

COMPANY-SPECIFIC FINANCIAL AND CORPORATE GOVERNANCE FACTORS AFFECTING THE QUALITY OF EARNINGS: EMPIRICAL STUDY ON THE SPANISH STOCK MARKET

Elen Sargsyan *, Lena A. Seissian **

* Manoogian Simone College of Business and Economics, American University of Armenia, Yerevan, Armenia

** Corresponding author, Manoogian Simone College of Business and Economics, American University of Armenia, Yerevan, Armenia
Contact details: Manoogian Simone College of Business and Economics, American University of Armenia,
40A Marshal Baghramyan Ave., Yerevan 0019, Armenia



Abstract

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The concept of earnings quality has been widely analyzed after several cases of companies reporting false earnings and experiencing dramatic collapses. Hence, the need for stakeholders to be knowledgeable about the current situation and future prospects of the companies they are involved with. To aid the system, this paper aims to find company-specific financial and corporate governance factors that can act as determinants of the quality of earnings. The researchers took a sample of the companies listed in the Spanish stock market under IBEX 35 over the period 2017–2021. To test the hypotheses, panel, and cross-sectional regressions were run on Stata with the different quality of earnings measured as the dependent variables. The results showed that a company's earnings age and earnings growth positively impact earnings quality, while its performance and liquidity have a negative impact. Company size can have positive or negative effects based on the chosen quality of earnings measure. Moreover, the different measures of earnings quality reacted differently to independent variables.

Keywords: Earnings Management, Earnings Quality, Earnings Quality Ratio, Accrual Quality, Earnings Persistence, Company-Specific Factors, Spain

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1. INTRODUCTION

Lately, researchers have started to pay close attention to how truly a company's financial statement reflects its earnings. Having several examples of manipulated earnings and horrible consequences, the true essence of a company's

profits has become more critical. Companies such as Enron, WorldCom, and Xerox are perfect examples of using manipulative techniques to deviate the financial results to prevent the public from seeing the companies' actual states, resulting in catastrophic consequences.

By many, the case of Enron is considered a textbook for fraudulently reported earnings. In 2001, its fraudulent activities started to come to light. The company culture of financial success at any cost incentivized the managers to manipulate the reported earnings. The Enron case became a lesson for other companies highlighting the drawbacks of valuing short-term financial gain over long-term sustainability and ethical behavior. The Enron case proves that although earnings management can have some short-term benefits, such as inflated earnings, higher stock price, higher compensation for employees, etc., it is not sustainable and will result in significant damage when it comes to light.

The reason behind these catastrophic failures was summarized in a phenomenon described called “earnings management”. Despite being deeply analyzed, an exact definition of earning management is yet to be agreed upon. According to Davidson et al. (1987), earning management occurs through taking extensive steps within the Generally Accepted Accounting Principles (GAAP) and International Financial Reporting Standards (IFRS) to report the desired earnings levels. Schipper (1989) defines earnings management as a purposeful attempt to influence the external financial reporting process for personal benefits. The definition can be extended to include actual earnings management, which is achieved by timing financing decisions or investments to change the reported results. Later on, Healy and Wahlen (1999) extended the definition explaining it by the use of personal judgment in financial reporting and accounting transactions to deteriorate the financial reports to either deceive some stakeholders about the actual financial state of the company or to influence the contractual outcomes which are based on the reported accounting factors.

Two approaches exist to explain the reasons behind their actions, the opportunistic perspective which suggests that managers desire to deceive stakeholders for personal gain and the information perspective which indicates that earnings management is a tool for managers to show the stakeholders their forecasts of the company's future operations. The company managers usually have incentives to carry out earnings management such as keeping their employment, getting short-term bonuses, having a value gain on their stocks earned through being compensated by stocks, etc. (Easterwood, 1998; Guidry et al., 1999; Cheng & Warfield, 2005).

Due to such activities, all stakeholders, such as investors, creditors, competitors, employees, etc., suffer. Thus, it is essential to assess to what extent the reported earnings show reality to make reasonable conclusions. The term “quality of earnings” describes the degree to which the net profit reported on a company's financial statements provides an accurate and fair view of the company's performance during that period (Srivastava, 2014). Good indicators of earnings quality may prevent fraud from growing extensively and reduce the damage caused to the involved parties (Benston & Hartgraves, 2002). The meaning of quality of earnings is different for different stakeholders. Thus, it is crucial to put it in a particular context (Dechow & Schrand, 2004).

Currently, numerous measures of earnings quality exist. However, the most popular are the earnings quality ratio, accrual quality, and earnings persistence (Dechow et al., 2010; Bergevin et al., 2018). However, all of them have limitations as they are not company-specific. There is no set standard of good earnings quality as it dramatically differs between industries and companies within the same industry. Thus, the field for research for additional company-specific factors affecting the quality of earnings is still open.

The above-discussed literature raises the following research questions:

RQ1: What company-specific financial and corporate governance factors impact the quality of earnings?

RQ2: Do all the measures of earnings quality react to the same determinants, if yes, similarly?

To assist the stakeholders with judging the quality of earnings of specific companies, this paper suggests adding company-specific determinants to the line of the existing models to improve their representation of particular companies and industries. On the example of the Spanish stock market index, this paper will assess the extent of the significance of the effect of company-specific factors on the quality of earnings and improve the existing models for calculating earnings quality.

The remainder of this paper is structured as follows. Section 2 reviews the relevant literature. Section 3 presents the research methodology. Section 4 proposes the results and discusses them. Finally, Section 5 concludes the paper.

2. LITERATURE REVIEW

2.1. Overview of the Spanish stock market

With a market capitalization of 2,754,296 thousand euros, BME is one of the biggest stock markets in Europe. Although it is still smaller than Europe's other main stock markets such as Euronext and London Stock Exchange, IBEX 35 moves in line with the other markets with an average growth rate of 6.2% (BME, n.d.). During COVID-19, it was determined that the Spanish stock market was also more volatile than its European counterparts as it faced more significant losses and longer recoveries (Valero & Soto, 2020). Thus, although the Spanish market is said to be fair and transparent, the specific case of Pescanova raises doubt about the performance of the companies and opens a field for future research on the quality of earnings reported by the companies included in the Spanish stock market.

2.2. Quality of earnings

The term “quality of earnings” refers to the quality of revenue produced by the company's core operations (recurring), excluding one-time revenues (nonrecurring) from other sources (Srivastava, 2014). People generally agree that the quality of earnings problem is the same as fraudulent reporting. However, the concept of “earnings quality” is contextual. For example, regulators use it to assess the extent to which a company's financial statements conform with GAAP or IFRS; creditors

use it to assess the ease of liquidating the earnings; compensation committees assess the actual performance of the managers aside from influencing the results, stock buyers and sellers use it to assess the fair price of a stock. However, most importantly, the “quality of earnings” sheds light on a company’s actual performance, excluding the factors that could distort the overall picture (Dechow & Schrand, 2004). Good quality earnings must accurately annuitize the company’s worth, reflect current operational performance, and be a reliable predictor of future operating performance.

