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Finance and accounting

# The relationship between equity ownership concentration and earnings quality: evidence from Brazil

## *A relação entre a concentração de propriedade e a qualidade do lucro: evidencias do Brasil*

## *La relación entre la concentración de la propiedad y la calidad de los beneficios en empresas brasileñas*

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**Abstract**

This study investigates the influence of ownership concentration on earnings quality of Brazilian firms. This topic is relevant considering the substantially low number of companies with diffuse ownership structure in Brazil in comparison to US, where most studies about earnings quality have been performed. The Brazilian setting permits us to complement Givoly, Hayn, and Katz (2010) analysis between the potential explanations for the relation between ownership structure and earnings quality based on both the "demand" and "opportunistic behavior" hypothesis. To examine this relationship, we employ two measures as proxies of earnings quality: earnings persistence and asymmetric timeliness (conservatism). Our results are consistent with the "demand" hypothesis and indicate that earnings represent a more consistent indicator of future performance when ownership structure becomes more dispersed. Our results contribute to the literature because it suggests that the quality of accounting numbers have to be assessed considering aspects related to ownership concentration (even when analyzing earnings from public firms). It also contributes to the investment community because it shows that earnings forecast accuracy may be influenced by ownership structure.
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*Keywords:* Earnings quality; Persistence; Conservatism; Ownership structure; Brazil

**Resumo**

Neste artigo, teve-se como objetivo investigar a influência da concentração acionária sobre a qualidade dos lucros das empresas brasileiras. Este tópico é relevante ao se considerar o reduzido número de empresas com estrutura propriedade difusa no Brasil em comparação aos Estados Unidos, onde a maioria dos estudos sobre a qualidade dos lucros foram realizados. O cenário brasileiro nos permite complementar a análise de Givoly, Hayn e Katz (2010) entre as potenciais explicações para a relação entre a estrutura de propriedade e qualidade dos lucros com base tanto na hipótese da "demanda" quanto na hipótese do "comportamento oportunista". Para examinar esta relação, nós empregamos duas medidas como *proxies* da qualidade dos lucros: persistência e antecipação assimétrica (conservadorismo). Nossos resultados são consistentes com a hipótese de "demanda" e indicam que os lucros representam um indicador mais consistente de desempenho futuro, quando a estrutura de propriedade se

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torna mais dispersa. Nossos resultados contribuem para a literatura, porque sugere que a qualidade dos números contábeis tem de ser avaliada considerando aspectos relacionados à concentração de propriedade (mesmo quando analisam os lucros de empresas públicas). Os resultados deste artigo também contribuem para a comunidade de investimento, porque mostra que a precisão das previsões de lucros pode ser influenciada pela estrutura de propriedade da empresa analisada.

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*Palavras-chave:* Qualidade do Lucro; Persistência; Conservadorismo; Concentração acionária; Brasil

**Resumen**

En este estudio se analiza la influencia de la concentración de la propiedad sobre la calidad de los beneficios de las empresas brasileñas. Este tema es relevante cuando se considera el reducido número de empresas que poseen estructura de propiedad difusa en Brasil en comparación con Estados Unidos, donde se ha llevado a cabo la mayor parte de los estudios sobre la calidad de las ganancias. El escenario brasileño permite aplicar el análisis de Givoly, Hayn y Katz (2010) entre las posibles explicaciones para la relación de la estructura de propiedad con la calidad de los beneficios, con base tanto en la hipótesis de la "demanda" como en la del "comportamiento oportunista". Para examinar dicha relación se emplean dos medidas como *proxies* de calidad de los beneficios: la persistencia y la puntualidad asimétrica (conservadurismo). Los resultados confirman la hipótesis de "demanda" y señalan que las ganancias representan un indicador más consistente de desempeño futuro cuando la estructura de propiedad se hace más dispersa. Dichos resultados contribuyen a la literatura, ya que sugieren que en la evaluación de la calidad de los números contables deben tenerse en cuenta los aspectos relacionados con la concentración de la propiedad (incluso cuando se analizan los beneficios de empresas públicas). Asimismo, contribuyen a la comunidad de inversores, ya que muestran que la precisión de los pronósticos de ganancias puede ser influenciada por la estructura de propiedad de la empresa.

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*Palabras clave:* Calidad de los beneficios; Persistencia; Conservadurismo; Concentración de propiedad; Brasil

## Introduction

Agency problems essentially arise from the separation of de facto ownership and control between corporate insiders (e.g., controlling shareholders) and outsiders (e.g., minority shareholders). Lafond and Roychowdhury (2008) examine the effect of managerial ownership on financial reporting conservatism and find evidence that conservatism, as measured by the asymmetric timeliness of earnings, declines with managerial ownership. Complementarily, Givoly, Hayn, and Katz (2010) examine the differential earnings quality of private equity and public equity firms and find that private equity firms have higher quality accruals and a lower propensity to manage income than public equity firms, while public equity firms report more conservatively. Our study expands this analysis and examines the effect of shareholder concentration on earnings quality in an environment of lower investor protection compared to previous studies. According to Durnev and Kim (2005), only Colombia ranks bellow Brazil in terms of legal enforcement. Thus we use Brazil to investigate whether there is evidence that earnings quality of firms listed on the São Paulo Stock Exchange (BM&FBovespa) is influenced by ownership structure.

The ownership structure can play two effects on earnings quality (Givoly et al., 2010). According to the "demand" hypothesis, firms with stronger demand for quality reporting from capital providers would present higher earnings quality. Givoly et al. (2010) argue that earnings of public equity firms have of higher quality than earnings of private equity firms due to stronger demand by shareholders and creditors for quality reporting. On the other hand, the "opportunistic behavior" hypothesis says that firms with diffuse ownership structure should present lower earnings quality because their managers have higher incentives to manipulate earnings.

Our study considers a sample of Brazilian listed firms from 1999 to 2014. We consider Brazil as an opportunity to study the tension between the "demand" and "opportunistic" hypotheses because most Brazilian listed firms have concentrated control, which diminishes the importance of external equity funding. However, some listed firms do have truly dispersed control, which gives us the opportunity to assess how ownership concentration influences earnings quality in a setting of lower investor protection.

Thus, we exploit the tension between the "demand" and "opportunistic" hypotheses (Givoly et al., 2010) in an environment where most public firms have concentraded ownership and we observe different levels of earnings quality across firms (Lustosa & Nunes, 2010). We posit that firms will increase earnings quality when they evaluate that the benefits of reporting high-quality numbers exceed the costs, especially when they need external equity funding (i.e., they have diffuse control). Thus we consider that the "demand hypothesis" will prevail over the "opportunistic behavior" one, resulting in better earnings quality of firms with dispersed control.

According to Dechow and Schrand (2004), high-quality earnings disclosure has three advantages: it better reflects the company's operating performance, it is a more accurate indicator of the future performance and it more closely indicates the intrinsic value of the company. Additionally, Dechow, Ge, and Schrand (2010, p. 344) relate that "higher quality earnings provide more information about the features of a firm's financial

performance that are relevant to a specific decision made by a specific decision-maker." Thus, earnings presented in the financial statements must have sufficient reliability so that decision makers can use the numbers for future projections.

