Determinants of asymmetric loss recognition timeliness in public and private firms in Brazil

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1. Introduction

Prior research (Ball and Shivakumar, 2005; Burgstahler et al., 2006) indicates that public firms have higher earnings quality than private firms due to the lower market demand for high-quality earnings for private firms. In this paper, we consider that incentives of managers and auditors play a central role to determine the quality of financial statements and we investigate asymmetric loss recognition timeliness in a situation different from previous research. In our setting preparers and auditors of both private and public firms face similar incentives, thus we expect no difference in earnings quality from private and public companies.

According to Ball et al. (2003), we consider the hypothesis that reporting quality is determined by the underlying economic and political factors influencing managers’ and auditors’ incentives and is the main driver of public and private companies’ earnings quality. Specifically, we investigate the determinants of asymmetric loss recognition timeliness (ALRT) for public and private Brazilian firms conditional on their reporting incentives prior to the adoption of IFRS because we want to reduce the potential of ambiguous effects in earnings management due to convergence to IFRS as evidenced by Zhang et al. (2013) and Pelucio-Grecco et al. (2014).

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Ball and Shivakumar (2005) argue that asymmetric loss recognition timeliness make financial statements more useful in corporate governance and lending agreements. The governance effect of asymmetric loss recognition timeliness is that managers have asymmetric incentives to report good and bad news. Without conservatism managers can defer loss recognition to future periods passing to subsequent managers the results of their improper investment decisions. Timely loss recognition creates incentives for managers to cut economic losses quickly. Conservatism is also useful in loan agreements by making financial statements reflect quickly bad news and allowing creditors to impose contractual restrictions arising from covenants. Conservatism transfers decision right from managers to creditors more quickly. In Brazil, these functions of conservatism are of diminished importance because shareholders can control managers' actions directly and loan agreements based on accounting numbers are very rare reducing the demand for timely recognition of economic losses. Brito and Martins (2013) argue that the Brazilian institutional environment of weak legal protection and the low demand for high-quality earnings restrict the potential benefits generated by conservatism.

We believe that by addressing this problem we extend prior research by shedding additional light on the determinants of the actual properties of accounting reports. Brazil provides a unique opportunity to extend Ball and Shivakumar (2005) work because like the British firms Brazilian private and public firms face the same accounting standards. However, unlike the British firms, Brazilian public and private firms also face similar incentives to provide conservative accounting reports. Thus we expect the ALRT in Brazilian public and private firms to be the similar and lower than the level of ALRT presented by British firms showing the importance of contractual incentives to shape the actual properties of financial statements.

To implement our analysis we use a unique database with nearly 60,000 firm-years observations being 2.4% public firms and 97.6% private firms over the 1995–2006 period. Our results show that there is no significant difference in ALRT for Brazilian public and private firms unlike Ball and Shivakumar (2005) reported for the UK. We also show that ALRT for Brazilian firms is not significantly affected by firm's issuing activity in capital markets. Additionally we detected strong signals of opportunistic behavior for both samples of firms.

Our paper contribute to literature by shedding light on the determinants of the quality of accounting reports for public and private firms immersed in a low quality accounting environment. We contribute to a strand of the literature (Ball et al., 2000a,b, 2003; Ball and Shivakumar, 2005; Bushman and Piotroski, 2006; Ali and Hwang, 2000) by providing additional evidence that accounting quality as measured by asymmetric loss recognition timeliness is not solely determined by the type of firm, accounting standards, regulations, taxes or auditing and listing requirements (Brazilian public and private firms face the same environment regarding these factors) but is mainly influenced by the demand and incentives for high quality reports.

In this sense we extend and complement Ball and Shivakumar (2005) by investigating ALRT for private and public firms in Brazil where, unlike in the UK, equity markets do not provide the adequate incentives for high quality financial reporting. In Brazil even the public companies listed on the São Paulo Stock Exchange (BOVESPA) do not face the same incentives to report high quality earnings as the British public firms do. Most of them do not rely on capital markets to raise funds (rather they use special private channels with private and state owned banks) and the ownership concentration is large.\(^3\) Brazil complies negatively with all the five criteria pointed by Ali and Hwang (2000) as being related to the informativeness of accounting reports: (i) code law origin, (ii) influence of tax on accounting, (iii) government standard-setting, (iv) credit-based insider model of financing and (v) small amounts spent on auditing. Third, there is pervasive evidence that investor protection in Brazil is very low (Anderson, 1999; Studart, 2000) and the law enforcement in the country is very low – according to Durnev and Kim (2005) only Colombia ranks below Brazil in terms of law enforcement. These factors are likely to drive down the quality of accounting reports for public (and private) firms. In these circumstances, equity investors and debtholders do not base their decisions primary on publicly available financial reports, because they have private access to other sources of information.

Finally, we consider this study is also relevant due to the lack of evidence about private firms’ earnings quality in emerging economies and because of the importance of private companies in the real economy. Private companies (i.e. firms that do not have public traded securities) are predominant in economies around the world. The 2016 Forbes’s list of largest private companies

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3 Brazilian equities market has recently improved regarding size, volume and sophistication. From 2004 to June 2008, 102 firms listed at Bovespa (São Paulo Stock Exchange). From all this listings, 78 were voluntarily made on the highest corporate governance level, called “Novo Mercado”. At this corporate governance level, the main feature is that listed firms can only issue common stocks (what has been historically minority in Brazil). However, our sample comprises the period from 1995–2006, where most firms have a controlling shareholder (controlling group) and financed themselves primary by using private debt.

4 Available at: http://www.forbes.com/sites/andreamurphy/2016/07/20/americas-largest-private-companies-2016/#7d795fee1417


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2. Background and hypotheses development

Young et al. (2008) recognize that there is not a unique agency model that describes all corporate governance designs around the globe. The authors argue that in emerging economies the institutional context enhance the costs and problems to enforce agency contracts, resulting in the prevalence of concentrated ownership as a response to the principal–principal conflict (instead of the traditional principal-agent conflicts in developed markets).

Corporate governance literature (La Porta et al., 1999; Bebchuk and Hamdani, 2009) suggests that the presence of controlling shareholders changes the fundamental governance problem. According to Bebchuk and Weisbach (2010) the presence of a controlling shareholder, shifts the fundamental governance problem from opportunism by executives and directors at the expense of public shareholders to opportunism by the controlling shareholder at the expense of the minority shareholders. This is the typical case of Brazilian public companies where the controlling shareholder (controlling group) hold a mean (median) 76.1% (79.5%) of the voting shares (Okimura et al., 2007). This exacerbated concentration probably exerts some (negative) impact on the properties of accounting numbers for Brazilian public firms.

The demand for high quality in public companies’ financial statements is less likely to exist for public firms in emerging markets with developing capital markets and concentrated ownership (e.g. Brazil). Parallel, and consistent to the argument of Ball and Shivakumar (2005, p.84) that private companies are more likely to resort to the “insider access” model to resolve information asymmetry, we argue that in developing markets the incentives faced by public and private firms to recognize losses on a timely basis do not differ significantly.

It is an established fact that institutional factors may impact the properties of accounting earnings. Previous literature (Ball et al., 2000a, 2000b; Hung, 2000; Ball et al., 2003) shows evidence that the demand and usefulness of accounting numbers are related to general characteristics of each country (e.g., Code-law or Common-law). Supplemental studies (Ball and Shivakumar, 2005; Ball et al., 2008 and Pae et al., 2005) present evidences that asymmetric loss recognition timeliness (ALRT – hereafter) is related to specific features regarding the firm, the level of activities of capital markets and demand for public information within each country (region). In a comprehensive survey about earnings quality Dechow et al. (2010, p. 364) suggest that timely loss recognition has an endogenous component related to firms’ reporting incentives, primarily equity incentives. In the same direction, Gopalan and Jayaraman (2012) show that insider-controlled firms are associated with more earnings management than noninsider-controlled firms in weak investor protection countries.

