



Research article

Scandal in the Portuguese banking sector – how a banking specific earnings management model predicted the fall of a family business group

Tânia Menezes Montenegro^{1,*} and Filomena Antunes Brás²

¹ School of Economics and Management, University of Minho, Campus de Gualtar 4710–057, Braga, Portugal. Research Centre in Accounting and Taxation, Barcelos, Portugal

² School of Economics and Management, University of Minho, Campus de Gualtar 4710–057, Braga, Portugal

* **Correspondence:** Email: taniab@eeg.uminho.pt; Tel: +351 253601945.

Abstract: We examined the external ability of the loan loss provision (LLP) model to detect extreme cases of earnings management (EM). According to the literature, the LLP model is the most useful in examining EM in banking institutions. We used it herein to explore the time-series behaviour of a fraudulent business group in the Portuguese banking sector between 1992 and 2013 – the *Banco Espírito Santo Group* (GBES). We conclude that GBES did not make discretionary use of LLP (i.e., DLLP) in the fraud period (2008 to 2013) when compared with the pre-fraud years (1992 to 2007). However, the level of LLP was significantly higher in the latter period; this was consistent with the procyclical nature of GBES’s LLP. The results of a difference-in-difference approach did not reveal any significant differences between GBES’s DLLP and non-fraudulent banks in the fraud period. Interestingly, the full bank sample (including GBES) provided evidence of the procyclical nature of LLP. Additional tests did not support the hypothesis of income smoothing via LLP, either amongst the bank sample as a whole or by GBES. The proven facts of the fraud indicated a significant undervaluation of loans and financial instruments and an underestimation of LLP. Thus, we expected to find negative DLLP in the fraud period and significantly different DLLP between the pre-fraud period and the fraud period itself. The DLLP of GBES should also have been significantly different from non-fraudulent banks in the fraud period. The LLP model proved ineffective in detecting GBES fraud and assessing the decisions of the bank’s leader and his team, while the use of DLLP was effective. The evidence collected in our study will be of benefit to scholars and banking regulators.

Key words: earnings management; loan loss provision; LLP; fraud; Portugal; banking sector

JEL Codes: G21, G33, M41

1. Introduction

Jackson (2018) states that “[I]f discretionary accruals are measures of earnings management (EM), then there should be a relation between these and ex-post cases of known manipulation.” The present study assesses the ability of the specific accrual methodology based on loan loss provision (LLP) to detect fraudulent earnings in the largest fraud case in the history of the Portuguese banking sector – that of *Banco Espírito Santo Group* (GBES).

LLP is considered to be the most relevant and discretionary component in the detection of EM in the banking industry (e.g., Cornett et al. 2009; Cohen et al., 2014; Ozili and Outa, 2017; Chaity and Islam, 2022).

Ozili and Outa (2017) argue that LLP research is a fruitful area in banking research for several reasons: (1) it has a direct impact on bank interest margins, and consequently affects banks’ overall earnings; (2) it is linked to bank regulators’ micro-prudential surveillance and the informativeness of accounting disclosures in financial reports required by accounting standard-setters; and (3) it is a significant accrual, and bank managers have a great deal of discretion in the determination of LLP estimates and such discretion can be exploited to meet opportunistic financial reporting objectives.

A prolific stream of research has covered a wide range of issues relating to LLP. These include topics concerning LLP procyclicality (see Ozili and Outa (2017) for a comprehensive review). The literature on the role of LLP in bank EM is vast. The LLP model has been used to explore bank managers’ opportunistic discretion and motivations (e.g., McNichols and Wilson, 1988; Wahlen, 1994; Ahmed et al., 1999; Beatty et al., 1995, 2002; Lobo and Yang, 2001; Anandarajan et al., 2003, 2007; Chang, 2008; Perez et al., 2008; Cornett et al., 2009; Kanagaretnam et al., 2003, 2004, 2005, 2010; Alali and Jaggi, 2011; Leventis et al., 2011; Kilic et al., 2012; Cohen et al., 2014; Bryce et al., 2015; Hamadi et al., 2016; Ozili, 2015, 2017a,b; Andries et al., 2017; Ab-Hamid et al., 2018; Chaity and Islam, 2022), as well as the role of corporate governance mechanisms in constraining the practice of EM (e.g., Wahlen, 1994; Ahmed et al., 1999; Beatty et al., 1995, 2002; Anandarajan et al., 2003, 2007; Chang, 2008; Fonseca and Gonzalez, 2008; Cornett et al., 2009; Kanagaretnam et al., 2003, 2004, 2005, 2010; Dahl, 2013; Bouvatier et al., 2014; Cohen et al., 2014; Curcio and Hasan, 2015; Ozili, 2017a; Ab-Hamid et al., 2018; Chaity and Islam, 2022). The consequences of the financial crisis on United States and European Union bank managers’ provisioning policies have also been investigated (e.g., El Sood, 2012; Curcio et al., 2016).