Given the importance of reported earnings, the literature is concerned with measuring earnings quality and relates it to firms' characteristics. Many researchers have performed empirical studies to test the quality of earnings reported by companies (Da Costa, Lopes, & Costa, 2006). Thus, the perception of earnings as a measure of financial performance of the company implies the analysis of the level of managers' influence on the result presented in the financial statements, which can reveal conflicts of interest between managers and investors, leading to the need to establish control mechanisms to govern this relationship (Dami, Rogers, & Ribeiro, 2009).

Ownership structure is one of the aspects influencing the leeway of managers and corporate governance in general (Silveira, Barros, & Famá, 2008). Fan and Wong (2002) use a sample of 977 companies in seven East Asian economies and show that concentrated ownership and the associated pyramidal and cross-holding structures create agency conflicts between controlling shareholders and outside investors. Additionally, they find positive association between concentrated ownership and low earnings informativeness.

However, in Brazil just a handful number of public firms have truly dispersed control and we posit that this environment support the dominance of the "demand" hypothesis over the "opportunistic behavior" hypothesis because we observe different levels of earnings quality across firms (Lustosa & Nunes, 2010).

In this context, the present study investigates the following research question: *Does different ownership structure across public firms in a setting of low investor protection influence earnings quality according to the "demand" hypothesis*?

We first analyze the presence of timely loss recognition (conservatism) in Brazilian listed firms while controlling for ownership concentration. Then we investigate earnings persistence components considering cash flows and accruals, also controlling for ownership concentration.

We consider earnings persistence (Sloan, 1996), and asymmetric recognition of earnings (Basu, 1997) as proxies for earnings quality. To estimate the asymmetric timeliness, we consider and adapt the earnings transitory components reversion model proposed by Basu (1997). The estimation is performed considering two-stage least squares (2SLS) model to address the potential endogeneity problem of the ownership concentration variable. To estimate earnings persistence, we adapt the model suggested by Dechow et al. (2010) (Eq. (6)) by adding the explanatory variable ownership concentration. Our earnings persistence models are estimated considering the generalized method of moments (GMM).

Generally our results show there is a significant positive relationship between timely earnings recognition and ownership concentration and a significant inverse relation between earnings persistence and ownership concentration, indicating that as the ownership structure becomes more dispersed, the persistence of profits increases and accounting conservatism decreases. This result is partially aligned with the predictions of the "demand" hypothesis considering a low investor protection environment and the concentrated ownership structure that prevails in Brazilian firms.

La Porta, López de Silanes, Shleifer, and Vishny (1998) find that good accounting standards and measures of investor protection are associated with low ownership concentration, indicating that the concentration is in fact a response to weak investor protection. This situation can lead to incentives for expropriation of minority shareholders (Silveira, 2006).

Our study extends previous research by focusing on the quality of the information disclosed in the financial statements, aiming to include the ownership structure as a relevant variable to explain earnings quality. We believe our results are of interest to both the research and the investor communities. First, our results suggest that the quality of accounting numbers has to be assessed and estimated considering aspects related to ownership concentration even within the group of public and/or listed firms. Second, our results indicate that the accuracy of earnings forecasts can be influenced by ownership structure, so investors and equity analysts should consider this characteristic in their models.

The remainder of the paper is organized as follows. Section "Literature review" provides a literature review on ownership structure and earnings quality. Section "Methodology" discusses the empirical methodology, including our sample, the proxies of earnings quality and develops our hypothesis. Section "Results" presents the tests and results. Our conclusions are provided in Section "Conclusions".

## Literature review

### *Ownership structure*

Demsetz and Lehn (1985) argue that ownership concentration can be determined by characteristics of the companies or sectors in which they operate, such as size, risk and regulation. One line of research, developed by La Porta et al. (1998), who studied the change in ownership structure of companies in several countries, suggests that differences in legal systems and their effective application cause differences in ownership structure. These authors found that countries with common law systems provide greater protection to investors than countries with code law systems. Thus, countries with weak investor protection mechanisms develop substitutes for this legal protection, such as mandatory dividends and legal reserve requirements (La Porta et al., 1998). In this context, La Porta et al. (1998) state that one of the answers to weak investor protection is ownership concentration, trying to minimize the likelihood of expropriation of shareholders by managers.

For Shleifer and Vishny (1997), the presence of controlling shareholders reduces the possibility that managers will have effective control of the company due to the reduced power of individual shareholders on account of the small ownership group. However, according to Demsetz and Lehn (1985), it is possible for firms in the same country to have different levels

of ownership concentration, given the intrinsic characteristics of the firms or industries.

The Brazilian institutional environment is characterized by family businesses (João, Santos, & Filho, 2014; Tres, Serra, & Ferreira, 2014), where most firms have concentrated ownership structures. This pattern can be explained by the "path dependence" theory (see Bebchuk and Roe (1999)), which argues that the corporate structure that an economy has at any point in time depends partially on previous structures the economy had in earlier times. In earlier times the Brazilian economic system was based in the colonial system, in which an economy based on export of farm commodities by large landholders meant a concentrated economic structure of capital and power (Comparato & Salomão Filho, 2008). Hence, one can argue that family firms followed this "path dependence", resulting in a concentrated ownership structure in Brazil. According to Caixe and Krauter (2013), 41% of Brazilian public firms are family controlled (when the founding family or a single investor is the company's largest shareholder), 27% have national private ownership (when a domestic group of investors represents have the majority stake, except for the founding investors or their heirs), and 17.6% are controlled by pension funds (when a pension fund is the company's largest shareholder). Segura and Formigoni (2014) verify the level of debt of Brazilian firms and find that family owned firms present lower indebtedness than firms with dispersed ownership.

According to La Porta et al. (1998), protection of minority shareholders is important to motivate the dispersion of the ownership structure. In this sense, the legal environment also influences shareholders' decisions to dilute their control.

Unlike as suggested by the traditional literature on corporate governance, where conflicts permeate the relationship between managers and shareholders, in Brazil these conflicts are more often between controlling and minority shareholders (Lopes & Walker, 2008), a consequence of concentrated ownership structure, besides the weak institutional environment in Brazil (Anderson, 1999). According to Silveira (2006), studies about ownership structure usually consider it as a exogenous variable, while it should be treated as an endogenous variable. Here we consider and treat this issue when we estimate the proposed models.

### *Earnings quality*

High ownership concentration may work as a corporate governance mechanism in the manager-shareholder relationship. However, the presence of large shareholders can influence earnings quality, since they can pursue private benefits of control at the expense of other investors, which is called the entrenchment effect (Silveira, 2006). According to Dechow et al. (2010), there are three important characteristics to be observed in relation to earnings quality:

> First, earnings quality is conditional on the decision-relevance of the information. Thus, under our definition, the term "earnings quality" alone is meaningless; earnings quality is defined only in the context of a specific decision model. Second, the quality of a reported earnings number depends on whether it is informative about the firm's financial performance, many aspects of which are unobservable. Third, earnings quality is jointly determined by the relevance of underlying financial performance to the decision and by the ability of the accounting system to measure performance. This definition of earnings quality suggests that quality could be evaluated with respect to any decision that depends on an informative representation of financial performance. It does not constrain quality to imply decision usefulness in the context of equity valuation decisions.