Ball and Shivakumar (2005) found that ALRT is substantially less prevalent in private than in public companies in the UK. They interpret this result as a direct consequence of the lower demand for high quality information in the environment in which private firms are immersed. However their results impound economic and institutional features that may not prevail in other countries, such as the level of UK capital market development and the dispersed ownership structure of most public British firms.

Thus, we conjecture our hypothesis for this study as:

H0. Brazilian public and private firms exhibit the same level of timely recognition of economic losses because they face the same accounting, auditing and tax rules and regulations, like the British firms, but their preparers also face similar incentives to produce low quality financial reports – unlike the British.

In this sense we consider that reporting quality is ultimately determined by the underlying economic and political factors influencing managers’ and auditors’ incentives and is the main driver of public and private earnings quality in Brazil.

To better understand the environment in Brazil, the next section discuss in detail the accounting, auditing and tax norms for Brazilian private and public firms and the market forces shaping corporate financial reporting in Brazil.

2.1. Accounting, auditing and tax rules for Brazilian public and private firms

In Brazil most commercial and industrial firms are incorporated under two forms: (i) sociedades por ações (SA), both of them characterized as limited liability companies. CLs are always registered as private firms, while SAs may assume the form of public company or private company (depending whether or not they offer securities to the market). CLs are not required to publish financial statements or any other form of public financial information irrespective of their size. The other group (SA) can be subdivided on sociedades abertas (SAca) – the group of public companies – and sociedades fechadas (SAcf) – the group of private companies. SAs on both groups are regulated by the Brazilian company law (Lei 6404/1976) and have to publish financial reports according to Brazilian GAAP. However, only SAca have shares listed on the São Paulo Stock Exchange (BOVESPA). Additionally, the Brazilian Revenue Service (RFB) does not discriminate between the two groups of SAs who face the same set of tax rules.

Brazilian SAs present the same setting reported by Ball and Shivakumar (2005) for public and private British firms. SAca are the ones that can raise money from the public by issuing shares and debt. SAcf are firms that decided to adopt SA status for other reasons rather than to access public equity and credit markets.6 The only significant difference between both types of SAs is their listing status and access to public equity and debt markets. In the next section we show that despite SAca being listed on the BOVESPA and SAcf are not, both types of SAs end up having the same market for financial reporting environment. The Brazilian GAAP also applies equally for both sets of firms.

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6 One of the possible reasons is to have access to funds from the Brazilian National Development Bank (BNDES).
2.2. The market for corporate financial reporting in Brazil

Our main hypothesis in this paper is that Brazilian private (SACf) and public companies (SACA) face similar incentives to provide informative accounting reports. Based on this assumption we do not expect to find different levels of timely loss recognition between these two groups. We believe that Brazilian private and public firms have no incentives to provide conservative accounting reports due to four reasons: (i) poor investor protection and legal enforcement, (ii) insider model of financing, (iii) ownership concentration, (iv) strong links between tax and accounting reports under the so-called Continental European accounting model (Nobes, 1998). In this section we present these features in detail.

2.2.1. Poor investor protection and legal enforcement\(^7\)

There is pervasive evidence that investor protection and legal enforcement in Brazil are at world’s lowest levels (Anderson, 1999). Durnev and Kim (2005) show that only Colombia ranks below Brazil in terms of legal enforcement and obedience to the rule of law. According to Black (2001) these features are reflected also in securities market regulation. Recently, Chong and Lopez-de-Silanes (2007) documented that poor investor protection is the rule in Latin America causing capital markets in the region to be anemic and not work to finance firm’s activities. Firms in the region have to form alliances with foreign partners or look for finance abroad – mainly by issuing American Depositary Receipts. Recent data\(^8\) show that Brazilian firms are one of the biggest ADR’s issuers in the world.

Recent literature on corporate governance (La Porta and Lopez-de-Silanes, 2000; La Porta et al., 2002) has shown the pervasive influence that poor investor protection and legal enforcement have on the development of capital markets. To have access to external sources of funds firms have to credibly commit not to expropriate investors and to maintain a reasonable flow of information in order to facilitate monitoring by boards, auditors and regulators. Financial statements play an essential role on this process because they help to reduce information asymmetry and are inputs to contracts between managers and shareholders (Sunder, 1997). Accounting earnings are especially important because they provide a summary measure of firm performance which can be used to evaluate managers’ behavior, for example. Timely loss recognition of economic losses play a special role in this monitoring process because it helps to constrain managers opportunistic behavior and to provide more reliable measures of firm performance for other contracts like lending arrangements. However, timely loss recognition must be verified and deviations must be punished in order for conservatism to be reliable ex ante. Timely loss recognition depend on managers’ discretionary judgment and consequently on their incentives to behave properly. In Brazil we have a situation where the market does not demand conservative financial statements and managers do not face clear impediments to behave improperly.

2.2.2. Insider model of financing

The economic environment that shaped Brazilian capital markets during the 1990s took place on early 1980s. Institutional problems were coupled with high levels of inflation\(^9\) and macroeconomic instability in the eighties – factors that reduced significantly economic activity in Brazil and generated what Brazilians call the ‘lost decade’. The eighties in Brazil constitute a text-book case of the so-called crowding out phenomenon. To finance a very generous fiscal policy the Brazilian government had to issue growing volumes of public notes and bonds paying increasing interest rates. This phenomenon was accompanied by high inflation levels. The Brazilian government issued very short-term notes paying floating interest rates to ensure its own funding. This process became so exacerbated that in the late eighties almost the entire stock of financial assets in the country were allocated to treasury notes. This process continued during the first half of 1990s and reduced dramatically the demand for stocks in Brazilian capital markets because investors were not interested in buying shares once treasury bills were available yielding high returns.

Beginning in 1994, deep macroeconomic reforms took place in Brazil. Initially a currency stabilization plan (Plano Real) was implemented. However, according to Nassif (2007, p.22) despite the fact that the successful stabilization program had reduced annual inflation rates from 916% to 1.65%, the combination of high real interest rates with significant real overvaluation of the Brazilian currency against the principal trade partners’ currencies produced increasing twin deficits. In 1999 Brazil adopted a floating exchange rate regime, but still maintained very high interest rates, continuing to attract investors to government bonds.

A natural consequence of the crowding out process implemented in Brazil was that firms could not count on capital markets to finance their growth opportunities. The Brazilian Bank for National Development (BNDES – a state controlled bank) was responsible for almost all long term finance available in Brazil. The private banks provided almost no funds for firms because their assets were allocated to public notes. Most of the trading volume on the São Paulo Stock Exchange during this period was made of shares of state-controlled enterprises. Under these macroeconomic conditions firms in Brazil could not rely on public capital markets to finance their development. Finance was obtained through private channels and government connections.

Chong and Lopez-de-Silanes (2007) provide a detailed discussion of this scenario for Latin America as whole and found similar patterns. Macroeconomic instability and poor investor protection and legal enforcement caused investors to be very unlikely to provide long term financing for firms in the region. For capital markets to flourish, investors must be confident that they are not going to be expropriated or have their returns reduced by high inflation levels. In an inimical environment like the Brazilian during this period investors and firms reached their agreements through private deals. These deals are based on relationships and long term influence and not on public financial statements. Corporate financial reporting is not a serious input into

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\(^7\) This analysis is based on the timeframe covered in this study and do not reflect the recent initiatives undertaken in to improve investor protection and corporate governance in Brazil.

\(^8\) www.adr.com.

\(^9\) The Brazilian consumer inflation rate reached 99.7% in 1982 (http://www.bcb.gov.br).

contracts under such circumstances. In this setting there is no demand for informative accounting reports and timely recognition of economic losses serves no need for public firms.