The topic of earnings quality has been widely analyzed. However, the quality of earnings context has undergone a massive transformation recently. If earnings quality was generally the accrual accounting method’s specific features to provide helpful information, nowadays, the quality of earnings is more linked to identifying the earnings management (Dechow et al., 2010).

A study conducted by Cheng and Warfield (2005) on stock-based compensation and stock ownership data between 1993–2000 concluded that managers with large amounts of equity incentives are likelier to sell the stocks. Thus, they often tried manipulating the reported numbers to increase their stock price artificially and were less likely to report earnings surprises. Because the manager’s wealth directly correlates with the stock’s performance, the authors concluded that high equity incentives create high incentives for earnings management. A study conducted by Easterwood (1998) on 110 companies that were a target of buyout offers between 1985–1989 shows that the managers are incentivized to manipulate the reported earnings not in case of friendly takeovers but rather in case of hostile ones, which threaten their jobs. Thus, managers carry out earnings management in order to maintain their employment.

Guidry et al. (1999) researched a large conglomerate where managers’ short-term bonuses are based solely on the company’s earnings to explain the incentives further. The study concluded that this scheme creates significant incentives for managers to conduct earnings management to increase their wealth.

Hassanpour and Ardakani (2002) conducted another research on 133 companies listed on the Tehran stock exchange for 2010–2014. They showed that the managers of companies in financial distress are more likely to manipulate the earnings quality to raise funds for the company to avoid bankruptcy and for the managers not to lose their jobs.

The essence behind earnings quality lies in two basic theories, signaling and agency theories. Advocates of signaling theory claim that the decision to engage in earnings management is to polish and fix the perspectives and expectations of the management. This is done for the management to show that they are doing a good job, for the company, to reflect better liquidity and performance to make it an attractive investment. On the other side, the agency theory takes point stressing that earnings quality is an indicator of performance being a messenger of transparency and full disclosure stating that nothing is manipulated or window dressed and the future holds prospects.

2.3. Quality of earnings: Perspectives

Many users may evaluate it differently for various purposes and are interested in different aspects of the term quality. Thus, there is no right way to measure the quality of earnings, and it is also hard to classify what is considered the good quality of earnings. Currently, two interpretations of earnings quality exist. The first one states that the quality of earnings is mainly related to the company’s performance in terms of earnings in the current year. The quality of earnings is high if the current year’s earnings can be an indicator for forecasting future earnings and operating cash flows. This view relates earnings quality to financial statements (Penman & Zhang, 2002; Lev & Thiagarajan, 1993; Dechow et al., 2003). The second perspective suggests that the quality of earnings is more closely related to the performance of a company’s stock in the market. In this case, if the changes in the company’s earnings align with the stock price, the earnings can be considered high quality (Cohen, 2003; Dechow & Dichev, 2002).

Both approaches mentioned above are theoretical, and no exact numbers can describe them. Thus, analyzers use different proxies and determinants in the earnings process to estimate the quality of a company’s earnings in the context of their interest. Such attributes to determine the quality of earnings in terms of financial statement analysis include the earnings quality ratio, persistence of earnings, accrual quality, etc. (Bergevin et al., 2018; Sloan, 1996; Dechow & Dichev, 2002; Dechow et al., 2010; Francis et al., 2004). On the contrary, the attributes for determining the quality of earnings in terms of returns on the stock are value relevance, conservatism, timeliness, etc. (Brown & Sivakumar, 2003; Penman & Zhang, 2002; Francis et al., 2004). Since this paper aims to analyze the quality of earnings for the companies listed in the Spanish stock market in its accounting aspects, the factors affecting the quality of earnings in terms of financial statement analysis are reviewed and discussed.

2.4. Quality of earnings ratio

The simplest way to assess a company’s quality of earnings is through the quality of earnings ratio (operating index). It is expressed as the cash flow ratio from operations to net income. In line with the profitability ratios, it measures the actual nature of the company’s revenues and expenses. It measures the closeness of a company’s net income and its operating cash flow. The closer they are, the higher the earnings quality, so a ratio of 1 is generally considered the perfect scenario. This measure ensures that the company does not use premature/non-existent revenue or deferred/non-existent expense recognition bringing the cash collections to the same level as net income (Bergevin et al., 2018).

Although the ratio is generally not used by researchers as a measure of earnings quality, many textbooks mention it by linking it to the quality of earnings, such as “intermediate accounting” by Warfield et al. (2020), “financial statement analysis” by Bergevin et al. (2018), and different financial accounting textbooks by Pearson. Thus, we decided

to start the analysis with the simplest method to understand the determinants of earnings quality to add more complex measures for calculating earnings quality.

2.5. Accrual quality

Although persistence is one of the most popular measures of the quality of earnings, it fails to separate the cash and accrual-basis earnings (Dechow et al., 2010). Thus, another attribute of earnings quality is accrual quality. According to the Financial Accounting Standard Board, accrual-based accounting provides fuller information and a better indication of a company's performance than cash-based accounting (IFRS, IAS 1). Accrual quality analysis is generally used to assess the accrual component of earnings quality. The accrual quality analysis measures the closeness of accrual recognition to the actual cash inflow/outflow. The closer the accrual and the cash inflow/outflow, the higher the accrual quality and, thus, earnings quality (Fairfield et al., 2003).

Different measures of accrual quality currently exist. Jones proposes calculating the accrual quality as a function of revenue growth and changes in property, plant and equipment (Jones, 1991). Dechow et al. (1995) modify the Jones' model by excluding the growth in credit sales and years identified as manipulation years. Kothari et al. (2005) calculate the accrual quality by comparing the accruals of a specific company with another operating in the same industry and having the closest return on assets (ROA).

In 1996, Sloan introduced the Sloan ratio, which will be used in this analysis. It calculates net accruals by removing the cash from operations from the net income and scales it by the average total assets to see the composition of accruals in total assets. According to this measure, a lower ratio indicates higher-quality earnings. The accepted threshold is between -10% and 10% for good-quality earnings, and if it is higher than that, there may be some accrual manipulation resulting in lower-quality earnings (Sloan, 1996). The ratio has also been used by Richardson et al. (2005), Allen et al. (2013), Dechow et al. (2008), and Asare (2019).

Dechow et al. (2010), when evaluating different proxies of accrual quality, recognize the Sloan ratio as a good measure of accruals, however highlighting the fact that the amount of accruals in comparison to net income may be different from company to company resulting in lower comparability. Thus, as the authors highlighted the company-specific determinant need for assessing the accrual quality of distinct companies, it may be helpful to integrate company-specific factors for assessing the quality of earnings in terms of accrual quality.