Generally the criteria used to calculate earnings involve different degrees of discretion applied by senior management regarding discretionary accruals. In this sense, the ownership structure acts as a disciplinary mechanism in the relationship between shareholders and managers (Silveira et al., 2008), who might use discretionary accruals to manage earnings as an opportunistic way to meet private interests.

According to Givoly et al. (2010), the quality of accounting information is influenced by several factors, most of which stem from the demand for such information. According to the "demand" hypothesis, firms with stronger demand for quality reporting from capital providers should present higher earnings quality. That is a characteristic of firms that have higher ownership dispersion (Givoly et al., 2010). On the other hand, the "opportunistic behavior" hypothesis says that firms with diffuse ownership structure should present lower earnings quality because their managers have stronger incentives to manipulate earnings. Furthermore, Brazilian institutional environment does not incentive firm to report quality earnings (Coelho, Galdi, & Broedel Lopes, 2010).

Finally, Hope, Thomas, and Vyas (2012) argue that managers' actions are not perfectly observable by the owner, and because of that managers have the ability manipulate earnings to hide unfavorable performance. In this sense, firms with higher agency costs (i.e., more concentrated ownership structure) are expected to have lower earnings quality.

### *Demand and opportunistic behavior hypothesis and earnings quality*

Ball, Kothari, and Robin (2000) argue that timeliness is defined as the extent to which the current economic outcome is incorporated by current accounting income and conservatism is the extent to which current accounting income asymmetrically incorporates economic losses and gains considering "bad" and "good" news. As documented by Watts (2003a), conservatism refers to the cumulative effects represented in the balance sheet and income or profits accumulated since the start of operations of the company. Basu (1997) argues that conservatism means that reporting the accounting results reflects "bad news" faster than "good news".

Watts (2003a) states that conservatism can limit managers' opportunistic behavior. In a setting with poor investor protection, concentrated ownership structure is applied as a mechanism to reduce the probability of expropriation of shareholders by

| | Type of ownership | | |
|---|---|---|---|
| | Private firms | Public firms | |
| Hypothesis | Private equity, Private debt | Private equity (concentrated ownership), Public debt | Public equity (diffuse ownership), Public debt |
| "Demand" Hypothesis | Low persistence, Low asymmetric timeliness recognition | Low persistence, High asymmetric timeliness recognition | High persistence, Low asymmetric timeliness recognition |
| Predicted quality of financial reporting | Low | Medium | High |
| "Opportunistic Behavior" Hypothesis | High persistence, Low asymmetric timeliness recognition | Low persistence, High asymmetric timeliness recognition | Low persistence, Low asymmetric timeliness recognition |
| Predicted quality of financial reporting | High | Medium | Low |

Fig. 1. Type of ownership and expected quality of financial reporting.
Source: Adapted from Givoly et al. (2010).

managers (La Porta et al., 1998). Ali, Chen, and Radhakrishnan (2007) recognize that family firms, compared with nonfamily firms, face more severe agency problems between controlling and non-controlling shareholders. These conflicting effects are often referred to as "entrenchment versus alignment".

In this context, we consider that in line with the "demand" hypothesis, firms in markets with greater ownership dispersion and with greater owner-manager separation (i.e., lower agency conflicts) have higher probability to report better levels of earnings quality (Hope et al., 2012), i.e., present high earnings persistence. Additionally, we expect that firms with diffuse ownership and public debt should timely recognize both losses and gains whereas firms with concentrated ownership and public debt should asymmetrically recognize losses, because according to Ball and Shivakumar (2005), timely loss recognition mitigates the agency problems associated with managers' investment decisions. Incentives between shareholders and creditors are aligned in firms with diffuse ownership and public debt, but may be unaligned in firms with concentrated ownership and public debt.

On the other hand, the "opportunistic behavior" hypothesis posits that firms with diffuse ownership structure should present lower earnings quality (e.g., lower conservatism and lower earnings persistence) because their managers have higher incentives to manipulate earnings considering that outsiders have less access to private information and they may benefit from earnings management.

According to (Coelho et al., 2010), the Brazilian institutional environment does not encourage firms to report quality earnings, although the need for funding may induce firms to improve their reporting system. The empirical evidence shows that the degree of accounting conservatism differs across countries and according to preparers' incentives (Chi & Wang, 2010). In this context, Fig. 1 presents our expectations regarding the earnings quality proxy behavior used in this study, considering both the demand and opportunistic behavior hypotheses discussed in Givoly et al. (2010).

Hence we posit that Brazilian listed firms with higher ownership concentration and public debt present more timely loss recognition (TLR) in comparison to firms with dispersed concentration because debtholders demand TLR to inhibit managers' natural optimism. Additionally, we consider that listed firms with dispersed ownership report with neutrality, presenting lower TLR, since the major agency conflicts in the Brazilian market arise between the controlling shareholders and minority shareholders (Lopes & Walker, 2008) and the latter have preference for firms with high payout ratios. Gonzaga and Costa (2009) find evidence that dividend payments are negatively related to conservatism.

Da Costa et al. (2006) argue that excessive conservatism can lead to disclosure of information with false signals to users. Penman and Zhang (2002) empirically diagnosed low quality of earnings resulting from the variation in investments with accounting conservatism, arguing that accounting conservatism raises questions about the quality of accounting information and profit. The reason is that with growth in investment, profits are reduced by creating hidden reserves. These reserves can be reduced, generating profits, arising from the reduction of investments or reducing their growth rate.

On the other hand, Watts (2003b) shows that accounting conservatism is related to the contractual relationship between the company and creditors, with the intention of ensuring compliance with contractual covenants. Thus, conservatism can be considered an efficient mechanism for determining the parameters of contracts (Paulo, Antunes, & Formigoni, 2008), as it helps to reduce the opportunistic behavior of managers (Watts, 2003b).

Following the arguments that excessive conservatism in earnings reporting provides poor information to the capital markets, hypothesis $H_1$ is:

**$H_1$.** According to the "demand" hypothesis, public firms with concentrated ownership present higher conservatism than those with diffuse ownership structure.

Earnings persistence is generally considered to be an important feature of accounting quality because it enables more accurate forecasts. According to Lipe (1990), earnings persistence is the degree to which unexpected changes in current period earnings affect the next period earnings. Dechow et al. (2010) argue that research on earnings persistence that considers it as a proxy for earnings quality is motivated by the assumption that greater persistence and sustainability of earnings are taken as the

best indicator of future cash flows and therefore provide the most useful information for valuation models. Richardson, Sloan, Soliman, and Tuna (2005) comment that empirical findings generally confirm that less reliable accruals lead to lower earnings persistence, in turn leading to significant security mispricing. Additionally, Sloan (1996) argues that persistence depends both on the accounting measurement system and firms' performance, and disentangling the role of each is not an easy task.