The results of these studies are mixed and, to the best of our knowledge, the ability of the LLP model to detect ex-post cases of banking fraud remains largely unexplored. According to Ozili and Outa (2017), LLP research in this area is scarce. Furthermore, while Ozili and Outa (2017) claim that one major development in the LLP model has been the reduction in construct validity problems, they also observe that the processes, assumptions, methods, and other unobservable factors bank managers

consider when making LLP estimates mean that research into the subject is a complex affair. This paper addresses these shortcomings in the literature and makes suggestions for future research.

We apply the LLP model to GBES by using a firm-level time-series regression approach, with data from the period 1992 to 2013. The time-series estimation of EM models, which is in the spirit of Jones's (1991) paper, is scarce in the EM literature. While the most widely used method is the cross-sectional estimation of EM models by year and industry, Owens et al. (2017) point out that firms in a particular industry are not necessarily homogeneous in their accrual-generation process, and this is an important assumption in EM models. Owens et al. (2017) demonstrate that, when models assuming homogeneity and stationarity within industries are employed, firms are inadequately categorised based on the discretion in the accruals. Jackson (2018) argues that "[E]conometrically speaking, discretionary accruals are simply deviations from industry averages".

The main results of this paper reveal that GBES's levels of discretionary LLP (DLLP) in the fraud period (2008 to 2013) are not significantly different from the pre-fraud years (1992 to 2007). Yet, the levels of LLP are significantly higher in the fraud period compared with the pre-fraud years, which is consistent with the procyclical nature of GBES's LLP. Overall, the results of a difference-in-difference approach do not show significant differences in GBES's DLLP compared with non-fraudulent banks in the fraud period. Interestingly, our evidence is consistent with the procyclicality of LLP across the entire sample of banks (including GBES). Additional tests do not support the hypothesis of income smoothing via LLP, either for the entire sample of banks or for GBES.

The proven facts of the fraud reveal a significant undervaluation of loans and financial instruments and an LLP underestimation, something that led us to believe that we would find negative DLLP in the fraud period and significantly different DLLP between the pre-fraud and fraud periods; GBES's DLLP should also have been significantly different from non-fraudulent banks in the fraud period. Nevertheless, the LLP model proved to be ineffective in detecting fraud at GBES and the use of DLLP.

The LLP model proved to be ineffective in detecting an ex-post case of fraud. This is consistent with Jackson (2018) who concludes that in ex-post known cases of material accounting misstatement, discretionary accrual models do not capture EM. This evidence challenges academics and regulators by stressing the importance of considering the complex nature of the LLP estimation process (as it is a function of the accounting system that generates the estimate), as well as the assumptions and the decisions of bank managers and other considerations that remain unknown or unobservable (Ozili and Outa, 2017). This paper explores a fraud case involving a family business group where the assumptions and the decisions of the bank managers and the potentially conflicting goals between family shareholders are highly relevant.

We find evidence that bank provisioning is procyclical with fluctuations in the business cycle. This holds for GBES and for a sample of non-fraudulent Portuguese commercial banks. Overall, our results contribute to the call for better coordination of the actions of accounting setters, regulators, and banking supervisory authorities (Curcio et al., 2016). They also provide support to the debate on the need for dynamic LLP (Ozili, 2017a). A balance must be found between levels of LLP and transparency that are needed by regulators and standard setters alike, and the specific factors that induce LLP procyclicality should be further investigated (Ozili and Outa, 2017).

The remainder of the paper is organised as follows. The following section presents the GBES case. Section 3 explains the research method, and Section 4 describes and discusses the results. Section 5 contains the concluding remarks.

