the market values the firm's assets less than their replacement cost, potentially indicating undervaluation or inefficiencies.

In our study, Tobin's q serves as a crucial measure to analyze the impact of earnings quality attributes on firm value. By examining the relationship between high-quality earnings (such as accrual quality, persistence, predictability, smoothness, timeliness, conservatism, and value relevance) and Tobin's q, we can gain insights into how these attributes contribute to the market's valuation of the firm. This approach allows us to understand the broader implications of earnings quality on investor perceptions and firm valuation in the Portuguese stock market.

4.3.2 Independent variables

Along the lines of Dechow and Dichev (2002), Francis *et al*. (2004) and Dechow *et al*. (2010) we gauge the quality of a firm's earnings using both accounting-based measures (accruals quality, persistence) and market-based measures (predictability, smoothness, timeliness, conservatism, value relevance). The market-based measures capture the investors' perception of earnings uncertainty as expressed in market returns, and also reflect investors' sentiment and market dynamics.

4.3.2.1 Accrual Quality

We use the measure proposed originally by Dechow and Dichev (2002), regressing the total current accruals (scaled by total assets at the beginning of the year) on past, current and future operating cash flows (also scaled by total assets at the beginning of the period relative to the total current accruals).

$$\frac{TCA_{j,t}}{Asset_{j,t-1}} = \alpha_0 + \alpha_1 \frac{CFO_{j,t-1}}{Asset_{j,t-1}} + \alpha_2 \frac{CFO_{j,t}}{Asset_{j,t-1}} + \alpha_3 \frac{CFO_{j,t+1}}{Asset_{j,t-1}} + \varepsilon_{j,t} \quad (2)$$

Accrual quality corresponds to the standard deviation of firm *j*'s estimated residuals. A large (small) value of this measure corresponds to a poor (good) accrual quality.

4.3.2.2 Persistence

To represent persistence, we regress current earnings (net income before extraordinary items, scaled by total assets in the beginning of the year) on current earnings of the previous period.

$$\frac{NIBE_{j,t}}{Asset_{j,t-1}} = \beta_0 + \beta_1 \frac{NIBE_{j,t-1}}{Asset_{j,t-1}} + \vartheta_{j,t} \quad (3)$$

Persistence is the slope coefficient β_1 of this regression. A higher (lower) value corresponds to more (less) sustainable, and therefore represents higher (lower) quality earnings.

4.3.2.3 Predictability

This is a desirable feature of earnings from the point of view of investors, as it refers to the ability to forecast or anticipate future outcomes with a reasonable degree of accuracy.

Predictability is measured using equation (3), but computing the square root of the error variance. Higher (lower) values indicate a lower (better) ability of current earnings to predict future values and therefore represent lower (higher) earnings quality.

4.3.2.4 Smoothness

The variability of earnings is often regarded as undesirable, i.e. smoother earnings might be preferable to investors. To measure smoothness, Leuz *et al.* (2003) propose the ratio of variability of Net Income Before Extraordinary Items (NIBE) to the variability of operating cash flows

Higher (lower) values for this measure reveal a greater (smaller) variability of earnings relative to cash flows and, therefore, lower (higher) quality earnings.

$$\sigma\left(\frac{NIBE_{j,t}}{Assets_{j,t-1}}\right) \Bigg/ \sigma\left(\frac{CFO_{j,t}}{Assets_{j,t-1}}\right) \tag{4}$$

4.3.2.5 Timeliness

This measure accounts for changes in economic value, based on changes in the market value of equity. We regress earnings on returns:

$$\frac{NIBE_{j,t}}{Assets_{j,t-1}} = \varphi_0 + \varphi_1 NEG_{j,t} + \varphi_2 RET_{j,t} + \varphi_3 NEG_{j,t} \cdot RET_{j,t} + \eta_{j,t} \tag{5}$$

NEG corresponds is a dummy variable taking the value of 1 if the firm presents negative returns and zero otherwise. Timeliness is proxied by the explanatory power of this regression, as

measured by its determination coefficient. Therefore, higher (lower) values of R-squared are associated with higher (lower) quality earnings.

4.3.2.6 Conservatism

This measure captures the balance between charging economic gains and economic losses into earnings. We use Basu (1987)'s measure of conservatism: the ratio of the slope coefficient of negative returns to the slope coefficient of positive returns (φ_2).