According to Pimentel and Aguiar (2012), earnings persistence has an important role to predict firm value, so it is a desirable quality of earnings. However, in the Brazilian capital market few studies have analyzed the importance of earnings persistence. Pimentel and Aguiar (2016) analyze the role of earnings persistence in valuation accuracy and as a proxy for long-term market orientation in the Brazilian market. They find a negative relationship between earnings persistence and valuation errors, indicating that firms with higher persistence provide more accurate value estimates than firms with low persistence.

Additionally, Pimentel and Aguiar (2012) analyze quarterly earnings persistence and its relationship between the corporate governance standards and firm size. They find that firm size seems to be an important determinant of earnings persistence and that earnings persistence is different for firms with different corporate governance standards. Coelho, Aguiar, and Lopes (2011) analyze the relationship between earnings persistence, industry structure and market share and find that the combined effect of industry structure and market share does not guarantee abnormal future earnings.

The "demand hypothesis" (Givoly et al., 2010) considers that public firms with public debt and public equity present strong demand for quality external reporting from both equity and debt holders. We consider that public firms with diffuse ownership control operating in a lower investor protection environment like Brazil have incentives to report earnings that accurately predict future performance. Thus, our second hypothesis is:

**$H_2$.** According to the "demand" hypothesis, public firms, researchers have shown that profits produce smaller forecasting errors than the cash flow valuation models: since profits are more strongly associated with stock returns than cash flow, profits are more persistent than cash flow and are less volatile than the cash flow component. Thus accruals can provide useful information, despite the fact they are less persistent.

In this sense we adopt the definition of earnings quality presented in Dechow et al. (2010), in which quality of profit exists only if it is informative about firm's performance, and we formulate our second hypothesis:

**$H_{0(ii)}$.** Firms with dispersed control present higher persistence of future earnings relative to current earnings.

## Methodology

### *Data*

Our sample comprises companies listed on the São Paulo Stock Exchange (BM&FBovespa), covering the period from 1999 to 2014. Accounting and market data were obtained from the Economatica database.

We excluded from the sample financial services and insurance firms, due to their specific accounting rules. Additionally, we excluded firms that did not present information about ownership concentration consistently throughout the period.

Thus, we kept in the sample the companies that presented information about ownership concentration for at least six years.

To mitigate the effects of extreme observations (outliers) in the econometric models, we winsorized the following variables at 2.5%: operating profit, operating cash flow, total accruals, earnings per share, and return.

Following Demsetz and Lehn (1985), our measure of concentration ($Conc_{A1}$) is given by the percentage of shares owned by the largest shareholder. To expand the concept of concentration, we also used the percentage of shares owned by the five largest shareholders ($Conc_{A5}$). This is because managers often hold shares. Therefore, the fraction of shares owned by the largest shareholder is not a reliable measure of the degree of investor protection. However, managers typically do not own enough shares to be counted among the five largest shareholders (Demsetz & Villalonga, 2001).

Thus, both measures were calculated as:

$$\text{Log}\left(\frac{\text{percentage concentration}}{100-\text{percentage concentration}}\right)$$

### *Endogeneity problem*

The econometric models applied in this study use as an explanatory variable of the quality of earnings that assume ownership concentration is a variable exogenous to the model. However, there is a possibility that the variable is endogenous (correlated with the error term, $\text{cov}(x_j, u)(x_j, u) \neq 0$ (Wooldridge, 2006)) compared to net income, i.e., a particular ownership structure may result in profit disclosure with high quality. However, the earnings disclosure quality can attract investors to the company and modify the ownership concentration.

As documented by Silveira (2006), previous authors have claimed that the type of occurrence mentioned results from the phenomenon of reverse causality, which is to incorrectly interpret the effect as being the cause.

The more recent literature has shown that ownership structure is an endogenous variable (Cho, 1998; Demsetz & Villalonga, 2001; Himmelberg, Hubbard, & Palia, 1999). For instance, Himmelberg et al. (1999), following Demsetz and Lehn (1985), investigated evidence that the ownership structure is determined by endogenous variables like size, economic sector and other performance variables. They found that ownership concentration is explained by variables linked the firm characteristics.

Wooldridge (2006) argues that if one estimates the regression model by least squares in the presence of endogeneity, biased and inconsistent estimators are obtained for the parameter of the model. To solve this problem, the author suggests the estimation by two-stage least squares (2SLS), where in the first stage the endogenous variable is regressed in terms of the instrumental

variables, generating an array of fitted values for each regression, and in the second stage the model is estimated for the dependent variable on the basis of estimated values of the explanatory variables.

*Asymmetric timeliness model*

To estimate the indicators of conservatism, we started with the model of reversal of transitory components in earnings proposed by Basu (1997):

$$\frac{Earn_{it}}{P_{t-1}} = \beta_0 + \beta_1 D_{it} + \beta_2 RE_{it} + \beta_3 D_{it}\, RE_{it} + \varepsilon_{it} \quad (1)$$

where $Earn_{it}$ denotes earnings per share of firm $i$ in period $t$, $D_{it}$ is a dummy variable that takes the value "1" if the economic return is negative and "0" if positive, $RE_{it}$ is the economic return of firm $i$ in period $t$ (the economic return is given by $P_t - P_{t-1}$) and $P_{t-1}$ is the share price at the end of last year.

In Eq. (1), the coefficients $\beta_1$ and $\beta_3$ capture the asymmetric recognition of economic return by accounting profit (conservatism), while the coefficient $\beta_2$ captures the timely recognition of economic return in book income stream, in other words, it reflects the timeliness of accounting income.

According to Basu (1997), $\beta_3$ is positive and significant statistically if "bad news" is recognized in profit before "good news", indicating the presence of conservatism. Finally, the dummy variable $D_{it}$ is used to test the higher sensitivity of net income accounting to negative returns than to positive ones.

If a negative economic return is incorporated more significantly by the accounting profit than a positive return, this indicates the existence of conservatism in recognizing economic return, so that $\beta_3$ will be larger and more statistically significant than $\beta_2$ (Da Costa et al., 2006).

In Eq. (1), referring to the model of Basu (1997), $\beta_3$ is positive and significant statistically if "bad news" is recognized in profits before "good news", indicating the presence of conservatism. Finally, the dummy variable $Conc_{A1} * CFO$ is used to test the higher sensitivity of net income accounting to negative returns than to positive ones.

If a negative economic return is incorporated more significantly by the accounting profit than a positive return, this indicates the existence of conservatism in recognizing economic return, so that $\beta_3$ will be larger and more statistically significant than $\beta_2$ (Da Costa et al., 2006).

In Eq. (1), referring to the model of Basu (1997), we added the variable ownership concentration $Conc_{Ak\,i,t}$ we added the variable ownership concentration $Conc_{Ak\,i,t}$, where "$k$" is the index denotes if the concentration is measured by the percentage of shares owned by the largest shareholder ($k=1$) or by the percentage of shares owned by the five largest shareholders ($k=5$).