2.6. Earnings persistence

Earnings persistence measures the degree the current earnings persist in reoccurring in the future (Canina & Potter, 2019). It reflects the sustainability of the reported earnings, which are expected to be generated in later periods independent from any particular activity (Fatma & Hidayat, 2020). In the studies about earnings persistence, the general purpose is to increase the decision-usefulness of the reported earnings for potential investors (Dechow et al., 2010). Higher

persistence means a higher quality of earnings, as it proposes that a company implements a sustainable earnings generation process (Canina & Potter, 2019). However, Dechow et al. (2010) also highlight the limitations of calculating the persistence of earnings, as high persistence can be achieved through consistent opportunistic earnings management.

Many researchers calculate earnings quality in terms of persistence by estimating the coefficient of current earnings toward future earnings. This method of evaluating persistence has been implemented by Lev and Thiagarajan (1993), Sloan (1996), Dichow and Dichev (2002), and others. As the mentioned method represents the simplest form of predicting the persistence of earnings, many researchers tried to implement other market attributes that may significantly affect earnings persistence. For example, Lev and Thiagarajan (1993) added several industry variables such as product type, industry competition, and firm size to predict better the earnings finding a strong relationship.

2.7. Company-specific determinants of earnings quality

2.7.1. Company size

Older papers claim that firm size negatively influences the quality of earnings as larger firms would be more prone to earnings management tools to report fewer earnings because of the strict political scrutiny (Watts & Zimmerman, 1990). However, recent studies show a different approach to the relationship between company size and earnings quality, seeing the effect to be positive. Maintaining good internal control systems and having consistent and good-quality accounting reporting are associated with high costs, so bigger firms are likelier to invest in those (Ball & Foster, 1982). Larger firms usually have more consistent business operations, which results in lower estimation errors (Dechow & Dichev, 2002). Small companies generally have weaker internal control systems making them more likely to face internal control deficiencies. Furthermore, smaller firms are usually more likely to correct the reported results after the reporting period (Ashbaugh-Skaife et al., 2007; Doyle et al., 2007).

H1: Company size has a significant impact on earnings quality.

2.7.2. Company age

There is no consistent view on how a company's age affects its quality of earnings. Some researchers believe the older the company, the more experienced it gets in optimizing its revenues and expenses, making engagement in earnings management activities unnecessary (Ericson & Pakes, 1995; Khanh & Khuong, 2018). Moreover, because of their age, they would already have an established reputation and would not want to risk it if sometimes the practices were detected. On the other hand, other researchers fail to find a significant relationship between a company's age and earnings quality (Marchellina & Firnanti, 2020).

H2: Company age has a significant impact on earnings quality.

2.7.3. Growth opportunity

Growth firms, rather than value firms, are more likely to engage in earnings management practices (Jategaonkar et al., 2023; AlNajjar & Reahi-Belkaoui, 2001). However, varying opinions exist about why the incentive arises. While some researchers agree that growth companies can engage in choosing more aggressive accounting practices because of rare events such as the issuance of stocks, repurchases of shares, or mergers and acquisitions (Kothari et al., 2016; Louis, 2004), others believe the practices are more consistent as the incentives for implementing earnings management tools arise from the management's goal of hitting or beating target profits, avoiding the reporting of losses, downgrading credit scores, etc. (Bartov et al., 2002). Companies in their introduction, growth, and decline stages of their development are more likely to engage in earnings management practices rather than mature companies (Krishnan et al., 2021).

On the contrary, companies that report sustained earnings are more likely to be free of earnings management, rather than those that constantly report increasing growth (Ghosh & Moon, 2005). Moreover, Enron is a perfect example of a high-growth company engaging in earnings management tactics as, at its time, it was considered "the highest growth" company and the investors had great hopes for its performance in the future. On the other hand, Dichev and Li (2013) find no significant relationship between the rate of the company's growth and its engagement in aggressive accounting choices. Kwarbai (2019) argues with the accepted view that growth opportunities reduce earnings quality by providing empirical evidence that the effect is, in fact, the opposite, meaning that the faster the company grows, the more likely it is to provide quality information to attract more investors.

H3: Growth opportunity has a significant effect on earnings quality.

2.7.4. Leverage

Empirical evidence of the significant effect of a company's leverage on the different measures of earnings quality exists (Malmquist, 1990; Tran, 2022). As loans generally have covenants, the company's highly leveraged companies are more incentivized to manipulate the company's profit to avoid breaching the set covenants (Watts & Zimmerman, 1990). A study by DeFond and Jimbalvo (1994) found that the companies that had reported some debt covenant violations were more likely to have abnormal positive working capital accruals in the same period. Moreover, high leverage generally means higher financial risk, which further creates earnings management incentives to falsify the financial statements to boost profits to hide a company's inability to cover its maturing liabilities (Anam, 2023). Despite this string theory opposing views also exist. Researchers find an inverse relationship between the leverage of a company and the implementation of real earnings management tools, indicating that highly leveraged companies are more likely to have correct financial reporting because of the limitations posed by the creditors (Zamri et al., 2013; Eldeeb & Ramadan, 2020).

DeAngelo et al. (1994) find only a minor difference in abnormal accruals between the companies with and without debt covenants indicating no relationship between the quality of earnings.

H4: Company leverage has a significant impact on earnings quality.

2.7.5. Liquidity — Cash holdings

There is not much research on the influence of the company's liquidity on its quality of earnings, which indicates a gap in the literature. Liquidity in terms of cash holdings has a positive effect on earnings quality, as the more cash a company holds, the less likely it is to manipulate the actual earnings results. Another paper by Khuong et al. (2020) claims that although cash holdings have a significant positive relationship with real earnings management, but a significant negative one with accrual earnings management, indicating that the companies that hold more significant amounts of cash are less likely to manipulate the accrual aspect of earnings quality, but rather focus on the real earnings management through other measures. Moreover, a higher cash position allows the management to manipulate the earnings without facing difficulties meeting the maturing liabilities.

H5: Company liquidity has a significant impact on earnings quality.

2.7.6. Company performance

Varying views exist on how the company's performance affects the quality of earnings. Researchers claim that the management's incentives to manage earnings and reduce earnings quality directly correlate with the company's performance. Although the procedures can be used at good and bad times to increase or decrease income, they are more prominent when the companies are experiencing a financial downturn. The declining profits and severe fluctuations from the average profit incentivize the management to carry out extensive earnings management procedures to smooth the earnings out (Ashari et al., 1994). Moreover, as mentioned before, the management's incline toward financial fraud is positively related to the growth and negatively related to its profitability. The need for fraudulent adjustments decreases when the company is in a good financial situation (Wang, 2006). Furthermore, the decision to smooth earnings also depends on the efficiency and effectiveness of the company's operations. Managers may use earnings management procedures to cover the effect of inefficient operations and make meeting the targets easier (Healy, 1985).

H6: Company performance has a significant impact on earnings quality.