2.2.3. Ownership concentration

The corporate governance literature has shown that ownership concentration can function as a response to poor investor protection (Shleifer and Vishny, 1997). Knowing that they cannot rely on courts to solve conflicts, shareholders decide to act ex ante and to buy large blocks of shares in order to improve monitoring over managers. This is exactly the case in Brazil where ownership concentration is high and during our sample period not a single company had its control floated in the São Paulo Stock Exchange. We believe that this high level of ownership concentration is a response to the low investor protection level investors face in the country and a consequence of the fact that firms in Brazil do not rely on public markets to finance their activities.

The typical agency conflict between managers and shareholders is dominated in Brazil by the conflict between minority and controlling shareholders. The financial accounting literature has shown (Watts, 2003a, 2003b) that timely loss recognition of losses plays a central role in mitigating managers’ opportunistic behavior which increases earnings usefulness in contracts and other arrangements. In Brazil, the conflict between controlling and minority shareholders changes the importance given to conservatism because most of the disputes occur because of structured transactions designed to dilute minority participations (and related problems) and not on performance-related matters on which earnings are important inputs. We conjecture that the high level of ownership concentration in Brazil reduces dramatically the role that asymmetric recognition of losses has on contracts between managers and shareholders.

This aspect turn the Brazilian firms apart from the British because UK private and public firms have distinct ownership structures – public firms are more dispersed than private ones. In Brazil the level of ownership concentration is similarly high causing shareholders to have special access to information and to not depend on public financial statements. In this situation, there is no demand for informative accounting reports. Investigating this question, Fan and Wong (2002) examine the relation between informativeness and the ownership structure of firms based on seven East Asian countries. They found a negative relation between ownership concentration and timeliness which is consistent with two alternative explanations. First, concentrated ownership creates agency problems between controlling shareholders and outside investors causing controlling shareholders to report earnings for self-interested purposes. Second, concentrated ownership may prevent leakage of proprietary information and earnings consequently lose information content.

Additionally Ahmed and Duellman (2007) find evidences that the percentage of outside directors’ shareholdings is positively related to conservatism, while the percentage of inside directors is negatively related to conservatism. LaFond and Watts (2008) document that firms characterized by greater information asymmetry present greater timeliness in loss recognition of bad news when compared to good news.

Private and public companies in Brazil operate in a similar environment regarding agency conflict between controlling shareholders and management. Large shareholder concentration in public firms is a key-feature of Brazilian capital markets. In a recent research, KPMG (2010) documented only 13.4% of independent board members for the 50 most liquid companies traded on the traditional segment at BM&FBovespa. We can conjecture that in Brazil the average public and private firms present similar corporate governance schemes. In such scenario, we posit that information asymmetry between controlling shareholders and managers is similar in private and public firms in Brazil. We believe that the situation in Brazil is an interesting setting where we can test ALRT between private and public firms facing similar information asymmetry features between controlling shareholders and management. Our paper contributes to the findings and arguments of Fan and Wong (2002) and LaFond and Watts (2008).

2.2.4. Strong links between tax and accounting reports – Continental European model

According to the Nobes (1998) classification, Brazil can be classified as a Class B country. It’s accounting and legal systems are based on its Iberian colonizers – code law system. All accounting norms for public firms are stated on the Company Law and professional accounting bodies have no de facto power to influence accounting standards. We observe a strong link between tax and financial reports in the country – financial statements are prepared following the Company Law but adherence to tax regulations is the rule not the exception. Additionally, dividends must be paid at a minimum fraction (25%) of corporate profits according to the Company Law for both SAcf (private firms) and SAca (public firms). In Brazil financial reporting is strongly influenced by taxation and dividend policies. According to Ball and Shivakumar (2005) these influences are likely to cause a lower demand for earnings which reflect underlying economic performance.

Taken together these factors lead us to hypothesize that private and public firms in Brazil face the same set of market incentives – the market for financial reporting is identical for these two sets of firms. Most of the listed firms were state-controlled and others listed only to have special access to government funds. Thus our main hypothesis in this paper is that the incentives to incorporate asymmetric loss recognition into will be similar between public and private firms in Brazil.

Watts (2003a, 2003b) adopt the contractual explanation for conservatism. According to him conservatism arises as an equilibrium feature of accounting numbers which are used to form contracts between parties with asymmetric information and conflicts of interest. In the typical principal-agent conflict conservatism arises to mitigate managers’ opportunistic behavior – to inflate profits to increase bonus payments, for example. We conjecture that Brazilian private and public firms face the same contractual environments unlike the British firms reported by Ball and Shivakumar (2005).

10 The Brazilian Company Law was reformed in the end of 2007 and from 2008 on Brazilian accounting standards started to be settled by an independent body (seeking convergence to IFRS). However, the standards have to comply with the requisites of the Company Law.

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3. Data

3.1. Sample selection

Our database is composed by public and private Brazilian corporations that released financial statements from 1995 to 2006. We consider a period of analysis prior to IFRS adoption in Brazil because we want to reduce the potential of ambiguous effects in earnings management due to convergence to IFRS. Recent studies about the adoption of international financial reporting standards (IFRS) indicate that this event has impact on earnings management conditional on other institutional factors. Zhang et al. (2013) find that Chinese listed companies that experienced mandatory adoption of IFRS significantly increased earnings management. By the other hand, Pelucio-Grecco et al. (2014) find that the adoption of IFRS by Brazilian firms had a restrictive effect on earnings management.

First, we collected data from all private firms registered on SERASA, which is the largest Latin American financial database on individuals and corporations. SERASA plays an active role in most credit and business-related decisions made in Brazil, responding to 4 million inquiries per day made by over 400 thousand direct or indirect customers. Secondly, we use ECONOMATICA database to collect data from public firms. Then we merge the data from SERASA and ECONOMATICA and our sample results in 5364 firms, from which 5000 are private corporations and 364 are public-held corporations. We lose one year of observation because we use changes in income and other variables to calculate operating cash flows. Thus, our final sample contains 5364 firms during 11 years. It is also important to note that according to Brazilian corporate law, all financial statements from corporations (“SAs”) must present auditor’s report, what enforces the application of GAAP to Brazilian corporations.

3.2. Descriptive statistics

We provide detailed income statement (Table 1) and balance sheet (Table 2) descriptive statistics for public and private firms. Panels A, B and C present statistics for public, private and all sample of firms, respectively, with t-statistics for a two tailed test of differences in means between private and public. As stated by Ball and Shivakumar (2005) the t-statistics must be interpreted with caution, since its control for neither cross-sectional nor serial correlation.

3.2.1. Income statement items

Table 1 presents descriptive statistics for the income statement variables. The mean (median) annual sales for public-held companies are R$1299 million (R$89 million), compared to R$22 million (R$3.6 million) for private firms. This difference is statistically significant at 1% and represents the difference in size for firms pertaining to each group. However sales scaled by total assets at beginning of year are not significantly different from public-held to private firms in Brazil. The mean (median) net return on assets averages −63% (2%) for publicly listed firms and 19% (5%) for private firms. Other profitability measures also point out to positive and statistically significant differences on accounting returns between private and public-held companies. These features can be compared to the presented by Ball and Shivakumar (2005) on Table 1 where private firms also present higher return-metrics than public-listed firms. The analysis of the payout ratio shows different behaviors when comparing private and public firms. Apparently, private firms are more aggressive in paying dividends. A possible explanation for higher dividends in private firms is that many of them are subsidiaries from international firms and payback large dividends to the parent company.

3.2.2. Balance sheet items

Table 2 presents summary statistics for balance sheet items. Opposite to income statements variables, substantial differences between private and public companies are evident. The average (median) public-held firm has total assets of R$2267 million (R$147 million), while the average (median) private firm has total assets of R$25 million (R$2.1 million). Equivalently mean (median) equity from public-held firms respond to R$927 million (R$47 million), while the average (median) private firm has equity of R$13 million (R$0.9 million).