2. The case of the Banco Espírito Santo Group (GBES)

2.1. The history of GBES

The history of GBES is intertwined with the history of the *Espírito Santo* family (Amaral, 2015). GBES started in the second half of the 19th century when the founder, José Maria do Espírito Santo e Silva, established a lottery, currency exchange, and securities business (Amaral, 2015). By the beginning of the 20th century, he was regarded as a major Lisbon banker (Amaral, 2015), and in 1915 he created a company, *J. M. Espírito Santo Silva & C^a*, in which the partners were mostly members of the family. By the time of his death in 1916, he had accumulated a fortune that made him part of the economic and social Portuguese elite (Amaral, 2015). From 1916 to 1973, his three sons headed the company in succession: José Ribeiro do Espírito Santo e Silva (1916–1932), Ricardo Ribeiro do Espírito Santo e Silva (1932–1955), and Manuel Ribeiro do Espírito Santo e Silva (1955–1972). The *Espírito Santo* family business adopted the *corporate business dynasty costum*, whereby the successor had to be a male member of the family.

In 1916, *J. M. Espírito Santo Silva & C^a* was dissolved, and a new firm (managed by the eldest son), *Casa Bancária Espírito Santo Silva & C^a*, was created. In 1920, this became a bank – *Banco Espírito Santo* (BES). In 1932, the founder's second oldest son succeeded his brother as chairman; a new management model was implemented and a new phase of consolidation and expansion of the company began (Amaral, 2015).

The *Espírito Santo* family business was one of the most important Portuguese business groups, though its growth was strongly driven by the close relationship it had with the Portuguese state between the 1930s and mid-1970s (Amaral, 2015). From 1933 through 1974, Portugal was ruled by a corporatist dictatorship called *Estado Novo*, a heavily interventionist regime that imposed very strict regulations on practically all aspects of economic activity (Santos, 1984; Silva et al., 2016). During this period, GBES and other Portuguese business groups became huge (Silva et al., 2016). The *Estado Novo* regime developed a complex system of economic regulations that constrained entrepreneurialism. Banking law was designed to prevent the financial crises caused by the maturity mismatch of commercial banks and imposed quite serious restrictions on the opening of new banks. In addition, through financing and import substitution policies, economic development was based on the construction of infrastructure and the promotion of national industry. As Amaral (2015) describes, BES took advantage of this structural change by creating a chain of branches all over the country, and during World War II, it became the Portuguese largest commercial bank after merging with *Banco Comercial de Lisboa* (BCL) to form *Banco Espírito Santo e Comercial de Lisboa* (BESCL). The Espírito Santo family also enlarged GBES by establishing the *Tranquilidade* insurance company and acquiring major sugar, coffee, and palm oil plantations in Mozambique and Angola (Silva et al., 2016). In the 1950s and 1960s, BESCL was actively involved in the internationalisation of the Portuguese economy and followed this expansion by continually opening new branches: the number rose from 47 in 1960 to 82 in 1966. By the middle of 1970, BESCL reinforced its international position with acquisitions, partnerships, and

the founding of banks in several countries (e.g., the United States, Angola, and the United Kingdom). Between 1972 and 1973 BESCL co-founded *Libra Bank* (London) and *Banco Inter Unido* (Luanda) (Amaral, 2015).

In 1973, GBES's chairman Manuel Ribeiro do Espírito Santo e Silva died, leading to a succession crisis. As was noted above, the three sons of GBES's founder succeeded him in order of birth, but when the last one died, it was not clear who would follow (Lima, 2000). The choice that most respected the principle of succession was José Maria B. C. Espírito Santo Silva, the eldest son of the founder's first-born son, but other branches of the family disagreed because José Maria was the son of divorced parents, which would not present the business in the best light (Amaral, 2015). Eventually, the eldest son of the deceased president took over. Manuel Ricardo P. Espírito Santo e Silva had the skills, the *Espírito Santo* family name, and a predominant position in terms of assets within GBES (he was married to a cousin, Maria do Carmo Moniz Galvão, great-granddaughter of the founder) (Lima, 2000; Amaral, 2015).