2.7.7. Corporate governance — Audit tenure

The researchers have different viewpoints regarding audit tenure's impact on earnings quality. The first group of researchers suggests that the audit tenure is positively correlated with the quality of earnings, as the time used to provide a client with auditing services results in learning the industry and company-specific factors, which make the auditor's report more accurate (Chung & Kallapur, 2003; Gates

et al., 2007). Moreover, the new auditors appointed to work with clients are more likely to alter their opinions or standard practices to maintain new client relationships and ensure future business with them (Myers et al., 2003; Davis et al., 2009). Moreover, Dechow and Dichev (2002) provide empirical proof that the earnings quality increases in line with the audit tenure. However, Gul et al. (2009) show that the difference in specialization does not necessarily depend on the audit tenure but on the knowledge about the industry, thus indicating no significant relationships between audit tenure and earnings quality.

On the other hand, researchers claim that the longer audit tenure may result in developing personal relationships with the audit client, which would, in turn, alter the quality of earnings to favor the client's wishes. Furthermore, longer audit tenure may result in a diminishing learning curve during consecutive periods. This means the auditors will be less prone to innovate or use varying strategies for analyzing the financial statements because of the overconfidence in their work in the previous periods (Johnson et al., 2002).

H7: Audit tenure has a significant impact on earnings quality.

2.7.8. Corporate governance — Independent board members

Studies suggest that corporate governance can significantly impact the quality of earnings. In particular, the number of independent board members positively affects the earnings quality as the independent members oversee the managers more efficiently, thus reducing the opportunity to engage in earnings management (Peasnell et al., 2005; Busirin et al., 2015; Chouaibi et al., 2018, etc.). However, other researchers provide empirical evidence on the companies in India that there is no relation between the number of independent board members and earnings quality. On the contrary, a study conducted by Epps and Ismail (2009) concluded that companies with 75-90% independent members report higher discretionary accruals, a starting point for low-quality earnings.

H8: Independent board members have a significant impact on earnings quality.

3. METHODOLOGY

3.1. Applied methods

This analysis employs secondary purposeful sampling panel data collected for the 22 companies listed in Bolsa de Madrid under IBEX 35 for the years 2017-2021. The analysis excludes the banking sector (6 companies) and some companies for which the sampling was inconvenient (6 companies). As the analysis requires comparisons not only between companies but also during history, panel data with five years of information extracted from the financial statements of these companies are

used. The most popular proxies of earnings quality (earnings quality ratio, accrual quality and persistence) will be calculated using the models used. Then, as the regression expressed heteroskedasticity, generalized least squares (GLS) estimation will be conducted on Stata to assess the effects of the company-specific factors on the earnings quality ratio and accrual quality. As for persistence, cross-sectional regression of the company-specific determinants in 2021 for the separately calculated earnings persistence is run.

3.2. Variables and measurements

3.2.1. Earnings quality ratio

The earnings quality ratio formula is:

$$EQ1 = \frac{\text{Cash Flow from Operations}}{\text{Net Income}} \quad (1)$$

This method has been suggested by several accounting textbook writers such as Bergevin et al. (2018) and Warfield et al. (2020). The closer the ratio to one, the better the cash flows and revenue recognition match, thus the quality of earnings is higher.

3.2.2. Accrual quality

Accrual quality aspect of earnings quality is estimated by the Sloan's (1996) ratio:

$$EQ2 = \frac{(\text{Net Income} - \text{Cash Flow from Operations})}{\text{Average Total Assets}} \quad (2)$$

As the desirable attribute for accrual quality is for the reported cash flows to reflect the actual collections it is negatively correlated with earnings quality. Thus, the lower the accrual quality the better the earnings quality (Sloan, 1996; Dechow & Dichev, 2002).

3.2.3. Earnings persistence

Persistence can be calculated by regressing the current earnings towards the future earnings.

$$\text{Earnings}_{t+1} = \alpha + \beta * \text{Earnings}_t \quad (3)$$

As persistence is considered a positive indicator for earnings quality the higher the β the higher the earnings quality. This method has been employed by several researchers such as Lev and Thiagarajan (1993), Sloan (1996), Francis et al. (2003), Dechow and Dichev (2002), Pagalung and Sudibdyo (2012).

3.2.4. Independent variables

Table 1 shows the chosen company-specific factors, their notations and the proxies used for this analysis.

Table 1. Factors, notations and proxies

<i>Factors/Determinants</i>	<i>Notation</i>	<i>Proxy</i>
Company size	<i>SIZ</i>	Logarithm of total revenues
Company age	<i>AGE</i>	The difference between the observation and the establishment dates
Growth opportunity	<i>GO</i>	The annual percentage growth rate of revenues
Leverage	<i>LEV</i>	The ratio of total liabilities over total assets
Liquidity	<i>LIQ</i>	The ratio of cash at the year-end over current liabilities
Performance	<i>PER</i>	Return on assets ratio
Audit tenure	<i>AT</i>	The term of the same public auditing firm providing services
Independent board members	<i>IBM</i>	The ratio of the number of independent board members over the total number of board members

To analyze the effects these company-specific factors have on the proxies of earnings quality, multiple regression analysis based on three separate models constructed on the hypotheses mentioned in the literature review section will be run, where n is company, t means time.

Model 1: Earnings quality ratio and company-specific determinants

$$EQ1_{n,t} = \alpha + \beta_1 SIZ + \beta_2 AGE + \beta_3 GO + \beta_4 LEV + \beta_5 LIQ + \beta_6 PER + \beta_7 AT + \beta_8 IBM + \varepsilon \quad (4)$$

Model 2: Accrual quality and company-specific determinants

$$EQ2_{n,t} = \alpha + \beta_1 SIZ + \beta_2 AGE + \beta_3 GO + \beta_4 LEV + \beta_5 LIQ + \beta_6 PER + \beta_7 AT + \beta_8 IBM + \varepsilon \quad (5)$$

Model 3: Earnings quality ratio and company-specific determinants

$$EQ3_{n,2021} = \alpha + \beta_1 SIZ + \beta_2 AGE + \beta_3 GO + \beta_4 LEV + \beta_5 LIQ + \beta_6 PER + \beta_7 AT + \beta_8 IBM + \varepsilon \quad (6)$$

4. FINDINGS AND DISCUSSION

4.1. Descriptive results

The Table 2 below shows the descriptive statistics of the chosen independent variables:

Table 2. Descriptive statistics: Independent variables

<i>Variables</i>	<i>Mean</i>	<i>Median</i>	<i>Standard deviation</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Number of observations</i>
<i>SIZ</i>	3.48	3.61	0.76	1.48	4.72	110
<i>AGE</i>	44.73	35	24.37	4	98	110
<i>GO</i>	0.08	0.02	0.06	-0.71	1.98	110
<i>LEV</i>	0.66	0.67	0.17	0.28	0.93	110
<i>LIQ</i>	0.72	0.48	0.87	0.02	5.50	110
<i>PER</i>	0.04	0.03	0.06	-0.15	0.36	110
<i>AT</i>	6.08	4	5.52	1	25	110
<i>IBM</i>	0.51	0.53	0.12	0.21	0.77	110

The mean for the company size is 3.48, indicating that the companies listed in IBEX 35 are relatively medium size. The standard deviation is quite large, considering the overall range of the values, indicating significant differences in the company sizes, indicating that the sample includes several small companies and large corporations.