The estimation was performed using the two-stage least squares (2SLS) model to resolve the problem of endogeneity of the ownership concentration variable. The endogeneity test was performed to test the significance of the coefficients, and the results showed evidence of the existence of endogeneity at 1%.

$$\frac{Earn_{it}}{P_{t-1}} = (\beta_{11} + u_i) + \beta_{12} D_{it} + \beta_{13} RE_{it} + \beta_{14} D_{it}\, RE_{it} + \beta_{15} Conc_{AKit} + \beta_{16}(Conc_{AKit} * RE_{it}) + \beta_{17}(Conc_{AKit} * D_{it}\, RE_{it}) + \beta_{18}\, Log(Asset_{it}) + \varepsilon_{it}$$

$$Conc_{AKit} = \beta_{21} + \beta_{22}\, Log(Asset_{it}) + \beta_{23} ADR_t + \beta_{24} D_{it} + \beta_{25} RE_{it} + \beta_{26} D_{it}\, RE_{it} + \sum_{j=1}^{10} \delta_j Year + \varepsilon_2 \quad (2)$$

As an instrument of ownership concentration variable, we used the logarithm of assets $Log(Asset)$ as a measure of company size. According to Himmelberg et al. (1999), larger companies' shareholders can be better protected by more dispersed concentration. However, large companies can also experience more severe agency conflicts due to dispersed ownership.

Also we used the variable "ADR", which indicates whether the firm has American Depositary Receipts (ADRs), in order to identify the impact of changes in the regulation of ownership concentration. We also included a dummy variable, YEAR, to capture the macroeconomic effects of the period.

In the model presented in Eq. (5), the coefficient $CFO$ captures the relationship of profit with the company's ownership concentration. Our main interest in Eq. (2) is to identify if $\beta_{17} > 0$ and $\beta_{17} > \beta_{14} \cdot \beta_{16} < \beta_{17}$. If $\beta_{17} > 0$ and $\beta_{17} > \beta_{14}$, $\beta_{16} < \beta_{17}$ there is evidence that in the presence of higher ownership concentration, negative economic returns have higher association with earnings, which is expected considering our $H_1$.

*Earnings persistence model*

Based on the model suggested by Sloan (1996) and Dechow et al. (2010) (Eq. (6)), and its formulation decomposing income into its components operating cash flow and accruals (Eq. (7)), we added the explanatory variable of the study, the shareholding concentration:

$$Earn_{t+1} = \alpha + \beta_1 Earn_t + \varepsilon_{t+1} \quad (3)$$

$$Earn_{t+1} = \alpha + \beta_1 Acc_t + \beta_2 FCO_t + \varepsilon_{t+1} \quad (4)$$

In these equations, "*Earn*" is defined as operating income scaled by total assets (Sloan, 1996). Thus, according to the author, $\beta$ in Eq. (6) measures the persistence of the rate of return on assets. In Eq. (7), $\beta_1 < \beta_2$, which implies lower profit persistence is attributed to the total accrual component.

As a first step, we estimated the persistence of future earnings relative to current earnings in the format below:

$$Earn_{t+1} = \alpha + \beta_1 Earn_t + \beta_2 Conc_{AKt} + \beta_3(Conc_{AKt} * Earn_t) + \varepsilon_{t+1} \quad (5)$$

where $Earn_{t+1}$ is earnings in year $t+1$; $Earn_t$ is earnings in year $t$, and the variable ownership concentration is controlled by

$Conc_{Akt}$, where "$k$" represents the index denoting if the concentration is measured by the percentage of shares owned by the largest shareholder ($k = 1$) or by the percentage of shares owned by the five largest shareholders ($k = 5$).

In Eq. (5), the coefficient $\beta_3$ captures the relationship of profit with the company's ownership concentration, i.e., the variation of the profit goes through the ownership concentration. The coefficient $\beta_2$ indicates whether there is any statistically significant relationship between the independent variables ownership concentration and accounting profit.

Following the method proposed by Sloan (1996), we decomposed the profit into its components and added the variable ownership concentration:

$$Earn_{t+1} = \beta_0 + \beta_1 Acc_t + \beta_2 FCO_t + \beta_3 Conc_{AKt} + \beta_4(Conc_{AKt} * Acc_t) + \beta_5(Conc_{AKt} * FCO_t) + \varepsilon_{t+1} \quad (6)$$

To determine the values of the variable accruals, we followed Sloan (1996), who states that the total accruals can be calculated using information from the balance sheet and income statement:

$$Acc = (\Delta CA - \Delta cash) - (\Delta CL - \Delta STD - \Delta TP) - Dep \quad (7)$$

where $\Delta CA$ is the change in current assets; $\Delta Cash$ is the change in cash and cash equivalents; $\Delta CL$ is the change in current liabilities; $\Delta STD$ is the change in debt included in current liabilities; $\Delta TP$ is the change in income taxes payable and $Dep$ is depreciation and amortization.

Prior to 2007, the cash flow was calculated by the difference of net income and accruals using the indirect method, as commented by Dechow, Sloan, and Sweeney (1995). For periods ending after 2007(when disclosure of a cash flow statement started to be mandatory in Brazil) we collected this information considering the direct method, i.e., directly from the cash flow statement. All the information was collect from Economatica database.

To estimate earnings persistence coefficients, we used a dynamic panel model, which can pose some estimation problems. For our purposes, these are the presence of the lagged dependent variable as an explanatory variable, causing problems of autocorrelation, and the grouping of the panel data on a shorter time scale (smallT) and a larger number of firms (large N).

Arellano and Bond (1991) developed estimators to solve panel models for smallT and large N, which consists of the use of the generalized method of moments (GMM). Instead of this estimator, we employed an equivalent estimator, that of Arellano–Bover/Blundell–Bond, which leads to an additional hypothesis, that the first difference of the instruments is not correlated with the fixed effects, which increase the number of instruments and increases efficiency, allowing correction of the estimation bias caused by the lagged variable, and accepts variables that are not strictly exogenous, meaning accepting a certain degree of endogeneity and correcting it.

As documented by Dechow et al. (2010), more persistent profits causes higher stock values, so increase in the estimate of persistence is associated with positive returns in the capital market.

## Results

Table 1 provides descriptive statistics. We observe that the mean of ownership concentration suggests that ownership structure is highly concentrated in Brazil, as found in prior studies (Black, De Carvalho, & Sampaio, 2014; Coelho et al., 2010; Dalmácio & Corrar, 2007). The mean of the return is 0.210,

Table 1
Descriptive statistics.

| Variables | Mean | Standard deviation | Lower quartile | Median | Upper quartile |
|---|---|---|---|---|---|
| Operating income | 0.005 | 0.109 | 0.000 | 0.000 | 0.059 |
| Total accruals | −0.002 | 0.111 | −0.053 | −0.003 | 0.052 |
| Operating cash flow | 0.048 | 0.072 | 0.000 | 0.000 | 0.100 |
| Ownership concentration by the largest shareholder | 0.169 | 0.669 | −0.115 | 0.000 | 0.274 |
| Ownership concentration by the five largest shareholder | 0.670 | 0.784 | 0.000 | 0.447 | 1.143 |
| Earnings per shares | 0.755 | 4.818 | −0.002 | 0.137 | 1.044 |
| Return | 0.210 | 0.811 | −0.266 | 0.052 | 0.481 |