Consistent to the idea that public-held companies make more intense use of financial markets when compared to private firms, leverage statistics on Table 2 (scaled total debt, scaled net debt and scaled long term debt) indicate that the public-held firms’ group presents significantly higher mean (median) debt variables.

4. Methodology and results

4.1. Methodology

Our basic model considers the transitory nature of economic income and is based on Basu (1997) and Ball and Shivakumar (2005). Basically the model considers that increases and decreases in accounting income tend to revert, what indicates the transitory components of earnings. To measure the difference in income decrease (increase), the basic model (1) is applied considered:

$$
\Delta I_t = \alpha_0 + \alpha_1 \Delta I_{t-1} + \alpha_2 \Delta I_{t-1} + \alpha_3 D \Delta I_{t-1} + \Delta I_{t-1} + \varepsilon_t
$$


12 The average exchange rate between the Brazilian Real and the US dollar in the first quarter of 2010 was 1.88R:1USD.
where $\Delta_i$ represents changes in net income at year $t$ scaled by total assets at the end of the year $t - 1$, $D\Delta_i_{-1}$ equals 1 if previous year's changes in net income is negative or 0 otherwise, $\Delta_i_{-1}$ represents changes on net income at year $t - 1$, $D\Delta_i_{-1} \ast \Delta_i_{-1}$ is the interaction variable of negative changes of net income at year $t - 1$.

To consider differences between private and public companies, our empirical analyses derive from (1) and we use pooled ordinary least squares (POLS) to enable us to estimate the models considering a variety of dummy variables that changes across specifications. Ball and Shivakumar (2005) recognize there is a potential endogeneity problem in this specification. If firms select listing status based on expected changes in earnings, the dummy variable DPR is endogenous. However, the authors argue (p. 117) that this problem “is highly unlikely in the income changes regression, because any relation between choice of listing status and income is likely to involve the average level of income in the years following the listing decision, not the change in a single future year”.

To select between OLS and random effects regression we run the Breusch-Pagan Lagrange multiplier test (LM). The null hypothesis in the LM test is that variances across entities is zero. Results show that we cannot reject the null for the model (2) and we can reject the null for the model (3). Hence, for the specifications presented on Table 4 we also run random effects regressions, but our main results do not change. For the sake of simplicity, we tabulate and present our OLS results.

4.2 Timeliness in loss recognition between public and private firms

To measure earnings ALRT in Brazilian public and private firms we use the approach proposed by Ball and Shivakumar (2005). Initially we apply the model to evaluate transitory gain or loss components on earnings among public and private firms as...
follows:

\[ \Delta l_t = \alpha_0 + \alpha_1 D\Delta l_{t-1} + \alpha_2 \Delta l_{t-1} + \alpha_3 D\Delta l_{t-1} \times \Delta l_{t-1} + \alpha_4 \Delta PDR + \alpha_5 \Delta PDR \times D\Delta l_{t-1} + \alpha_6 \Delta PDR \times D\Delta l_{t-1} + \epsilon_t \]  

(2)

where \( \Delta l_t \) represents changes in net income at year \( t \) scaled by total assets at the end of the year \( t - 1 \), \( D\Delta l_{t-1} \) equals 1 if previous year’s changes in net income is negative or 0 otherwise, \( \Delta l_{t-1} \) represents changes on net income at year \( t - 1 \), \( D\Delta l_{t-1} \times \Delta l_{t-1} \) is the interaction variable of negative changes of net income at year \( t - 1 \), \( \Delta PDR \) equals 1 for private firms or 0 for public firms, \( \Delta PDR \times D\Delta l_{t-1} \) is the interaction variable for private firms with negative changes of income at year \( t - 1 \), \( \Delta PDR \times D\Delta l_{t-1} \times \Delta l_{t-1} \) represents the interaction variable for private firms with changes of net income at year \( t - 1 \) and \( \Delta PDR \times D\Delta l_{t-1} \times \Delta l_{t-1} \) represents the interaction variable between private firms with negative changes of net income at year \( t - 1 \). These definitions are used in our first regression, presented on Table 3, column 1. Alternative specifications are used (Table 3, columns 2 to 9), where \( \Delta PDR \) definition varies. Additionally, we investigate the sample of public firms in more detail. We investigate three additional features of public firms and their impact on ALRT: (i) firms’ activity in public debt markets, (ii) degree of leverage using public debt and (iii) presence of covenants. In this sense we also investigate whether firms financing activities with public debt act as an incentive regarding ALRT.

\( \Delta PDR \) assumes different meanings across our regressions. On Table 3, column 2 \( \Delta PDR \) equals 1 for firms with no public debt and 0 otherwise. On Table 3, columns 3, 4, 5 and 6 \( \Delta PDR \) is not defined considering our regressions specifications on subsamples. On Table 3, column 7 \( \Delta PDR \) equals 1 for firms without covenants and 0 otherwise. Finally on Table 3, columns 8 and 9 \( \Delta PDR \) is defined as firms’ leverage ratio.

Eq. (2) adopts a time-series test of timeliness in loss recognition. That approach allows one to analyze if lagged income measures convey incremental explanatory power to current changes on income, by negative (positive) income and by private (public) firms. Ball and Shivakumar (2005) hypothesis suggest less reversal of income decreases in private companies than in public companies, reflecting a lower frequency of timely loss recognition due to lower demand for financial reporting quality. Table 3, column 1 presents the results of regression (2) considering a pooled OLS model.

We focus on the coefficients \( \alpha_0 \) and \( \alpha_2 \) because we expect Brazilian public and private firms to exhibit earnings of the same quality and consequently we do not expect these coefficients to be significant. Table 3, column 1 shows that besides the significantly reversion of public firms’ results when there are negative changes on profits (\( \alpha_3 = -0.27 \)), one cannot differ public and private firms behavior considering that \( \alpha_2 \) is not statistically significant. This result in coherent with our hypothesis and shows no significant difference between public and private companies in Brazil unlike Ball and Shivakumar
represents significance at 10%.
** represents significance at 5%.
*** represents significance at 1%.

Table 3: Pooled OLS regression of change in earnings on lagged change in earnings for all firm-years. Dependent variable measured as change in net income. DPR variable varies across columns.

\[
\Delta_i = \alpha_0 + \alpha_1 \Delta D \Delta_i - 1 + \alpha_2 \Delta_i - 1 + \alpha_3 D \Delta_i - 1 + \alpha_4 D \Delta_i - 1 + \alpha_5 \Delta D \Delta_i - 1 + \alpha_6 D \Delta_i - 1 + \alpha_7 \Delta_i - 1 + \varepsilon
\]