Higher (lower) values for this measure reveals more (less) conservatism in earnings reporting and, therefore, higher (lower) quality earnings.

4.3.2.7 Value relevance

We use the measure proposed by Francis and Schipper (1999), by regressing returns (measured as firm *j*'s 15-month return ending 3 months after the end of the period) on current earnings (scaled by total assets at the beginning of the year) and the current variation of earnings (also scaled by total assets).

$$RET_{j,t} = \gamma_0 + \gamma_1 \frac{NIBE_{j,t}}{Assets_{j,t-1}} + \gamma_2 \frac{\Delta NIBE_{j,t}}{Assets_{j,t-1}} + \mu_{j,t} \quad (6)$$

Higher (lower) values of the regression R-squared correspond to a higher (lower) ability of earnings and earnings variation to explain current rates of return and, therefore, are associated with higher (lower) quality earnings.

4.3.2.8 Firm-level characteristics

These controls encompass firm size, financial leverage, growth opportunities, investment opportunities, insider ownership and holdings.

Firm size is represented by the logarithm of total assets. We expect this variable to be negatively related to firm valuation as smaller firms will tend to have higher growth opportunities, which is positively associated with valuation. Capital structure proxied by financial leverage is a fundamental concept in corporate finance. Growth rate of sales is a proxy for growth opportunities, which should be positively related to firm value. CAPEX scaled by total assets is a proxy for investment opportunities. We expect growth opportunities to be positively related to firm value.

Agency problems are represented by insider control (the ratio of shares held by insiders to total shares) and financial leverage. Insider ownership is related to firm valuation either positively by the fact that the interests of the stakeholders are more easily aligned or negatively as it may increase management entrenchment (Gaio and Raposo, 2011).

In Table I, we describe our variables. Accrual quality presents mean and median values lower than one (0.0270 and 0,0198, respectively) suggesting that on average the listed company's reported earnings are predominantly driven by cash flows rather than accruals. This may suggest a lower level of earnings management through accruals, which can be perceived positively by investors and stakeholders. Persistence is negative (mean: -0.3075; median: -0,2909) which might indicate a lack of stability in the company's earnings over time. This low degree of persistence is possibly driven by the minimum of -1.6961 attained during the 30-year of analysis. The high coefficient of variation (-1.3971) suggests considerable variability or dispersion in the data relative to the mean. The low values of predictability in earnings (mean: 0.0352; median: 0.0249)

corroborate the limited ability to forecast earnings based on historic data. The average firm in our sample has ca. 500 M€ of total assets and a leverage ratio of 0.38.

5. Estimation

5.1 Baseline specification

Table II summarizes the regression results. We enter the earning attributes alternatively as some of them are correlated and we intend to unveil their relevance in explaining the variance of firm value. Accrual quality stands out with the largest marginal effect (3.0478) with a significance at 1% level. This result underscores the importance of considering accrual quality in financial analysis and decision-making. It suggests that for each unit increase in accrual quality, there is a substantial corresponding change in firm value. Accrual quality refers to the reliability and relevance of accruals in financial reporting, denoting the dependability and pertinence of accruals within earnings reporting. The predictive power of accrual quality accords with extant studies for more developed economies and more complex outputs (see, for example, Aubert *et al.*, 2019; Jiang *et al.*, 2022). Although CFOs might not agree on the use of accruals, as documented on an extensive survey by Graham and Harvey (2005), financial scandals might have alerted investors to the importance of accrual quality, exposing how manipulation of financial statements through accruals can mislead investors and stakeholders about a company's true financial health.

The second most important explanatory variable among those considered in our analysis is Predictability (1.1568) but with a moderate significance at the 5% level. Predictability refers to the ability to forecast future financial performance based on historical data specifically from the

Portuguese Stock Index. Market predictability has featured a number of contexts, since the seminal model of Fama and French (1993) and more recent techniques for estimating market returns (Balashov *et al.*, 2019; Diallo *et al.*, 2019). The significance of Predictability for PSI-listed companies provides empirical evidence of a preference for a stable investment environment and reduced financial uncertainties, ultimately contributing to the companies' success and market attractiveness

The descriptive statistics of Persistence, characterized by a high and negative coefficient of variation, raise questions about the interpretation of the estimated coefficient (-0.1480), which is significant at the 1% level. Nonetheless, we do not dismiss its relevance in elucidating firm value for PSI listed firms, as in other contexts extant studies have pointed out while documenting surprises in earnings announcements (Lento *et al*., 2015). Persistence translates into earnings more robust to fluctuations or one-off events. This is even more so for long-term investors.