The average age is 44.73 years, which shows that, on average, the chosen companies are pretty mature. The standard deviation of about 24 years and the overall range of 4 to 98 years are quite large, indicating that the differences in age between the chosen companies are quite notable, with some companies being significantly older than others.

As measured by the annual growth rate of sales, the growth opportunity has an average value of 0.08 while its standard deviation of 0.06 and the overall range of the values shows great variances between the growth opportunities of the chosen companies. The maximum value is relatively high, which may indicate that it is an outlier. However,

the whole company was kept in the analysis as such a result was recorded for only one year.

The mean leverage of the IBEX 35 companies is 0.66, indicating that the chosen companies, on average, finance 66% of their assets by debt. The standard deviation of 0.17 and the overall range of the variables show that the variability between the values is relatively high, with some companies being much more leveraged than others. This variability is expected, considering that all the companies are in different industries and have different cost structures associated with the provision of their goods/services.

The average cash ratio of 0.72, which is less than 1, indicates that, on average, the companies cannot meet their current obligations with the cash they hold. Figure 1 shows two groups of companies measured by the ratio average cash/current liabilities ratios per company. It can be seen that most of the companies need help covering their current liabilities with their cash holdings, as only 5

of them have a cash/current liabilities ratio of more than 5.

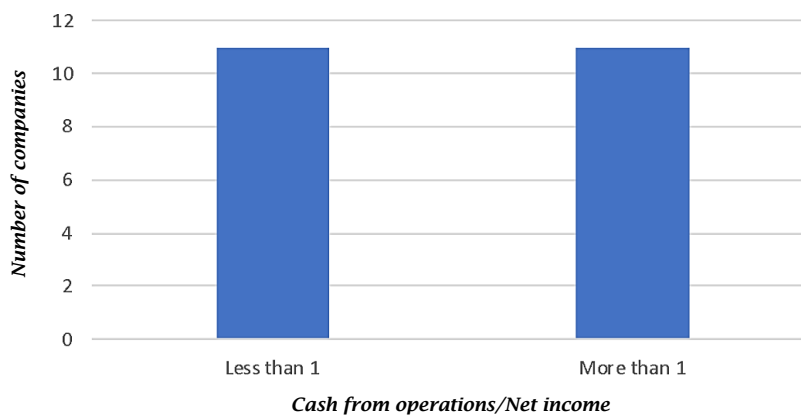
As for performance, the mean of 0.04 and the median of 0.03 indicate that the distribution is normal and the companies, on average, have a 3%-4% return on their assets. The companies have a return on assets between a negative 15% and a positive 34% during the periods discussed. The standard deviation is relatively high, indicating great variability between the companies, which is expected as all the companies come from different industries and thus have different returns.

The audit tenure shows the number of consecutive years that one audit company provided assurance services to the same company. The average value of 6.08 indicates that the companies show optimal audit rotation. As per Johnson et al. (2002), one audit company should

provide assurance services to the same company for a maximum of 8 years to avoid bias. On average, the IBEX 35 companies have 51% of their board of directors comprised of independent directors. The median of 53% is very close to the mean, which indicates a normal distribution. This follows the general standard that at least 50% of the board members should be independent (Vermeulen, 2018).

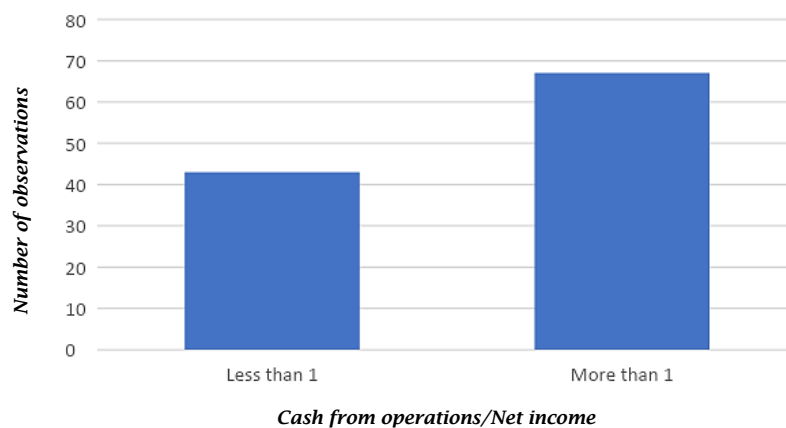
Figure 1 shows that, on average, 50% of the selected companies have high-quality earnings. However, the results are different when using the total observations to see how many of the observations meet the generally accepted standard. Most of the observations meet the set standard of the quality of earnings ratio being more than 1; thus, during most periods, the companies have shown a high quality of earnings as measured by the quality of earnings ratio (Figure 2).

Figure 1. Quality of earnings ratio by companies (compared to the general standard)



Source: Authors' elaboration using MS Excel.

Figure 2. Quality of earnings ratio by observations (compared to the general standard)

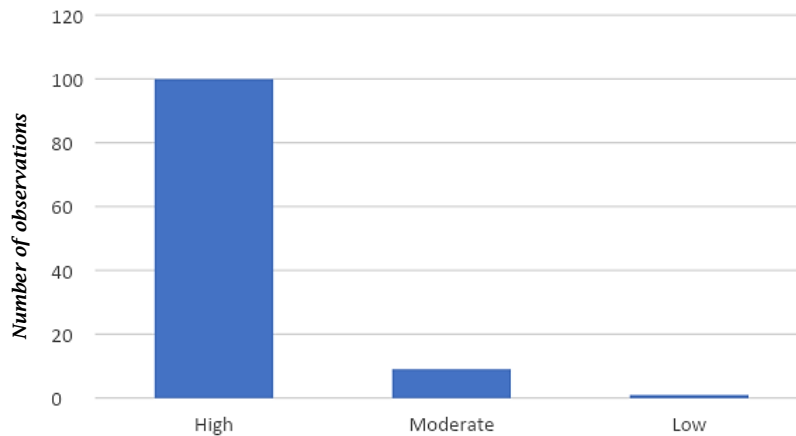


Source: Authors' elaboration using MS Excel.

As we measured the accrual quality following the Sloan (1996) method, the same standard should be used for evaluating whether the companies have high or low-quality earnings. According to Sloan (1996), companies with an accrual quality measure of between -10% and 10% are considered to have high-quality earnings, while those between -25% and -10% and 10% and 25% — moderate quality of earnings. If the accrual quality score is less than -25% or more than 25%, the quality of earnings is

considered low. Calculated by the average scores, all companies fall under the section of high-quality earnings; however, the picture looks different when analyzing total observations. Figure 3 summarizes the results and shows that over the different periods, the companies had accrual quality belonging to all three groups; however, over time, the effect of moderate and low quality of earnings was brought to a better position.

Figure 3. Accrual quality of earnings by observations



Source: Authors' elaboration using MS Excel.