Source: authors.
*Variables*:
*Operating income* – is earnings in year $t$, scaled by total assets.
*Total accruals* – is the total accruals can be calculated using information from the balance sheet income statement: $TA = (\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD - \Delta TP) - Dep$. $\Delta CA$ is the change in current assets; $\Delta Cash$ is the change in cash and cash equivalents; $\Delta CL$ is the change in current liabilities; $\Delta STD$ is the change in debt included in current liabilities; $\Delta TP$ is the change in income taxes payable and $Dep$ is depreciation and amortization, scaled by total assets.
*Operating cash flow* – is the cash flow, calculated by the difference of net income and accruals, scaled by total assets.
*Ownership concentration by the largest shareholder* – is ownership concentration measured by the percentage of shares owned by the largest shareholder.
*Ownership concentration by the five largest shareholder* – is ownership concentration measured by the percentage of shares owned by the five largest shareholders.
*Earnings per shares* – denotes earnings per share of firm $i$ in period $t$, scaled by price in period $t - 1$.
*Return* – is the economic return of firm $i$ in period $t$ (the economic return is given by $[P_t - P_{t-1}]/P_{t-1}$).

Table 2
Regression to asymmetric timeliness and timely loss recognition.

| Variables | Pred. Sign | % of shares held by the largest shareholder | | % of shares held by the five largest shareholders | |
|---|---|---|---|---|---|
| | | Coeff. Est. | *z*-stat. | Coeff. Est. | *z*-stat. |
| **Panel A – Total Sample** | | | | | |
| *_Cons* | | −1.498*** | −4.44 | −5.081*** | −3.67 |
| $D_{it}$ | − | −0.538 | −1.36 | −0.755** | −2.14 |
| $RE$ | + | 0.374 | 1.58 | 1.738*** | 2.98 |
| $D_{it} * RE$ | − | −2.966*** | −3.46 | −8.209*** | −3.57 |
| $Conc_{A1}$ | + | 14.225*** | 4.78 | – | – |
| $Conc_{A1} * RE$ | + | −4.210*** | −4.20 | – | – |
| $Conc_{A1} * D_{it} * RE$ | ? | 15.566*** | 4.59 | – | – |
| $Conc_{A5}$ | + | – | – | 7.322*** | 3.46 |
| $Conc_{A5} * RE$ | + | – | – | −2.371*** | −2.88 |
| $Conc_{A5} * D_{it} * RE$ | ? | – | – | 9.153*** | 3.24 |
| $Log(Asset)_t$ | − | −0.052*** | −4.34 | −0.036** | −2.35 |
| *No. Obs.* | | 2.593 | | | |
| **Panel B – Small Companies** | | | | | |
| *_Cons* | | −1.181* | −1.90 | −2.135 | −0.88 |
| $D_{it}$ | − | −1.442** | −2.16 | −1.485** | −2.12 |
| $RE$ | + | −0.321 | −0.85 | −0.563 | −0.62 |
| $D_{it} * RE$ | − | −2.671** | −2.11 | −3.245 | −0.87 |
| $Conc_{A1}$ | + | 2.339 | 0.63 | – | – |
| $Conc_{A1} * RE$ | + | 0.061 | 0.06 | – | – |
| $Conc_{A1} * D_{it} * RE$ | ? | 2.392 | 0.58 | – | – |
| $Conc_{A5}$ | + | – | – | 1.747 | 0.51 |
| $Conc_{A5} * RE$ | + | – | – | 0.593 | 0.52 |
| $Conc_{A5} * D_{it} * RE$ | ? | – | – | 0.770 | 0.19 |
| $Log(Asset)_t$ | − | −0.026 | −1.32 | −0.011 | −0.51 |
| *No. Obs.* | | 829 | | | |
| **Panel C – Big Companies** | | | | | |
| *_Cons* | | −1.350*** | −3.42 | −6.499*** | −4.77 |
| $D_{it}$ | − | 0.075 | 0.13 | −0.112 | −0.26 |
| $RE$ | + | 0.562* | 1.65 | 3.016*** | 4.70 |
| $D_{it} * RE$ | − | −1.993 | −1.58 | −10.103*** | −4.18 |
| $Conc_{A1}$ | + | 22.280*** | 6.02 | – | – |
| $Conc_{A1} * RE$ | + | −8.180*** | −5.53 | – | – |
| $Conc_{A1} * D_{it} * RE$ | ? | 25.471*** | 5.68 | – | – |
| $Conc_{A5}$ | + | – | – | 10.332*** | 4.80 |
| $Conc_{A5} * RE$ | + | – | – | −4.332*** | −4.58 |
| $Conc_{A5} * D_{it} * RE$ | ? | – | – | 14.795*** | 4.64 |
| $Log(Asset)_t$ | − | −0.085*** | −5.41 | −0.075*** | −3.49 |
| *No. Obs.* | | 1.764 | | | |

$$Earn_{it}/P_{t-1} = (\beta_{11} + u_i) + \beta_{12} D_{it} + \beta_{13} RE_{it} + \beta_{14} D_{it} RE_{it} + \beta_{15} Conc_{AKit} + \beta_{16}(Conc_{AKit} * RE_{it}) + \beta_{17}(Conc_{AKit} * D_{it} RE_{it}) + \beta_{18}\, Log(Asset_{it}) + \varepsilon_{it}$$

$$Conc_{AKit} = \beta_{21} + \beta_{22} Log(Asset_{it}) + \beta_{23} ADR_t + \beta_{24} D_{it} + \beta_{25} RE_{it} + \beta_{26} D_{it} RE_{it} + \sum_{j=1}^{10} \delta_j Year + \varepsilon 2$$

*Variables*: $Earn_{it}$ denotes earnings per share of firm $i$ in period $t$, $D_{it}$ is a dummy variable that takes the value "1" if the economic return is negative and "0" if positive, $RE_{it}$ is the economic return of firm $i$ in period $t$ (the economic return is given by $[P_t - P_{t-1}]/P_{t-1}$) and $P_{t-1}$ is the share price at the end of last year, $Conc_{Ak_{i,t}}$, is ownership concentration where "$k$" is the index that tells if the concentration is measured by the percentage of shares owned by the largest shareholder ($k = 1$) or by the percentage of shares owned by the five largest shareholders ($k = 5$), $Log(Asset)$ is the logarithm of total assets as a measure of company size.

* Significance at 10%.
** Significance at 5%.
*** Significance at 1%.

similar to that found by Da Costa et al. (2006), as well as the mean of the operating income.

*Asymmetric timeliness and timely loss recognition*

Table 2 shows the results estimated by the regression model of Basu (1997), as modified by insertion of our explanatory variable, ownership concentration.

Results in Table 2 indicate that firms with concentrated ownership recognize more asymmetrically their gains and losses. Table 2, panel A, shows a positive $\beta_{15}$, indicating that company ownership concentration relates positively with earning in Brazil. The main coefficient of our analysis is $\beta_{17} \times (Conc_{An} * D_{it} * RE)$. $\beta_{17}$ is positive and significant and also bigger than $\beta_{14}$, showing evidence that in the presence of higher ownership concentration, negative economic returns have

higher association with earnings, what is expected considering our $H_1$.