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</tr>
</thead>
<tbody>
<tr>
<td>Intercept ((\alpha_0))</td>
<td>?</td>
<td>-0.004</td>
<td>0.014*</td>
<td>-0.008</td>
<td>-0.003</td>
<td>0.000</td>
<td>-0.004</td>
</tr>
<tr>
<td>(D \Delta_i - 1 (\alpha_1))</td>
<td>0.012</td>
<td>-0.0351***</td>
<td>0.024*</td>
<td>0.006</td>
<td>-0.015</td>
<td>0.0136*</td>
<td>-0.039**</td>
</tr>
<tr>
<td>(\Delta_i - 1 (\alpha_2))</td>
<td>0</td>
<td>-0.005</td>
<td>-0.073</td>
<td>-0.002</td>
<td>-0.006</td>
<td>-0.135**</td>
<td>0.003</td>
</tr>
<tr>
<td>(D \Delta_i - 1 + \Delta_i - 1 (\alpha_3))</td>
<td>-0.267***</td>
<td>-0.735***</td>
<td>-0.178</td>
<td>-0.319***</td>
<td>-0.487</td>
<td>-0.258**</td>
<td>-0.735***</td>
</tr>
<tr>
<td>(DPR (\alpha_4))</td>
<td>0.014*</td>
<td>-0.026***</td>
<td>-0.002</td>
<td>-0.091***</td>
<td>-0.004</td>
<td>0.003</td>
<td>0.045</td>
</tr>
<tr>
<td>(DPR + D \Delta_i - 1 (\alpha_5))</td>
<td>?</td>
<td>-0.010</td>
<td>0.056*</td>
<td>-0.010</td>
<td>0.056*</td>
<td>-0.006</td>
<td>-0.048</td>
</tr>
<tr>
<td>(DPR + \Delta_i - 1 (\alpha_6))</td>
<td>?</td>
<td>-0.103*</td>
<td>0.091***</td>
<td>-0.010</td>
<td>0.056*</td>
<td>-0.006</td>
<td>-0.048</td>
</tr>
<tr>
<td>(DPR + D \Delta_i - 1 + \Delta_i - 1 (\alpha_7))</td>
<td>-0.019</td>
<td>0.490*</td>
<td>-0.019</td>
<td>0.490*</td>
<td>-0.019</td>
<td>0.490*</td>
<td>-0.019</td>
</tr>
</tbody>
</table>

Variables: \(\Delta_i\) changes in income at year \(t\) scaled by total assets at the end of the year \(t - 1\); \(D \Delta_i - 1\), equals 1 if previous year’s changes in income is negative or 0 otherwise; \(\Delta_i - 1\), changes in income at year \(t-1\) scaled by total assets at the end of the year \(t - 2\); \(D \Delta_i - 1 + \Delta_i - 1\), is the interaction variable of negative changes of income of year \(t - 1\) - DPR, varies across columns; \(DPR + D \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\). DPR - \(\triangle \Delta_i - 1\), interaction variable firms with negative changes of income at year \(t - 1\).

\(\alpha_2 + \alpha_3\) | -0.272 | -0.808 | -0.179 | -0.325 | -0.621 | -0.256 | -0.892 | -0.369 | -0.273 |
| \(\alpha_2 + \alpha_3\) | -0.108 | 0.019 | -0.065 | -0.197 | -0.026 |
| \(\alpha_2 + \alpha_3 + \alpha_4 + \alpha_5\) | -0.395 | -0.226 | -0.395 | -0.226 |

Adj. R² 0.0777 0.067 0.0333 0.0641 0.1309 0.0473 0.1371 0.0726 0.0515
F-Stat. 214.68*** 13.95*** 3.88*** 11.07*** 10.41*** 10.71*** 15.6*** 7.15*** 6.08***
Cross-section obs. 10 10 10 10 10 10 10 10 10
Years 10 10 10 10 10 10 10 10 10
No. of obs 49,693 2351 624 1727 420 1931 655 2244 2349

Table 4
Pooled OLS regression of accruals on operating cash flows for all firm-years. Dependent variable measured as total accruals. DPR variable varies across columns.

\[
AC_t = \beta_0 + \beta_1 DOCF_t + \beta_2 OCF_t + \beta_3 DOCF_t + OCF_t + \beta_4 DPR + \beta_5 DPR \times DOCF_t + \beta_6 DPR + \beta_7 DPR \times OCF_t + \epsilon_t
\]

<table>
<thead>
<tr>
<th>Column</th>
<th>Intercept ((\beta_0))</th>
<th>(\beta_1)</th>
<th>(\beta_2)</th>
<th>(\beta_3)</th>
<th>(\beta_4)</th>
<th>(\beta_5)</th>
<th>(\beta_6)</th>
<th>(\beta_7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>?</td>
<td>0.046***</td>
<td>-0.054***</td>
<td>-0.262</td>
<td>0.061**</td>
<td>0.034**</td>
<td>0.059*</td>
<td>0.050**</td>
</tr>
<tr>
<td>2</td>
<td>?</td>
<td>0.058***</td>
<td>-0.035*</td>
<td>0.133</td>
<td>0.231</td>
<td>0.021</td>
<td>0.019</td>
<td>0.019</td>
</tr>
<tr>
<td>3</td>
<td>?</td>
<td>0.052***</td>
<td>-0.075**</td>
<td>0.231</td>
<td>0.043</td>
<td>0.023</td>
<td>0.002</td>
<td>0.002</td>
</tr>
<tr>
<td>4</td>
<td>?</td>
<td>0.041***</td>
<td>-0.051***</td>
<td>0.213</td>
<td>0.023</td>
<td>0.023</td>
<td>0.011</td>
<td>0.011</td>
</tr>
<tr>
<td>5</td>
<td>?</td>
<td>0.029***</td>
<td>-0.061***</td>
<td>0.018</td>
<td>0.023</td>
<td>0.023</td>
<td>0.034</td>
<td>0.034</td>
</tr>
<tr>
<td>6</td>
<td>?</td>
<td>0.046***</td>
<td>-0.069***</td>
<td>-0.036</td>
<td>0.035</td>
<td>0.035</td>
<td>0.035</td>
<td>0.035</td>
</tr>
<tr>
<td>7</td>
<td>?</td>
<td>0.008***</td>
<td>-0.090***</td>
<td>-0.059***</td>
<td>0.002</td>
<td>0.002</td>
<td>0.002</td>
<td>0.002</td>
</tr>
<tr>
<td>8</td>
<td>?</td>
<td>-0.086***</td>
<td>-0.069***</td>
<td>-0.784***</td>
<td>-0.450***</td>
<td>-0.450***</td>
<td>-0.432***</td>
<td>-0.432***</td>
</tr>
<tr>
<td>9</td>
<td>?</td>
<td>0.019</td>
<td>0.019</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
<td>0.004</td>
</tr>
</tbody>
</table>

Variables: \(AC\), accruals at year \(t\) scaled by total assets at the end of the year \(t - 1\), estimated as follows: \(AC = (\Delta CA - \Delta CL - \Delta cash + \Delta Debt - \Delta Depr) / \) Total Assets. \(\Delta CA\), where \(AC_t\) represents accruals at year \(t\), \(\Delta CA\) measures the change in current assets at year \(t\), \(\Delta CL\) represents changes in current liabilities at year \(t\), \(\Delta cash\) represents changes in cash or cash equivalents at year \(t\), \(\Delta Debt\), computes the changes in short term debt at year \(t\), \(\Delta Depr\), represents the depreciation and amortization at year \(t\); \(DOCF_t\) equals 1 if operating cash flow at year \(t\) is negative or 0 otherwise; \(OCF_t\), operating cash flow at year \(t\) scaled by total assets at the end of the year \(t - 1\), estimated as \(OCF = (OL + Depr - AC) / \) Total Assets. \(\Delta Debt\), where \(Debt\), represents the operating income at year \(t\), and \(AC\) is accruals at year \(t\); \(DOCF_t \times OCF_t\), interaction variable for negative operating cash flows at year \(t\); \(DPR\) varies across columns; \(DPR \times DOCF_t\), \(DPR \times OCF_t\), interaction between firms with negative operating cash flows. The first column refers to all firms in our sample. The second column considers Brazilian firms with traded public debt. The third and fourth columns present the results for the regression of the most and the less leveraged (measured by the amount of public debt divided by average total debt) firms, respectively. The fifth and sixth columns present the results of the regression for the most and the less leveraged (measured by the amount of public debt divided by average equity) firms, respectively. The seventh column reports results for firms that present covenants on their debt. Finally, the eighth and ninth columns present the results considering only the subsample of firms more leveraged than the average firms (measured by public debt divided by total debt and public debt by equity, respectively).

* represents significance at 10%.
** represents significance at 5%.
*** represents significance at 1%.

the results of Table 3, columns 8 and 9 (\(\alpha_3\) is negative and significant). The most leveraged firms (Table 3, columns 3 and 5) do not present significant \(\alpha_3\) what may indicate ALRT is not a feature for these firms’ earnings.