Smoothness is positively associated with firm value (0.1354) at the 1% significance level documenting the importance of smooth performance in enhancing firm value. Duarte *et al*. (2022) document the ability of earnings smoothness to predict financial performance for Portuguese SMEs.

The other market-based attributes of earnings quality – Timeliness, Conservatism, Value relevance – do not appear statistically significant. These findings suggest that these forward-looking attributes may not have a discernible impact on the variable of interest within the context of the Portuguese Stock Index, considering a long period of analysis (30 years). Although the index encompasses 20 companies at the most, there have been exits and entries since the inception of PSI, and the Portuguese economy endured changes along this path.

As for the firm-level variables, as expected leverage loads positively at the 1% significance level (models (2), (3), (5)-(7)) and at the 5% significance level in models (1) and (4). CAPEX to assets is positively associated with firm value at the 1% significance level.

5.2 Robustness tests

In unreported runs available from the authors upon request to save space, we split the sample in two periods considering that on November 2017 the Portuguese stock market was reclassified as developed by Standard and Poor's and Morgan Stanley Capital Investment (MSCI). This recognition was based on the positive evolution of a number of criteria: size of the economy, market and regulatory environment, custody and settlement practices, dealing landscape, market size and a developed derivatives market. Portugal's economy has grown and diversified over the years, becoming more resilient and attractive to investors. In a similar vein, reforms and improvements were made to enhance transparency, investor protection, and market efficiency. The implications of the reclassification for Portugal's investment landscape were threefold: (i) increased visibility and access to global investors; (ii) additional inflows of foreign capital, and (iii) the country's better positioning within international indices.

Our results from 2017 onwards confirm the previous ones, suggesting that the Portuguese listed companies exhibit a similar stance in terms of earnings quality for a more recent period of time, without loss of explaining power of models (1) to (7). The only exception is Predictability which loses its statistically significance in the 1997-2016 period.

6. Conclusions

The relevance of earnings quality in reducing risk and promoting the confidence of the firm's stakeholders has attracted the attention of researchers. Researchers have increasingly recognized its pivotal role in fostering the development of financial markets (Dang *et al*., 2020). Earnings quality not only serves as a measure of financial health but also plays a crucial role in shaping investor perceptions, facilitating informed decision-making, and promoting sound management practices.

The concept of firm value stands at the core of financial management. While existing research has explored the connection between earnings quality and firm value, our study pioneers a fresh perspective. By concentrating on listed companies within the Portuguese Stock Index our study represents a pioneering endeavor. As far as our knowledge extends, it stands as the inaugural analysis of its kind, encompassing a robust 30-year span.

We represent the quality of earnings by measures adopted in past studies: Accrual Quality, Persistence, Predictability, Smoothness, Timeliness and Conservatism, Value Relevance.

Our findings document the influence of Accrual Quality, Predictability and Smoothness on firm value, controlling for the sector of activity and entering time fixed effects. High quality accruals instill confidence in investors and firm stakeholders at large to more accurately assess the performance of the firm, thus reducing information asymmetries. Predictability within the context of the Portuguese Stock Index, being found to be positively associated with firm value, enables investors to make more informed decisions fostering the growth potential of the firm and, ultimately, impacting positively its value. The consistency and stability of a firm's performance

and efficient management practices, as captured by smoothness, also exerts a significant influence on firm value.

Our endeavor to delve into the intricacies of earnings quality serves as a crucial guidepost for strategic decision-makers navigating the dynamic landscape of the Portuguese Stock Index. By shedding light on the nuanced interplay between earnings quality and firm value within this specific market context, our research equips stakeholders with actionable insights to optimize resource allocation, mitigate risks, and enhance overall performance. By uncovering the drivers of earnings quality and their impact on firm value, our study lays the groundwork for informed policy interventions and regulatory reforms aimed at fortifying the integrity and resilience of the Portuguese capital market.