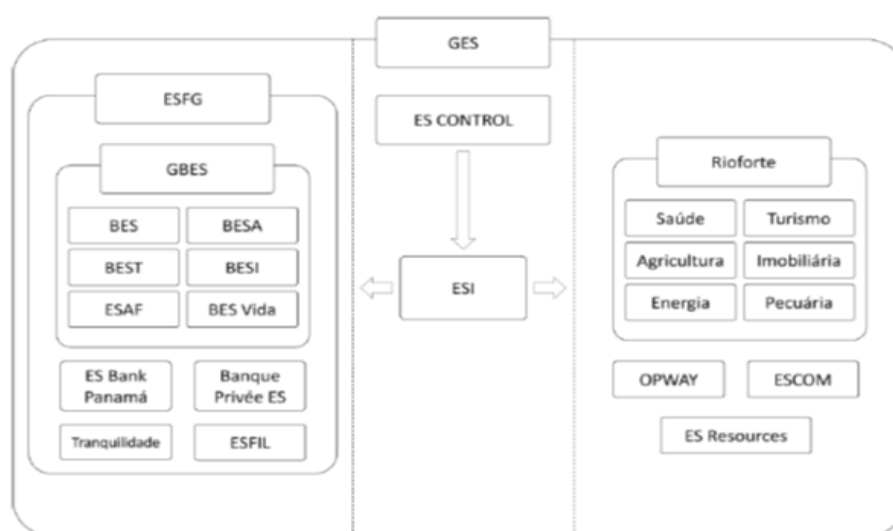
One year after the succession crisis, GBES's new dynastic leadership would be challenged by unexpected and dramatic events. In 1974 and 1975, several revolutions in Portugal and Africa raised questions about the legitimacy of the *Espírito Santo* family's fortune (Amaral, 2015). On 25 April 1974, a military coup overturned the *Estado Novo* dictatorship and the new rulers introduced a full-fledged democracy, bringing great changes to the country (Santos, 1984), one of which was the nationalisation of all the economic groups headquartered in Portuguese territories (including firms based in the Portuguese colonies) that had emerged during the *Estado Novo*. The most significant phase of the nationalisation process took place between March 1975 and July 1976. The banking and insurance companies were the first to be passed into public ownership, and this became part of a new dogma as companies were expropriated (or almost entirely expropriated) without compensation (Amaral, 2015). GBES was no exception, and at the end of September 1975 the *Espírito Santo* family left the country (Amaral, 2015).

Prevented from developing its activities as a private entity in Portugal, GBES shifted its attention to countries such as Brazil, Switzerland, France, and the United States. A high point was the creation of a holding company, the Luxembourg-based *Espírito Santo International* (ESI), in 1975 (Amaral, 2015). The business began to re-establish itself in Portugal in 1986, when private banking activity was re-introduced. With the support of *Crédit Agricole* and a core of Portuguese shareholders, GBES created the *International Credit Bank* (BIC) and the *Espírito Santo Investment Company* (ESI). In 1984, a holding company (under the control of ESI), the *Espírito Santo Financial Group* (ESFG), was founded in Luxembourg. This brought the financial investments of the group under one roof (Amaral, 2015). In 1990, GBES recovered the *Tranquilidade* insurance company and in 1992 (after a reprivatisation process that had begun the year previously) regained full control of BESCL (renamed *Banco Espírito Santo* – BES in 1999).

In 1991, Manuel Ricardo Espírito Santo e Silva died. By that time, the branch of the *Espírito Santo* family that descended from the founder's second-born son had acquired sufficient power to capture the GBES presidency (they were major shareholders of GBES firms and held senior executive positions on the boards of directors) (Lima, 2000). Thus, António Ricciardi (husband of the oldest daughter of the founder's second-born son) succeeded as chairman of GBES (Lima, 2000). At the same time, Ricciardi's oldest nephew, Ricardo do Espírito Santo Silva Salgado (grand-grandson of GBES's founder), who had helped rebuild the group from abroad between 1976 to 1982, assumed the position

of chief executive officer (CEO) (Lima, 2000). In the following years, he also became CEO of BES and ESFG (Amaral, 2015).