Summarizing, our results indicate that Brazilian institutional environment does not incentive firms to report quality earnings (measured by ALRT). In this case, debt market’s demands do not seem to provide enough incentives to firms report earnings with timeliness loss recognition.

4.3 Public and private loss accruals behavior in Brazilian companies

We apply the accruals-based method (Ball and Shivakumar, 2005) to investigate the relations of operating cash flows and accruals for public and private firms. We estimate the following regression for our sample:

\[
AC_t = \beta_0 + \beta_1 DOCF_t + \beta_2 OCF_t + \beta_3 DOCF_t + OCF_t + \beta_4 DPR + \beta_5 DPR \times DOCF_t + \beta_6 DPR \times OCF_t + \beta_7 DPR \times OCF_t \times \epsilon_t
\]

where \(AC_t\) are the accruals at year \(t\) scaled by total assets at the end of the year \(t - 1\), \(DOCF_t\) equals 1 if operating cash flow at year \(t\) is negative or 0 otherwise, \(OCF_t\) represents the operating cash flow at year \(t\) scaled by total assets at the end of the year \(t - 1\), \(DOCF_t \times OCF_t\), interaction between firms with negative operating cash flows.

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is the interaction variable for negative operating cash flows at year \( t \), \( DPR \times DOCF \), represents the interaction of private firms and firms with negative operating cash flows, \( DPR \times OCF \), represents the interaction variable for private firms and operating cash flows and \( DPR + DOCF + OCF \), is the interaction between private firms and firms with negative operating cash flows. Similarly to Eq. (2), \( DPR \) assume different meanings across our other regression specifications on Table 4. On Table 4, column 2 \( DPR \) equals 0 for firms with public debt and 1 otherwise. On Table 4, columns 3, 4, 5 and 6 \( DPR \) is not defined considering our regressions specifications on subsamples. On Table 4, column 7 \( DPR \) equals 1 for firms without covenants and 0 otherwise. Finally on Table 4, columns 8 and 9 \( DPR \) is defined as firms' leverage ratio.

Consistent with prior research (Healy, 1985; Jones, 1991; Dechow et al., 1995) total accruals are estimated as follows:

\[
AC_t = \Delta CA_t - \Delta CL_t - \Delta cash_t + DDebt_t - Depr_t
\]

where \( AC_t \) represents accruals at year \( t \), \( \Delta CA_t \) measures the change in current assets at year \( t \), \( \Delta CL_t \) represents changes in current liabilities at year \( t \), \( \Delta cash_t \) represents changes in cash or cash equivalents at year \( t \), \( DDebt_t \) computes the changes in short term debt at year \( t \), \( Depr_t \) represents the depreciation and amortization at year \( t \). We estimate operating cash flow as \( OCF_t = OI_t + Depr_t + DT_t - \Delta WC_t - NI_t \), where \( OI_t \) represents the operating income at year \( t \), \( Depr_t \) is the depreciation and amortization at year \( t \), \( DT_t \) are the direct taxes expensed at year \( t \), \( \Delta WC_t \) is the change in operating working capital at year \( t \) and \( NI_t \) represents the non-operating income at year \( t \). This procedure is necessary because under the Brazilian corporate law the statement of cash flow was not a mandatory financial statement in our sample period.

Eq. (3) allows an asymmetric relation between accruals and cash flows that differs between private and public firms (Ball and Shivakumar, 2005). It relates operating cash flows to accruals considering the idea that negative cash flows signals poor performance and managers would recognize, immediately, the present value of all expected future losses related to the current event. According to Ball and Shivakumar (2005, p.94) this model provides for both roles of accruals: mitigation of noise in cash flow and asymmetric recognition of unrealized gains and losses. Asymmetric loss recognition predicts that \( \beta_5 \) should be positive, while \( \beta_2 \) is expected to be negative if accruals ease negative serial correlation in cash flows. The other coefficients cannot be predicted in the sense our aim is to test if there is, or not, significant differences between asymmetric loss recognition between private and public firms. In this case, we expect \( \beta_7 \) negative in the less ALRT hypothesis for private firms. Table 4 presents results from Eq. (3), which allows an asymmetric relation between accruals and cash flow levels that differs between private and public firms. In the same sense discussed above for the income, the endogeneity problem may be present in Eq. (3). Ball and Shivakumar (2005, p.117) recognize that endogeneity is a treat in the accruals model. They mention that the standard 2SLS simultaneous equations model is inappropriate, because the dummy variable for listing status (the dependent variable in the choice regression) is interactive in the regressions. So, they use a Heckit approach to control for any bias resulting from self selection of listing status. After their analysis, the authors comment that (2005, p. 117):

“(... controlling for endogeneity has little effect on the estimated coefficients. The coefficient of primary interest (b7) is - 0.42 (t=-6.82) when endogeneity is controlled for, but for the same sample it is -0.45 (t=-7.33) under standard OLS. Further, the adjusted R2 is identical in the standard OLS and the two stage approaches. We find little benefit from using the two-stage approach, and focus on the results from standard OLS regressions, which permits a larger sample.”

Following Ball and Shivakumar’s (2005) argument and for the sake of comparison of results, we also estimate our models considering pooled OLS regressions. The coefficient \( \beta_3 \) on Table 4, column 1 shows that there is no significant difference in anticipate recognition with positive or negative cash flows for public firms, i.e. there is no asymmetric loss recognition. Private firms, although present a negative and significant \( \beta_7 \), as expected, have accruals’ coefficient \( \beta_2 + \beta_3 + \beta_6 + \beta_7 = -0.61 \) which compares to public firms \( \beta_2 + \beta_3 = -0.79 \), both negative; so, the complete set of Brazilian firms do not present signs of conditional conservatism. The positive and significant \( \beta_4 \) indicate that private firms may use accruals to anticipate gains recognition. In this case private and public firms seem to have different incentives for accrual’s recognition. However results also show low accounting quality, considering that public firms (benchmark group) and private firms do not present asymmetric loss recognition.

Considering the result that indicate public firms do not use accruals to inform future losses, the effect of public fund raising via debt, as shown in Table 4, column 2, slightly improves accounting quality for firms with public debt. The coefficient \( \beta_5 \) is positive, besides is not significant to differentiate accruals behavior in the presence of negative cash flows. On other hand we cannot conclude that Brazilian public firms with traded debt and public firms with no traded debt present different accounting quality \( \beta_7 \) is not significant. Table 4, column 7 shows that firms with covenants and negative cash flows present a smaller positive correlation between accruals and cash flows; without differentiate from firms with positive cash flows \( \beta_3 \) not significant. Additionally, the significant coefficient \( \beta_7 \) shows that firms without covenants on their debt have a higher negative correlation between accruals and negative cash flows. This indicates lower level of anticipation of asymmetric losses recognition for this group; however, the firms with covenant already present no sign of ALRT. Finally, the negative \( \beta_2 + \beta_6 \) show that firms with covenants have lower negative correlation with positive cash flows, what may indicate the anticipated recognition of gains, i.e. higher level of earnings management.