Furthermore, our paper paves the way for future inquiry by identifying promising avenues for research exploration. While our focus primarily rests on listed Portuguese firms due to data availability and the prevailing analytical framework, there exists a rich terrain of inquiry beyond the confines of public markets. Researchers are encouraged to investigate the applicability of our model to private enterprises of varying sizes, thereby broadening the scope of empirical inquiry and enriching our understanding of earnings quality dynamics across diverse organizational contexts.

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Table I - Descriptive Statistics

The sample period spans 1987 to 2016. All variables were estimated using seven-year rolling windows.

	Mean	Median	Standard Deviation	Coefficient of variation	Min	Max	N
Dependent variable							
Tobin's Q (Qm)	1.1391	1.0352	0.4386	0,3850	0.4911	4.5496	862
Earnings attributes							
Accrual Quality (AQ)	0.0270	0.0198	0.0231	0.8556	0.0001	0.1187	509
Persistence (PS)	-0.3075	-0.2909	0.4296	-1.3971	-1.6961	1.1902	609
Predictability (PD)	0.0352	0.0249	0.0333	0.9460	0.0012	0.2353	609
Smoothness (SM)	0.5096	0.4417	0.3210	0.6299	0.0219	1.6422	588
Timeliness (T)	-0.5175	-0.5083	0.2659	-0.5138	-0.9963	-0.0058	511
Conservatism (C)	2.5056	-0.5766	101.6290	40.5607	-338.8650	2149.3602	498
Value relevance (VR)	-0.3801	-0.3327	0.2468	0.6493	-0.9633	-0.0010	511
Firm controls							
Size (LnA)	13.0642	12.9123	1.7317	0.1326	8.9963	17.5809	938
Assets Growth Rate (GrS)	0.0557	0.0528	0.2421	4.3465	-1.4505	1.1737	881
CAPEX/Assets (CA)	0.0417	0.0301	0.0426	1.0216	-0.0011	0.2086	923
Insider Ownership (PIS)	0.4358	0.5216	0.3452	0.7921	0.0000	1.0000	930
Leverage Ratio (Lev)	0.3806	0.3680	0.1813	0.4764	0.0000	1.0163	929

Table II - Determinants of earnings quality

We regress firm value proxied by Tobin's Q on earnings quality indicators (accrual quality, persistence predictability, smoothness, timeliness, conservatism and value relevance), entering firm controls (logarithm of assets, leverage ratio, growth of sales, insider shares, CAPEX to assets and a SGPS dummy). We enter year and industry fixed effects.

Dependent: Firm value	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Accrual quality	3.0478						
	(0.001)						
Persistence		-0.1480					
		(0.000)					
Predictability			1.1568				
			(0.026)				
Smoothness				0.1354			
				(0.005)			
Timeliness					-0.0103		
					(0.857)		
Conservatism						0.0000	
						(0.813)	
Value relevance							0.0267
							(0.660)
Logarithm of assets	0.0117	-0.0388	0.0099	-0.0201	-0.0085	-0.0081	-0.0094
	(0.536)	(0.019)	(0.528)	(0.241)	(0.650)	(0.662)	(0.617)
Leverage ratio	0.0024	0.0033	0.0031	0.0024	0.0036	0.0035	0.0036
	(0.022)	(0.000)	(0.000)	(0.015)	(0.000)	(0.001)	(0.000)
Growth of sales	0.0487	0.0695	0.0579	0.0566	0.0575	0.0504	0.0584
	(0.484)	(0.240)	(0.287)	(0.365)	(0.399)	(0.465)	(0.392)
Prop. Insider Shares	0.0276	0.0355	-0.0406	0.0112	-0.0123	-0.0106	-0.0100
	(0.629)	(0.476)	(0.378)	(0.829)	(0.827)	(0.853)	(0.854)
CAPEX to Assets	2.5646	2.2996	1.9348	2.3457	2.2268	2.2439	2.2334
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
SGPS dummy	-0.0483	0.0258	-0.0774	0.0035	-0.0430	-0.0521	-0.0400
	(0.364)	(0.588)	(0.080)	(0.945)	(0.043)	(0.350)	(0.431)
Intercept	0.5218	1.0800	0.6186	0.8446	0.8467	0.8654	0.8690
	(0.056)	(0.000)	(0.007)	(0.001)	(0.003)	(0.002)	(0.002)
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R-square (%)	38.7	33.0	39.4	37.5	36.0	36.0	36.0

P-values are in parentheses.