Over time, GBES became extremely complex from an organisational perspective. Between 1991 and 2013 (when Ricardo Salgado was CEO), the group had a presence in 25 countries across four continents through its branches, representative offices, or investees, making it the most international of Portugal's corporate groups (Amaral, 2015). The process of internationalisation was driven by Salgado himself, who betted on the strategic triangle of Africa, Brazil, and Spain. By 2013, this area generated half of GBES's profits – by which time, BES was one of the three largest private Portuguese banks.



Source: BES Parliamentary Commission Report (2015)

Figure 1. The *Espírito Santo* business group in 2013.

Figure 1 shows the basic structure of the *Espírito Santo* business group in 2013. At its base is the major holding ES Control (ESC), with the partners displayed in the form of a cascade. Five major shareholders were represented at ESC, four of them with family ties: cousins Ricardo Salgado, António Ricciardi, and José Manuel *Espírito Santo*, and their aunt Maria do Carmo Moniz Galvão *Espírito Santo* Silva (widow of Manuel Ricardo *Espírito Santo*). The ESC shareholdings of the four amounted to 17.05%, 17.84%, 18.53%, and 19.37%, respectively. The different family branches occupied positions on the ESC board of directors, where strategic decisions were made and issues (including matters of succession) were decided. The left-hand side of Figure 1 represents the financial areas of the particular business groups, the right side the non-financial areas, and the centre shows the non-operational holding companies. The financial areas include the Luxembourg-based holding ESFG and GBES, which were involved in banking, insurance, and finance. The BES bank had a leading position in the latter: by the end of 2013, it represented about 95% of the value of ESFG assets (in consolidated accounts). At the end of 2013, it released a balance sheet showing a loss of more than €95 billion, and in August 2014, GBES collapsed.

2.2. The GBES fraud

Over the years, Ricardo Salgado assumed a strong leadership position in GBES, and by the end of 2013, the ESC family branches led by Ricardo Salgado and António Ricciardi began to diverge. This, and the end of an old alliance between GBES and SEMAPA (a *Queiroz Pereira* family-owned and financial healthy Portuguese business group involved in the production of pulp and paper, cement, and other construction materials) brought GBES's problems to the attention of the general public (Guerreiro, 2018).¹

Guerreiro (2018) notes that while GBES's consolidated financial statements were public and audited, those of ESC (which represented the *Espírito Santo* business group as a whole) were "secret" even for its shareholders, and that, every year, Ricardo Salgado gathered the ESC shareholders in Switzerland for a meeting "full of pomp but empty of information," where the annual accounts were supposedly presented. At the end of 2013, and in the following years, the most significant financial problems of the *Espírito Santo* business group and the salient details of the GBES fraud became known and proven. The main facts are described below:

- Over the years (and especially from 2008 onwards), BES began to finance many of the *Espírito Santo* business group's financial and non-financial companies, with the debt being recorded at a much lower value than the real value (so there was a high risk of default) and without recording the appropriated level of LLP. The situation led BES and GBES to be overly financially exposed to the *Espírito Santo* business group (Ferreira, 2016; Antunes, 2018);
- Overexposure to the bad loans portfolio of BES Angola (BESA) contributed critically to the collapse of BES/GBES. At the end of 2013, the portfolio was valued at approximately €6.1 million (of which BES's total exposure was approximately €3.9 million), with hundreds of thousands of euros going directly to entities controlled by the BESA CEO Álvaro Sobrinho with the consent of Ricardo Salgado (Ferreira, 2016; Antunes, 2018);
- BES was exposed to the non-financial area of the *Espírito Santo* business group (via ESI) to the tune of an estimated €1.3 billion at the end of 2013 (ESI was a holding firm owned by ESC; it controlled the financial and non-financial branches of the business group) (Ferreira, 2016; Antunes, 2018). A portion of this exposure was related to the ESI's issuance of short-term debt (in the form of commercial paper) that was subscribed to by BES subsidiaries, including two important investment funds (*ES Liquidez* and *ES Rendimento*, with 80.95% and 55.8% of its funds invested in ESI's commercial paper, respectively), and sold to BES clients. At the end of 2013, the value of these financial instruments (which exceeded €3 billion) had yet to be reimbursed, and more than half was referred to non-institutional investors (i.e., BES retail customers). The risk of default on the commercial paper by ESI was very high, with BES bearing some of the responsibility and having no recorded LLP in its financial statements (Antunes, 2018).