The leverage ratio does not seem to influence the behavior of public firms in relation to ALRT. Table 4, columns 3, 4, 5, 6, 8 and 9 show that the coefficient \( \beta_3 \) that differentiate the anticipation of recognition in the presence of negative cash flows, is usually negative and when positive is not significant. However there is evidence (Table 4, column 8) that more public leveraged public
Table 5
Pooled OLS regression of cash flow from operations on lagged net income and lagged change in net income for all firm-years.

\[
OCF_{t+1} = \gamma_0 + \gamma_{I_{t-1}} + \gamma_{I_{ΔI_{≥0}}} + \gamma_{I_{ΔI_{>0}}} + \gamma_{DPR} + \gamma_{DPR \times I_{t-1}} + \gamma_{DPR \times I_{ΔI_{≥0}}} + \gamma_{DPR \times I_{ΔI_{>0}}} \times ΔI_{t} + \gamma_{DPR \times I_{ΔI_{≥0}}} \times ΔI_{t} + \epsilon_t
\]

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept ( (\gamma_0) )</td>
<td>0.118***</td>
<td>0.161***</td>
<td>0.117***</td>
<td>0.126***</td>
<td>0.156***</td>
<td>0.112***</td>
<td>0.177***</td>
<td>0.130***</td>
<td>0.118***</td>
</tr>
<tr>
<td>( h_{t-1} (\gamma_1) )</td>
<td>-0.100**</td>
<td>0.1113049</td>
<td>-0.0967049</td>
<td>-0.124*</td>
<td>0.1862867</td>
<td>-0.106**</td>
<td>0.169***</td>
<td>-0.1037307</td>
<td>-0.0844625</td>
</tr>
<tr>
<td>( I_{ΔI_{≥0}} (\gamma_2) )</td>
<td>-0.044***</td>
<td>-0.045***</td>
<td>-0.043*</td>
<td>-0.0476***</td>
<td>-0.053***</td>
<td>-0.044***</td>
<td>-0.0472673</td>
<td>-0.048***</td>
<td>-0.041***</td>
</tr>
<tr>
<td>( I_{ΔI_{&gt;0}} (\gamma_3) )</td>
<td>-0.011*</td>
<td>0.009**</td>
<td>-0.010*</td>
<td>-0.1172916</td>
<td>-0.1488565</td>
<td>-0.011*</td>
<td>0.0389991</td>
<td>-0.0204379</td>
<td>-0.0430932</td>
</tr>
<tr>
<td>( DPR (\gamma_4) )</td>
<td>0.0012313</td>
<td>-0.060***</td>
<td>0.019884</td>
<td>-0.019884</td>
<td>0.073*</td>
<td>0.008*</td>
<td>0.0448234</td>
<td>0.0008981</td>
<td></td>
</tr>
<tr>
<td>( DPR \times h_{t-1} (\gamma_5) )</td>
<td>0.464***</td>
<td>-0.234**</td>
<td>-0.595***</td>
<td>-0.595***</td>
<td>-0.09077</td>
<td>0.042689</td>
<td>-0.0038512</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( DPR \times I_{ΔI_{≥0}} (\gamma_6) )</td>
<td>-0.035***</td>
<td>0.006</td>
<td>0.0004111</td>
<td>0.1052759</td>
<td>0.0008981</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( DPR \times I_{ΔI_{&gt;0}} (\gamma_7) )</td>
<td>0.013**</td>
<td>-0.023**</td>
<td>0.1199705</td>
<td>-0.0966***</td>
<td>-0.0038512</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} )</td>
<td>-0.464***</td>
<td>-0.234**</td>
<td>-0.595***</td>
<td>-0.595***</td>
<td>-0.09077</td>
<td>0.042689</td>
<td>-0.0038512</td>
<td></td>
<td></td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} \times ΔI_{≥0} )</td>
<td>0.170**</td>
<td>-0.158</td>
<td>-0.0768384</td>
<td>-0.1037964</td>
<td>0.1554709</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} \times ΔI_{&gt;0} )</td>
<td>0.1154</td>
<td>0.0599</td>
<td>0.0547</td>
<td>0.0351</td>
<td>0.0613</td>
<td>0.0433</td>
<td>0.0788</td>
<td>0.1239</td>
<td>0.0447</td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} \times ΔI_{≥0} \times ΔI_{t} )</td>
<td>9.85**</td>
<td>5.40**</td>
<td>6.42**</td>
<td>5.07**</td>
<td>8.99**</td>
<td>10.6**</td>
<td>8.98**</td>
<td>7.49***</td>
<td></td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} \times ΔI_{&gt;0} \times ΔI_{t} )</td>
<td>5075</td>
<td>283</td>
<td>142</td>
<td>246</td>
<td>104</td>
<td>267</td>
<td>78</td>
<td>283</td>
<td>283</td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} \times ΔI_{≥0} \times ΔI_{t} )</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
<td>9</td>
</tr>
<tr>
<td>( DPR \times ΔI_{t} \times ΔI_{&gt;0} \times ΔI_{t} )</td>
<td>44,953</td>
<td>2090</td>
<td>553</td>
<td>1537</td>
<td>377</td>
<td>1713</td>
<td>584</td>
<td>1998</td>
<td>2089</td>
</tr>
</tbody>
</table>

Variables: \( I_{ΔI_{≥0}} \) and \( I_{ΔI_{>0}} \) are indicator variables of negative (positive) changes on net income at year \( t \). Other variables as defined on Tables 3 and 4.

* represents significance at 10%.

** represents significance at 5%.

*** represents significance at 1%.
firms anticipate losses when cash flow is negative done by positive and significant coefficient $\beta_7$ indicating, only in this case, the expected relation between negative cash flows and accruals.

4.4. Opportunism of managers in private and public firms

We estimate Eq. (3) to assess the relation between past earnings and future cash flows in order to evaluate manager opportunism across public and private companies as follows:

$$OCF_{t+1} = \gamma_0 + \gamma_1 I_{t-1} + \gamma_2 I_{\Delta _t > 0} + \gamma_3 I_{\Delta _t = 0} \ast \Delta I_t + \gamma_4 I_{\Delta _t < 0} \ast \Delta I_t + \gamma_5 DPR$$

$$+ \gamma_6 DPR \ast I_{t-1} + \gamma_7 DPR \ast I_{\Delta _t = 0} + \gamma_8 DPR \ast I_{\Delta _t > 0} \ast \Delta I_t$$

$$+ \gamma_9 DPR \ast I_{\Delta _t < 0} \ast \Delta I_t + \varepsilon_t$$

(4)

where $I_{\Delta _t < 0}; I_{\Delta _t > 0}$ are indicator variables of negative (positive) changes on net income at year $t$. Eq. (4) separates the effects of private ($DPR = 1$) or public firms ($DPR = 0$) with negative or positive net income on future operating cash flows. Similarly to Eqs. (2) and (3) $DPR$ varies across our other regressions specifications on Table 5. On Table 5, column 2 $DPR$ equals 1 for firms without public debt and 0 otherwise. On Table 5, columns 3, 4, 5 and 6 $DPR$ is not defined considering our regressions specifications on subsamples. On Table 5, column 7 $DPR$ equals 1 for firms without covenants and 0 otherwise. Finally on Table 5, columns 8 and 9 $DPR$ is defined as firms’ public leverage ratio.

Dechow and Schrand (2004) relate earnings quality to three desirable features of earnings: i) to reflect current performance, ii) to be useful for predicting future performance and iii) to accurately annuitize intrinsic firm value. In this fashion, Eq. (4) measures earnings quality by identifying private or public firms’ earnings (positive or negative) relation to future cash flows. Managerial opportunism refers to the current incorporation of extraordinary negative transitory items in earnings foreseeing benefits on future earnings announcements. This process, called “big bath” accounting, allow managers to report higher earnings in future periods due to the dual aspect of accounting. Ball and Shivakumar (2005) relate that if negative transitory earnings components come up from earnings management they are cosmetic and will not predict future cash flows. Otherwise, positive and negative earnings changes will be positively correlated with realized future cash flows.

Table 5, column 1 show that current and past earnings relate negatively to future operating cash flows for public firms and current and past earnings relate positively to future operating cash flows for private firms. This result can be explained by the strong use of accounting earnings for taxes purposes for Brazilian private firms. Tax rules are more cash based than accrual based, which make this relation positive. This result shows that accounting earnings of Brazilian public firms have small predictive quality to project cash flow, indicating opportunistic behavior to their managers. Moreover, Table 5, column 2 shows that firms with public debt present current and past earnings with predictive quality to future operating cash flows only for positive changes in earnings (coefficient $\gamma_4$). The public firms without public debt have also small predictive quality to project cash flow. Table 5, column 7 shows that firms with public debt with covenants present positive coefficients indicating a contemporaneous relationship between earnings and cash flows. Finally, the leverage ratio (Table 5, columns 3, 4, 5, 6, 8 and 9) do not contribute to discriminate accounting quality of earnings predicting cash flows.