Table 3. Earnings persistence: Descriptive statistics

	Mean	Median	Standard deviation	Minimum	Maximum	Observations
Persistence	0.18	0.04	1.09	-1.72	2.88	22

Persistence measures if the company's earnings persist for future periods, and a higher result indicates a stable earnings generation process. It is hard to measure whether the mean earnings persistence shows a high or low quality of earnings as persistence can be used only in comparison. Thus, the mean of earnings persistence was compared to the results the individual companies showed, which shows that 69% of the companies had earnings persistence lower than the average and 31% higher than the average. The overall range of the values and the standard deviation shows noticeable variability between the different companies.

4.2. Regression results

4.2.1. Model 1: Earnings quality ratio and company-specific determinants

To analyze the effect of the chosen determinants on the earnings quality ratio, GLS regression controlled for heteroskedasticity was used in Model 1. The choice between the fixed and random effects was made based on the Hausman test (Table 4).

Table 4. Hausman test: Earnings quality ratio and company-specific factors

hausman fixed random				
	Coefficients		(b-B)	sqrt(diag(V_b-V_B))
	(b)	(B)	(b-B)	S.E.
	fixed	random	Difference	
SIZ	-.7195325	.0817897	-.8013222	1.930697
AGE	-.3813378	.0318697	-.4132075	.3658855
GO	.1833114	.2183068	-.0349954	.0446537
LEV	4.154142	-.0472702	4.201412	7.736141
LIQ	-.8324092	-1.295723	.4633134	.4593862
PER	2.287444	7.866341	-5.578897	6.235981
AT	.1180278	-.074102	.1921298	.1351833
IBM	-.3590524	-4.053377	3.694325	8.841854

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg
 Test: Ho: difference in coefficients not systematic

$$\text{chi2}(8) = (b-B)' [(V_b-V_B)^{-1}] (b-B)$$

$$= 5.08$$
 Prob>chi2 = 0.7494

Source: Authors' elaboration using Stata.

The p-value is 0.7494 which is significantly higher than the significance level of 10%, thus we conclude that the GLS with random effects is more

appropriate. The result of the GLS regression is below:

Table 5. GLS regression results: Earnings quality ratio and company-specific factors

Random-effects GLS regression		Number of obs =		110	
Group variable: CompanyID		Number of groups =		22	
R-sq:		Obs per group:			
within = 0.0892		min =		5	
between = 0.6364		avg =		5.0	
overall = 0.2328		max =		5	
corr(u _i , X) = 0 (assumed)		Wald chi2(8) =		4127.16	
		Prob > chi2 =		0.0000	
(Std. Err. adjusted for 22 clusters in CompanyID)					
EQ1	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]
SIZ	.0817897	.4676604	0.17	0.861	-.8348077 .9983872
AGE	.0318697	.014069	2.27	0.023	.004295 .0594445
GO	.2183068	.0087495	24.95	0.000	.2011581 .2354554
LEV	-.0472702	.5754023	-0.08	0.935	-1.175038 1.080498
LIQ	-1.295723	.8561434	-1.51	0.130	-2.973733 .3822877
PER	7.866341	5.986242	1.31	0.189	-3.866477 19.59916
AT	-.074102	.0445046	-1.67	0.096	-.1613294 .0131254
IBM	-4.053377	2.85753	-1.42	0.156	-9.654033 1.547279
_cons	2.503336	2.528242	0.99	0.322	-2.451927 7.458599
sigma_u	0				
sigma_e	4.3984571				
rho	0 (fraction of variance due to u _i)				

Source: Authors' elaboration using Stata.

Overall, the model provides a good fit for estimating the earnings quality ratio regarding the chosen independent variables. The overall R-squared is 0.2328, which indicates that the independent variables explain about 23% of the variation in the dependent variable. Although the overall R-squared is relatively low, the R-squared of 0.6364 shows that the independent variables explain about 63% of the variations in the earnings quality ratio between different companies. Moreover, the Prob > Chi2 is 0, which indicates a significant relationship between the independent and dependent variables.

The GLS estimation shows that the company age has a significant positive effect on the earnings quality ratio at a significance level of 10% as the p-value of 0.057, allowing us to accept the H2.

With each year of operation, the earnings quality ratio increases by 0.04, improving the company's earnings quality. This view aligns with the views of Ericson and Pakes (1995), and Khanh and Khuong (2018), who also found a significant positive relationship between earnings quality and company age. As the older companies have established practices, internal control systems, and optimized revenues and expenses, they are less likely to manipulate their earnings results. Moreover, altering the reported earnings may hurt the company's established reputation. Thus, older companies tend to avoid engaging in fraudulent practices to keep their clean names.

The growth opportunity is also a significant variable at a 10% significance level as the p-value equals 0. Moreover, the effect of the growth in sales is much higher than that of the company age. Each percentage change in the company's sales results in a 0.21-point increase in the earnings quality ratio. This result contradicts the generally accepted idea that companies with high growth are more likely to report fraudulent earnings to show higher growth (Bartov et al., 2002; Hill et al., 2019) and even with the view that the relationship between the growth opportunity is not significant (Dichev & Li, 2013). On the other hand, it agrees with the minority view of Kwarbai (2019), indicating that the faster-growing companies are more likely to invest in good quality internal control systems and provide an accurate and fair representation of their earnings to gain investor trust.

4.2.2. Model 2: Accrual quality and company-specific determinants

To calculate the effects of the independent variables over the dependent variable of earnings quality regarding accrual quality, GLS regression controlled for heteroskedasticity was used in Model 2. The Hausman test revealed that a GLS regression with random effects was conducted (Table 6).

Table 6. Hausman test: Accrual quality and company-specific factors

	Coefficients		(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
	(b) fixed	(B) random		
SIZ	-.0549033	-.0297301	-.0251731	.0125418
AGE	.0054939	.0001396	.0053543	.0028288
GO	.0001418	-.0004365	.0005783	.0001607
LEV	-.0288329	.0044077	-.0332407	.0568328
LIQ	.0078023	.0059305	.0018718	.0018243
PER	.5882962	.534456	.0538402	.0211362
AT	-.0022663	-.0006141	-.0016522	.0006653
IBM	.0179634	.0087027	.0092606	.0545162

b = consistent under Ho and Ha; obtained from xtreg
 B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(8) = (b-B)'[(V_b-V_B)^(-1)](b-B)
 = 10.82
 Prob>chi2 = 0.2120
 (V_b-V_B is not positive definite)

Source: Authors' elaboration using Stata.

The results show that the model provides a good fit for estimating earnings quality in terms of the independent variables as the overall R-squared is 0.3598. Moreover, the within and between R-squared of 0.4725 and 0.2802 respectively show that the independent variables explain about 47% of the variations within each company and about 28%

of the variations between the different companies. Furthermore, as the Prob > Chi2 is close to 0, it further proves that there are some significant relationships between the chosen independent variables and the accrual quality measure of earnings quality.