Regarding the relationship with ownership concentration, the results are similar for both the concentration measured as a percentage of shares owned by the largest shareholder $Conc_{A1}$ and the percentage of shares owned by the five largest shareholders $Conc_{A5}$. For both measures, the coefficients have values statistically significant at 1%.

The results show that as the ownership structure becomes more concentrated, there tends to be greater conservatism. According to the literature, this indicates the possibility of providing less reliable information to the market with regard to profit as an effective indicator for predicting future earnings (Penman & Zhang, 2002).

This may stem from the fact that conservatism acts as a mechanism to mitigate agency conflicts between minority shareholders and controlling shareholders (Ahmed, Billings, Morton, & Stanford-Harris, 2002). Although documented by Gonzaga and Costa (2009), when agency conflicts are more intense, the demand for conservatism may increase due to the need for alignment of interests between these groups of shareholders.

According to the "demand" hypothesis, public firms with concentrated ownership present higher conservatism than those with diffuse ownership structure. According to the "opportunistic behavior" hypothesis, managers have higher incentives to manipulate earnings when the firms have diffuse ownership structure (Givoly et al., 2010). Thus, conservatism arises as an efficient mechanism to control the parameters of contracts (Paulo et al., 2008), and to reduce the opportunistic behavior of managers (Watts, 2003b).

We complement our analysis by clustering the model by firm size. We split our sample into big firms and small firms considering "big" firms the ones that are above the median of the size, measure by total assets, and "small" firms that are below the median. Thus, we found that the big firms are more sensitive to the ownership structure. Using measures of ownership concentration as largest shareholder and the five largest shareholders, we found that in bigger companies as the ownership structure becomes more concentrated, the presence of accounting conservatism is stronger. The presence of conservatism for this group is higher than when analyzing the sample with all firms.

The results show that for larger companies there was no accounting conservatism in the sample. However, the ownership concentration is statistically significant only for larger companies. We believe that this result stems from the fact that big firms tend to have ownership structures strongly concentrated in family hands, which implies lower information asymmetry (Easley, Hvidkjaer, & O'hara, 2002).

Considering the results for the Brazilian capital market, hypothesis $H_1$ is not rejected, according to which companies with dispersed control and/or only common shares tend to be less conservative than those with concentrated ownership structure.

Table 3
Regression of earnings persistence.

| Variables | Pred. Sign | % of shares held by the largest shareholder | | % of shares held by the five largest shareholders | |
|---|---|---|---|---|---|
| | | Est. Coeff. | *t*-stat. | Est. Coeff. | *t*-stat. |
| **Panel A – Total Sample** | | | | | |
| *Earn* | + | 0.532*** | 51.97 | 0.514*** | 86.50 |
| $Conc_{A1}$ | – | −153.499*** | −4.67 | – | – |
| $Conc_{A5}$ | – | – | – | −91.273*** | −7.17 |
| $Conc_{A1} * Earn$ | – | −0.039*** | −6.26 | – | – |
| $Conc_{A5} * Earn$ | – | – | – | −0.026*** | −9.35 |
| *No. Obs.* | | 3.671 | | | |
| **Panel B – Small Companies** | | | | | |
| *Earn* | + | 0.887*** | 3.53 | 1.599 | 0.31 |
| $Conc_{A1}$ | – | −195.526*** | −11.48 | – | – |
| $Conc_{A5}$ | – | – | – | −179.162*** | −5.02 |
| $Conc_{A1} * Earn$ | – | −0.243* | −1.92 | – | – |
| $Conc_{A5} * Earn$ | – | – | – | −0.597 | −0.23 |
| *No. Obs.* | | 1.494 | | | |
| **Panel C – Big Companies** | | | | | |
| *Earn* | + | −0.074*** | −35.69 | −0.075*** | −109.17 |
| $Conc_{A1}$ | – | −3.383*** | −41.63 | – | – |
| $Conc_{A5}$ | – | – | – | 21.931*** | 8.85 |
| $Conc_{A1} * Earn$ | – | 0.035*** | 35.51 | – | – |
| $Conc_{A5} * Earn$ | – | – | – | 0.049*** | 30.08 |
| *No. Obs.* | | 2.177 | | | |

$Earn_{t+1} = \alpha + \beta_1 Earn_t + \beta_2 Conc_{AKt} + \beta_3 (Conc_{AKt} * Earn_t) + \varepsilon_{t+1}$

*Variables*: $Earn_{t+1}$ is earnings in year $t+1$; $Earn_t$ is earnings in year $t$, and the variable ownership concentration is controlled by $Conc_{Ak_t}$, where "$k$" denotes if the concentration is measured by the percentage of shares owned by the largest shareholder ($k=1$) or by the percentage of shares owned by the five largest shareholders ($k=5$).

* Significance at 10%.

*** Significance at 1%.

The results show the coefficient $\beta_{17}$ is higher than $\beta_{14}$, for both the total sample and the sample of big companies, indicating that concentrated ownership firms recognize losses asymmetrically in relation to dispersed firms (i.e., concentrated firms are more conservative). In other words, this result shows that concentrated firms present higher association between economic return and earnings when returns are negative. This result is robust for the two different measures of ownership concentration we consider in our estimation.

*Earnings persistence*

The empirical tests for the persistence of earnings are presented in Table 3, which shows the regression results of Eq. (5), investigating the performance of future earnings in current earnings. Consistent with the findings of Sloan (1996), our sample shows a positive relationship between future and current profit, with coefficients equal to 0.532 and 0.514 for the two measures of ownership concentration respectively. Both are significant at the 1% level, thus indicating persistence and sustainability of earnings, so that their performance is not merely transitory, showing that this profit is a good indicator for valuation models.

The results seem to corroborate the findings of Pimentel and Aguiar (2012) in analyzing the earnings persistence considering its relationship with firm size in the Brazilian market. Our findings suggest that the size can be an important determinant of earnings persistence. In this sense, this result shows that in the Brazilian setting, earnings persistence may increase valuation accuracy and thus be more important in valuation decisions (Coelho et al., 2011; Pimentel & Aguiar, 2012, 2016).