4.5. Robustness test

Ball and Shivakumar (2005) argue that private and public firms may have different investment and financing policies resulting from their size difference. Usually, public firms are bigger and the effects of size and industry on the estimated coefficients may not be linear. To check the robustness of our results we consider a sub-sample of private and public firms matched on the basis of size, return on assets and fiscal year-end. In each year and for each public firm, we choose, without replacement, a matched firm from all private firms with the same fiscal year end. This procedure yields 852 matched pairs with the actual number for a particular analysis depending on data availability. The mean (median) return on assets for the matched sample is 3.2% (3.4%) for public firms and 1.9% (3.0%) for private firms, and the mean (median) total assets is R$ 8.3 billion (R$ 2.5 billion) for public firms and R$ 4.2 billion (R$ 844 million) for private firms.

For this matched sample, as reported on Table 6, panel A, our hypothesis hold. The coefficient $\alpha_9$ in the earnings reversion model is not significant, as the results exhibited on Table 3, showing the same level of reversal of income decreases in private companies and in public companies in Brazil. Table 6, panel A also shows that for the matched sample there is no reversion of negative changes on profits ($\alpha_3 = 0.40$) and no reversion for profits from private firms ($\alpha_6 = 0.49$).

Table 6, panel B, shows similar results for the full sample and for the matched sample. The accruals model, which allows an asymmetric relation between accruals and cash flow levels to differ between private and public firms, results in an insignificant coefficient $\beta_3$ indicating there is no difference in anticipate recognition with positive or negative cash flows for public firms, i.e. there is no asymmetric loss recognition. Private firms, although present a negative and significant $\beta_7$, as expected, have negative accruals’ coefficient ($\beta_2 + \beta_3 + \beta_6 + \beta_7 = -1.02$) which compares to public firms ($\beta_2 + \beta_3 = -0.46$). Generally the results presented in Table 6 panel B conduct to the same conclusion from the results from Table 4, Column 1.

These results are coherent with our hypothesis and show no significant difference between public and private companies in Brazil unlike Ball and Shivakumar (2005) report in the UK.

Table 6
Robustness test.

Panel A
Pooled OLS regression of change in earnings on lagged change in earnings for matching firm-years. Dependent variable measured as change in net income.

<table>
<thead>
<tr>
<th>Predict</th>
<th>Coef.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept (α0)</td>
<td>?</td>
</tr>
<tr>
<td>ΔLi−1 (α1)</td>
<td>?</td>
</tr>
<tr>
<td>ΔLi−1 (α2)</td>
<td>0</td>
</tr>
<tr>
<td>ΔLi−1 + ΔLi−1 (α3)</td>
<td>−</td>
</tr>
<tr>
<td>DPR (α4)</td>
<td>?</td>
</tr>
<tr>
<td>DPR + ΔLi−1 (α5)</td>
<td>?</td>
</tr>
<tr>
<td>DPR + ΔLi−1 (α6)</td>
<td>?</td>
</tr>
<tr>
<td>DPR + ΔLi−1 * ΔLi−1 (α7)</td>
<td>±</td>
</tr>
<tr>
<td>α2 + α3</td>
<td>0.340</td>
</tr>
<tr>
<td>α2 + α6</td>
<td>0.435</td>
</tr>
<tr>
<td>α2 + α5 + α6 + α7</td>
<td>0.865</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>0.732</td>
</tr>
<tr>
<td>F-Stat.</td>
<td>189.31***</td>
</tr>
<tr>
<td>No. of obs</td>
<td>536</td>
</tr>
</tbody>
</table>

Panel B

ACt = β0 + β1DOCFt + β2OCFt + β3DOCFt * OCFt + β4OCFt + β5DPR + β6DPR * DOCFt + β7OCFt + β8DPR + OCFt + v

<table>
<thead>
<tr>
<th>Predict</th>
<th>Coef.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept (β0)</td>
<td>?</td>
</tr>
<tr>
<td>DOCFt (β1)</td>
<td>?</td>
</tr>
<tr>
<td>OCFt (β2)</td>
<td>?</td>
</tr>
<tr>
<td>DOCFt * OCFt (β3)</td>
<td>±</td>
</tr>
<tr>
<td>DPR (β4)</td>
<td>?</td>
</tr>
<tr>
<td>DPR + DOCFt (β5)</td>
<td>?</td>
</tr>
<tr>
<td>DPR + OCFt (β6)</td>
<td>?</td>
</tr>
<tr>
<td>DPR + DOCFt + OCFt (β7)</td>
<td>−</td>
</tr>
<tr>
<td>β2 + β3</td>
<td>0.325</td>
</tr>
<tr>
<td>β2 + β8</td>
<td>0.244</td>
</tr>
<tr>
<td>β2 + β8 + β6 + β7</td>
<td>0.474</td>
</tr>
<tr>
<td>Adj. R²</td>
<td>62.22</td>
</tr>
<tr>
<td>F-Stat.</td>
<td>852</td>
</tr>
<tr>
<td>No. of obs</td>
<td>852</td>
</tr>
</tbody>
</table>

Matching Sample: DPR = 1 for private firms; 0 for public firms.

* represents significance at 10%.
** represents significance at 5%.
*** represents significance at 1%.

5. Conclusions

In this paper we investigate the asymmetric timeliness of loss recognition between Brazilian public and private firms and different features of debt financing. Ball and Shivakumar (2005) found that British public firms present earnings of superior quality than private firms because of differential demand for informative accounting reports. The authors argue that the market for corporate financial reporting demands highly informative earnings for public firms. Earnings of public firms are used in contracts with managers, debt agreements, covenants and other governance mechanisms while earnings for private firms are more likely to be used for tax and other regulatory needs. In this paper we conduct a similar study in a complete different setting from Ball and Shivakumar (2005). We investigate the differences between the quality of earnings between Brazilian public and private firms. Unlike the UK, the Brazilian environment does not provide different incentives for the public and private firms. Brazil is a code law developing country where investors are poorly protected and firms base their financing on insider deals. We conjecture that in this scenario public firms will not face superior incentives than private firms to provide informative reports. Our results confirm our main expectation and show that there is no significant difference in ALRT for Brazilian public and private firms as Ball and Shivakumar (2005) reported for the UK. We also show that ALRT is not significantly affected by firm’s issuing activity in debt markets, public leverage and in the presence of covenants. We also detected strong signals of opportunistic behavior for both samples of firms in Brazil. Our results confirm this notion and show that generally there is no difference in the recognition of gains and losses for private and public firms in Brazil. Few differences arise on ALRT between these two groups due to debt financing. Our results contribute to a growing literature on international accounting which tries to understand the determinants of the properties of published accounting reports focusing on incentives created by the market demand for corporate financial reporting.
Our study is subject to some limitations. First we consider a private database (SERASA) that is widely used in Brazil by banks, but is not widespread among researchers. Despite many institutions and banks rely on these data to perform credit analysis the data is likely to suffer measurement errors. Second, we consider a specific legal form of private firms in Brazil (Safes), but there are other legal forms of private firms that we do not have access to data. Third, because of limited information about private firms, our set of independent variables basically reflects financial characteristics of firms. Fourth, our results may not generalize to other private firms from different emerging markets.

Future research can adopt a cross-country analysis on the determinants of asymmetric loss recognition timeliness in public and private firms considering IFRS adopters and different institutional environments in a way that a deeper panel data analysis can be implemented.

References