Table 7. GLS regression results: Earnings quality ratio and company-specific factors

Random-effects GLS regression		Number of obs = 110				
Group variable: CompanyID		Number of groups = 22				
R-sq:		Obs per group:				
within = 0.4725		min = 5				
between = 0.2802		avg = 5.0				
overall = 0.3598		max = 5				
corr(u_i, X) = 0 (assumed)		Wald chi2(8) = 1026.08				
		Prob > chi2 = 0.0000				
(Std. Err. adjusted for 22 clusters in CompanyID)						
EQ2	Coef.	Robust Std. Err.	z	P> z	[95% Conf. Interval]	
SIZ	-.0297301	.0143677	-2.07	0.039	-.0578903	-.00157
AGE	.0001396	.0003043	0.46	0.646	-.0004568	.000736
GO	-.0004365	.0001525	-2.86	0.004	-.0007354	-.0001377
LEV	.0044077	.01825	0.24	0.809	-.0313616	.0401771
LIQ	.0059305	.0025502	2.33	0.020	.0009322	.0109288
PER	.534456	.1796285	2.98	0.003	.1823906	.8865215
AT	-.0006141	.000855	-0.72	0.473	-.0022899	.0010617
IBM	.0087027	.041795	0.21	0.835	-.073214	.0906195
_cons	.0382639	.0453599	0.84	0.399	-.0506398	.1271676
sigma_u	.03303363					
sigma_e	.03420696					
rho	.48255546	(fraction of variance due to u_i)				

Source: Authors' elaboration using Stata.

The GLS estimation for the size variable shows a p-value of 0.03 which is lower than the chosen significance level of 10%, allowing the rejection of the null hypothesis and accepting the H1. This indicates the company size's significant effect on

accrual quality. Moreover, the effect is negative, meaning that every 10-unit change in the sales of the company decreases the accrual quality by 0.03, however as the accrual quality is higher when the score for it is lower, it means that the size of

the company has a positive impact on the quality of earnings. This aligns with the paper by Dechow and Dichev (2002), which claim a positive relationship between the company size and earnings quality as the larger companies generally have more constant operations, better internal control systems, and diversified portfolios of different activities, which are usually overseen more closely by low-level managers.

The second significant variable is liquidity, with a p-value of 0.032. Thus, company liquidity positively impacts the accrual quality score, meaning that each unit increase in the cash/current liabilities ratio results in a 0.007 increase in accrual quality, decreasing its quality. Considering that the accrual quality measures the closeness of accrual recognition with the cash inflow/outflow and higher liquidity allows management to use earnings management tactics without losing the ability to meet their current obligations. These results contradict the idea of Eldeeb and Ramadan (2020), who claimed a positive relationship between the company's liquidity and earnings quality. On the other hand, the results correspond to Khuong et al.'s (2020) analysis that companies with high liquidity are less likely to engage in accrual manipulation but rather in real earnings management. Thus, liquidity has a negative effect on earnings quality in terms of accrual quality.

On the other hand, the company's performance as measured by its ROA has a p-value of 0.004, thus allowing the acceptance of the H6. Company performance has a positive impact on earnings quality with each unit change in ROA resulting in a 0.5-point increase in the measure of accrual quality, which further decreases the quality of accruals. Thus, the results contradict the idea that the companies engage in fraudulent earnings reporting mostly during financial hardships (White, 1970; Ashari et al., 1994; Wang, 2006). However, the same authors also claim that earnings

management procedures are possible even when the companies are experiencing severe fluctuations in sales, which can explain the obtained result of the companies' earnings quality in terms of accrual quality being lower when the company has better performance (White, 1970; Ashari et al., 1994). This effect can also be explained by the assumption that the management manipulates the accrual-base net income fraudulently, as the operating cash flow does not change as much.

The following significant variable is the growth opportunity, which shows a p-value of 0.006. Therefore, we can accept the H3. Growth opportunity has a negative impact on accrual quality. Each unit change in the growth opportunity results in a negative 0.0005 change in earnings quality, meaning it increases the actual quality of earnings, which is surprising as the companies with higher growth rates should be more earnings management prone to achieving the desired results. The finding aligns with our previous finding that growth opportunity positively affects the earnings quality ratio. The effect may be attributable to the fact that the stakeholders of companies with higher growth may pay more attention to how this growth is achieved throughout different periods, which would make them analyze the statements more closely and identify the earnings management practices that support Kwarbai's (2019) idea that the companies with high growth tend to pay more attention to reporting accurate and fair earnings.

4.2.3. Model 3: Earnings persistence and company-specific determinants

To analyze the effects of the independent variable on earnings persistence, a cross-sectional regression test is run on Stata based on the 2021 company-specific results. Table 8 shows the results of the regression:

Table 8. Regression results: Earnings persistence and company-specific factors

Source	SS	df	MS	Number of obs = 22		
Model	16.1642567	8	2.02053208	F(8, 13)	=	3.00
Residual	8.75415323	13	.673396402	Prob > F	=	0.0382
Total	24.9184099	21	1.18659095	R-squared	=	0.6487
				Adj R-squared	=	0.4325
				Root MSE	=	.82061

EQ3	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
SIZ	-.7167278	.2968212	-2.41	0.031	-1.357971	-.0754846
AGE	-.0133135	.0103829	-1.28	0.222	-.0357443	.0091174
GO	2.161385	.7123032	3.03	0.010	.6225475	3.700222
LEV	-.4645248	.523657	-0.89	0.391	-1.595817	.6667673
LIQ	-.7829372	.6879817	-1.14	0.276	-2.269231	.703357
PER	4.002248	4.15461	0.96	0.353	-4.973241	12.97774
AT	.0197574	.0339027	0.58	0.570	-.053485	.0929998
IBM	1.475104	1.737216	0.85	0.411	-2.277924	5.228132
_cons	2.586386	1.362733	1.90	0.080	-.3576197	5.530391

Source: Authors' elaboration using Stata.

The results show that the model provides a good fit for analyzing the effects of the chosen company-specific variables on earnings persistence. The independent variables explain 64% of the variance in the dependent variables. Moreover,

as the p-value is less than 5%, it means that the model provides a good fit at 5% and 10% significance levels.

The first significant variable for predicting the earnings persistence of a company is the

company size. As can be observed from the Table 8, with the p-value of 0.031 at the acceptable significance threshold of 10% we can accept the *H1*. Thus, the effect of the company size on earnings persistence is significant. Each 10-unit change in a company's sales will result in a negative 0.716-point change in earnings quality. Considering that a higher score for persistence is better, the company's size negatively affects the earnings quality of the company, meaning that larger companies generally have a lower quality of earnings. This result negates the view of modern papers and agrees with the idea of Watts and Zimmerman (1990).

The second significant variable is the growth opportunity which shows a p-value of 0.010, much lower than the threshold of the chosen significance level of 10%. Thus, we can accept the *H3*. The coefficient of 2.16 shows that with each percentage change in the company's sales, the earnings quality increases by 0.02 points. As a higher score for persistence indicates higher quality earnings, the growth opportunity positively affects earnings quality. This result again coincides with Kwarbai's (2019) view that high-growth companies tend to pay more attention to their control systems and report accurate and fair earnings because of the close overseeing of their stakeholders and the general intention to create a good reputation among the creditors and investors.