The results of the estimators for the ownership concentration variable showed the expected signs and a negative relationship

Table 4
Regression of the earnings persistence considering the decomposition into cash flow and accruals.

| Variables | Pred. Sign | % of shares held by the largest shareholder | | % of shares held by the five largest shareholders | |
|---|---|---|---|---|---|
| | | Est. Coeff. | *t*-stat. | Est. Coeff. | *t*-stat. |
| **Panel A – Total Sample** | | | | | |
| *Acc* | + | 155.987*** | 7.22 | 8.787 | 0.07 |
| *CFO* | + | 244.497** | 2.07 | 19.975 | 0.11 |
| $Conc_{A1}$ | – | −38.782*** | −2.65 | – | – |
| $Conc_{A5}$ | – | – | – | −36.768*** | −2.60 |
| $Conc_{A1} * Acc$ | – | 325.209*** | 4.12 | – | – |
| $Conc_{A1} * CFO$ | – | 1353.367*** | −4.64 | – | – |
| $Conc_{A5} * Acc$ | – | – | – | 256.009** | 2.02 |
| $Conc_{A5} * CFO$ | – | – | – | 602.384*** | 4.33 |
| *No. Obs.* | | 3.671 | | | |
| **Panel B – Small Companies** | | | | | |
| *Acc* | + | 141.291** | 2.49 | −76.436 | −1.63 |
| *CFO* | + | 583.869 | 1.14 | 295.119 | 0.65 |
| $Conc_{A1}$ | – | −120.291** | −2.30 | – | – |
| $Conc_{A5}$ | – | – | – | −92.090** | −2.03 |
| $Conc_{A1} * Acc$ | – | 642.492*** | 2.74 | – | – |
| $Conc_{A1} * CFO$ | – | 3969.205*** | 4.03 | – | – |
| $Conc_{A5} * Acc$ | – | – | – | 620.124*** | 6.66 |
| $Conc_{A5} * CFO$ | – | – | – | 1965.147*** | 4.21 |
| *No. Obs.* | | 1.494 | | | |
| **Panel C – Big Companies** | | | | | |
| *Acc* | + | 236.091*** | 9.66 | 344.998*** | 8.84 |
| *CFO* | + | 180.124*** | 7.71 | 256.439*** | 7.13 |
| $Conc_{A1}$ | – | −5.128 | −0.86 | – | – |
| $Conc_{A5}$ | – | – | – | 10.360*** | 2.88 |
| $Conc_{A1} * Acc$ | – | −56.678** | −2.07 | – | – |
| $Conc_{A1} * CFO$ | – | 3.246 | 0.09 | – | – |
| $Conc_{A5} * Acc$ | – | – | – | −274.699*** | −8.00 |
| $Conc_{A5} * CFO$ | – | – | – | −143.088*** | −5.53 |
| *No. Obs.* | | 2.177 | | | |

$Earn_{t+1} = \beta_0 + \beta_1 Acc_t + \beta_2 FCO_t + \beta_3 Conc_{AKt} + \beta_4(Conc_{AKt} * Acc_t) + \beta_5(Conc_{AKt} * FCO_t) + \varepsilon_{t+1}$

*Variables*: $Earn_{t+1}$ is earnings in year $t+1$; *Acc* is the total accruals can be calculated using information from the balance sheet and income statement: $TA = (\Delta CA - \Delta Cash) - (\Delta CL - \Delta STD - \Delta TP) - Dep$. $\Delta CA$ is the change in current assets; $\Delta Cash$ is the change in cash and cash equivalents; $\Delta CL$ is the change in current liabilities; $\Delta STD$ is the change in debt included in current liabilities; $\Delta TP$ is the change in income taxes payable and *Dep* is depreciation and amortization. *CFO* cash flow was calculated by the difference of net income and accruals, and the variable ownership concentration is controlled by $Conc_{Ak_t}$, where "*k*" denotes if the concentration is measured by the percentage of shares owned by the largest shareholder ($k = 1$) or by the percentage of shares owned by the five largest shareholders ($k = 5$)

** Significance at 5%.

*** Significance at 1%.

with respect to future earnings, indicating that the higher the ownership concentration, the lower the persistence and sustainability of future profits.

Our results also show that when we split the sample into big firms and small firms, the persistence of future earnings in current earnings is stronger for small firms than for big firms, specifically for the group of the shares owned by the largest shareholder.

To enlarge the perception of this relationship, Table 4 presents the estimated results for regression 9, applying the decomposition of earnings as suggested by Sloan (1996). Like the results of Sloan (1996), our sample showed that the performance gain is more persistent than the cash flow component for the Brazilian capital market.

The ownership concentration is significant at a level of 1% for the both measures of ownership concentration, the percentage of shares owned by the largest shareholder and the percentage of shares owned by the five largest shareholders.

The results indicate, as in the previous model, a significant and negative relation with the performance of future earnings, reinforcing the evidence that the greater the ownership concentration, the lower the persistence of earnings.

When analyzing the relationship of ownership concentration with the persistence of accruals in earnings, it is statistically significant for both the largest shareholder as for the five largest shareholders, as is the relationship of ownership concentration with operating cash flow, significant at 1%. However, just for the five largest shareholders, in the sample of the larger companies, the relation is negative, indicating that as the ownership structure becomes more concentrated, the cash flow generation tends to decrease.

Based on the results presented, the earnings persistence is different for firms with different ownership concentration and the firm size influences the effect of ownership structure in the earnings persistence. In this context, we conclude that the findings do not reject hypothesis $H_2$, according to which firms with dispersed control have higher persistence of future earnings relative to current earnings in the Brazilian capital market.

## Conclusions

In this paper, we analyzed the existence of a relationship between the ownership structure (ownership concentration) and earnings quality in Brazil, where most firms have high ownership concentration. We posit that this environment supports the "demand" hypothesis instead of the "opportunistic behavior" hypothesis. To measure earnings quality, we use as proxies conservatism and earnings persistence.

Our results indicate that accounting conservatism grows as the ownership structure becomes more concentrated. The previous literature highlights the importance of understanding accounting conservatism in financial reporting, as this influences the economic and financial analysis of companies. Since, the Brazilian institutional environment favors weak protection of minority investors, conservatism may be a response to this situation.

Thus, the minority shareholders may demand greater efficiency in contractual relations, where conservatism can act to reduce the opportunistic behavior regarding the financial information taken as a basis for contracts. In the context of this study, as much of the literature emphasizes, conservatism can lead to biased market information.

Regarding the measure of persistence, our results show that as the ownership structure becomes more concentrated, persistence of profit and hence its sustainability become less persistent, so the profit shown in these conditions does not provide reliable information for valuation processes.

When we decompose the current earnings into its components operating cash flow and accruals, the results indicate that the persistence of profit is higher in the cash flow component and shows that as the ownership structure becomes more concentrated with less persistence of profit.

Previous research has shown that persistence is important in its economic aspects, as evidenced by the level of sustainability of profits, and therefore can strongly impact returns.

Our results contribute to academia because they suggest that the quality of accounting numbers has to be assessed considering aspects related to ownership concentration (even when analyzing earnings of public firms). They also contribute to the investment community by showing that earnings forecast accuracy may be influenced by ownership structure.

It is important to note that our study does not explicitly capture the presence and relevance of institutional investors. Another limitation of our study is in the small participation of firms with dispersed ownership in the sample. This is an inherent limitation due to the ownership pattern in Brazil.

The low variability of the sample in relation to dispersed firms potentially leads to increase in the variance of coefficients. In this sense, it is important to mention that the results of the separate sub-samples of small and big firms may have been influenced by the low variability of the explanatory variable ownership concentration.

Finally, regarding future research, we recommend analyzing the influence of ownership concentration on financial reporting quality using additional metrics, as presented by Dechow et al. (2010).

## Conflicts of interest

The authors declare no conflicts of interest.

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