5. CONCLUSION

Generally, investors and creditors tend to look solely at the company's earnings and judge them based on their monetary value when analyzing financial statements. However, the concept of earnings quality alerts the users of the financial statements that not all reported earnings are valid enough. The companies may use earnings management procedures or fail to match the reported earnings to the actual generated cash. This research work will assist the stakeholders of the company's financial statements in creating general conclusions about the quality of the company's earnings based on separate company-specific determinants. Using the companies listed in the Spanish stock market under the index IBEX 35 to determine how specific determinants affect the earnings quality of the company measured in three distinct ways gave the following results.

The company's size significantly influences earnings quality for the two measures: persistence and accrual quality. The larger company size does not always have a positive impact on earnings quality. Although the effect on accrual quality was positive, it was negative for the persistence of the earnings, indicating that although the management may not use earnings management through accruals management, but may use it on other factors to influence the earnings failing to make them persistent. This acts as an alarm for the stakeholders that not all the companies that report high amounts of sales report valid earnings or have stable earnings generation processes.

The company's age positively affects the quality of earnings ratio, while it does not affect accrual quality or persistence. This may be because

older companies have established customer relations, making their income-to-cash transition smoother. Although recently, investors started focusing more on newer or middle-aged companies, the analysis highlights that they do not always have high-quality earnings making the financial statements less reliable. Thus, investors and creditors should also pay attention to the much older companies as they report more accurate earnings.

The growth opportunity significantly affects the quality of earnings based on all three measures. This may be because the growth companies want to gain the trust of their stakeholders and, thus, tend to invest more attention to their internal control systems and the reported earnings to be accurate and fair. Accordingly, although sometimes higher growth may alert the investors and creditors that some manipulation is present in reporting the earnings, generally, the earnings reported by higher growth companies tend to be reliable.

The company liquidity in terms of cash holding has a significant negative impact on earnings quality based on the accrual quality measure. This may be because higher cash holdings allow the companies to engage in earnings management procedures regarding accruals without expressing difficulties meeting their current liabilities. The backup to cover the tracks will allow the managers to engage in earnings management procedures. Therefore, although creditors, investors, and other stakeholders usually prefer companies with higher liquidity, it is essential to be alert to the validity of the reported quality of earnings.

The company's performance significantly negatively impacts the quality of earnings based on the measure of accrual quality. This can be explained by the fact that the managers may distort the earnings, reporting higher net income in comparison to their assets, thus higher return on assets not always means that the company uses its assets efficiently to generate more profit per \$ of received investment but may be an indicator of the manipulated quality of earnings. Thus, the stakeholders of the financial statements should pay attention to not only the reported earnings but also how these earnings are achieved.

The other variables of leverage, audit tenure, and the fraction of independent board members do not affect the company's earnings quality. Thus, the corporate governance measures and the amount of the company's debt could be better indicators for predicting the quality of earnings.

Thus, the company-specific financial and corporate governance factors affecting earnings quality are the company size, age, growth opportunity, liquidity, and performance. The analysis also showed that the specific earnings quality measures react differently to different factors affecting the general quality of earnings, with only the growth opportunity impacting all three of them, company size affecting two of them, and liquidity, performance, and age only one of them, moreover even for the factors that affect all three measures of earnings quality, the significance and impact of it is pretty different.

Although the paper has several advantages in predicting the quality of earnings, it also has several limitations. The research focuses only on

the companies listed in IBEX 35, having a sample of 22 companies, which may be considered small for this type of analysis. Moreover, the analysis does not include a component of the industry of the company. All the companies under the analysis come from different industries, and earnings generation processes may differ from company to company. Thus, a distinction of different sectors may be required to differentiate between those. From numerous company-specific variables, the analysis employs only 8. However, some other

variables include the quality of internal control systems, the integrity of management, the attendance of the board-to-board meetings, etc. Therefore, integrating more variables in the analysis can give valuable results. Finally, it is essential to mention that the market has been quite changeable in recent years with severe upturns and downturns, so updated research later will give more up-to-date results.

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APPENDIX A. LIST OF THE COMPANIES IN THE ANALYSIS

1. Acciona
2. Acerinox
3. ACS (Actividades de Construcción y Servicios)
4. Aena
5. Amadeus
6. Cellnex
7. Enagas
8. Endesa
9. Ferrovial
10. Fluidra
11. Grifols
12. Inditex
13. Indra
14. Inmobiliaria Colonial
15. Logista
16. Melia Hotels
17. Merlin
18. Repsol
19. Rovi
20. Sacyr
21. Solaria
22. Telefonica

APPENDIX B. CORRELATION MATRIXES

Table B.1. Correlation matrix for all the observations

(obs=110)										
	EQ1	EQ2	SIZ	AGE	GO	LEV	LIQ	PER	AT	IBM
EQ1	1.0000									
EQ2	-0.1308	1.0000								
SIZ	0.1232	-0.3633	1.0000							
AGE	0.2613	0.0546	0.0440	1.0000						
GO	0.3272	-0.1397	0.0991	0.1308	1.0000					
LEV	0.0054	-0.1322	0.1771	-0.1347	-0.0119	1.0000				
LIQ	-0.2940	0.1735	-0.4118	-0.2071	-0.0741	-0.1553	1.0000			
PER	0.0718	0.5134	-0.0487	0.1333	-0.0555	-0.1808	0.0882	1.0000		
AT	-0.0205	0.1467	0.0667	0.0727	0.0804	-0.1286	-0.0445	0.1476	1.0000	
IBM	-0.1059	-0.1599	0.1413	-0.0072	0.0343	-0.0197	0.0712	-0.0310	-0.0335	1.0000

Source: Authors' elaboration using Stata.

Table B.2. Correlation matrix for the 2021 observations

(obs=22)											
	EQ1	EQ2	EQ3	SIZ	AGE	GO	LEV	LIQ	PER	AT	IBM
EQ1	1.0000										
EQ2	0.0627	1.0000									
EQ3	-0.0674	-0.2913	1.0000								
SIZ	0.0620	0.1616	-0.5874	1.0000							
AGE	0.2576	-0.0031	-0.1308	0.1698	1.0000						
GO	0.1303	-0.4702	0.6409	-0.3248	-0.0120	1.0000					
LEV	-0.1283	0.1907	-0.2270	0.0854	-0.0473	-0.0162	1.0000				
LIQ	-0.0381	-0.2123	0.1285	-0.3329	-0.3742	0.1016	-0.1547	1.0000			
PER	0.4786	0.2611	0.0861	0.1352	0.3603	0.1159	-0.2503	0.0853	1.0000		
AT	-0.2391	-0.1464	0.0078	-0.1055	0.0936	-0.1932	-0.1323	0.0424	-0.0753	1.0000	
IBM	-0.0845	-0.1507	-0.0712	0.0563	0.1809	-0.0476	-0.0656	0.3499	-0.1263	0.0004	1.0000

Source: Authors' elaboration using Stata.