All these facts are described in detail in the BES Parliamentary Commission Report (2015) and in several audits ordered by the Portuguese Central Bank and conducted by Deloitte, PwC, and KPMG (in 2014, 2015, and 2016). The audit reports also provided evidence of ring-fencing violations, with very significant materiality and a noteworthy impact on the financial and equity situation of GBES. There were also strong indications of fraudulent acts of mismanagement that were to the detriment of

¹ The alliance ended in 2013 with the Queiroz Pereira family exchanging their 6.67% shareholding in ESC with the 40% *Espírito Santo* family's shareholding in SEMAPA, and with Pedro Queiroz Pereira (the CEO of SEMAPA) informing the Portuguese Central Bank of the GBES's severe financial problems (Guerreiro, 2018).

depositors, investors, and other creditors. Pages 253–254 of the parliamentary report stated unequivocally that the actions of heads of GBES led to the group’s collapse. Ricardo Salgado, who practised an autocratic style of leadership, was singled out for special attention.

In August 2014, the Portuguese Central Bank issued a special resolution that transferred the general activity and the propriety of BES to a new bank (*Novo Banco*), which was adequately capitalised and purged of problematic assets. The former had concentrated bad debt with no hope of recovery (Ferreira, 2016). Ferreira (2016) argues that the BES, a “bad bank,” was the personification of all the poor decisions that GBES managers had taken over the years. In April 2014, the Portuguese Central Bank dismissed the *Espírito Santo* family members from the BES executive board, withdrew requests to register the exercise of functions by the family members in the other companies of the group, and compelled the resignation of all members of the *Espírito Santo* family from the positions they held in BES.² The president of the Portuguese Central Bank declared that the collapse of GBES was due to Ricardo Salgado’s mismanagement and fraud (Ferreira, 2016).

In July 2021 and January 2022, Ricardo Salgado and four senior executives were convicted by the Portuguese Securities and Exchange Commission (Comissão do Mercado de Valores Mobiliários) of mismanagement and fined €6.3 million (Cavaleiro and Vicente, 2022). These sentences were later confirmed by the Portuguese Court of Competition, Regulation, and Supervision (Cavaleiro and Vicente, 2022). In Amaral’s view (2015), GBES faced a dilemma: how could a position of economic dominance be achieved and sustained while the Espírito Santo family stayed in control? In the end, they tried to resolve the conundrum by engaging in ethically reprehensible managerial practices.

In light of the above, the present paper’s central research question was: can EM models (the LLP model in particular) be used to detect extreme cases of EM and thereby help the banking regulators to take action? The following section describes the research method.

3. Research methods

3.1. Earnings management detection in GBES – the loan loss provision model

Prior studies have used a variety of proxies to measure EM which can be organized into three broad categories: properties of earnings, investor responsiveness to earnings, and external indicators of earnings misstatements (see Dechow et al., (2010), for an overview).

As DeFond (2010) notes, the most widely employed models in previous studies were the Jones Model (Jones, 1991); the Jones Modified Model (Dechow et al., 1995); the Performance-Adjusted Discretionary Accruals (Kothari et al., 2005); and the Dechow and Dichev (2002) Model of Accrual Estimation Errors. However, these are all applied to non-financial industries. Financial firms have been excluded largely because the industry operates in a highly regulated business environment (e.g., Cohen et al., 2014; Curcio et al., 2016; Chaity et al., 2022).

Several authors have pointed out that scholars have adopted the specific accrual methodology based on LLP when attempting to detect EM in the banking industry (e.g., Cornett et al., 2009; Cohen et al., 2014; Ozili and Outa, 2017; Ab-Hamid et al., 2018; Chaity and Islam, 2022). LLPs is a specific amount banks set aside as a cushion to absorb expected loss on their loan portfolios; put another way,

² See page 141 of the aforementioned parliamentary report.

LLP estimates are a credit risk management tool used to mitigate expected losses on bank loan portfolios (Ozili and Outa, 2017). As Cohen et al. (2014) explain, LLP is an expense item on an income statement. It reflects management's current assessment of the likely level of future losses from defaults on outstanding loans.

According to Cornett et al. (2009) and Cohen et al. (2014), the banking industry is unique in that, in principle at least, a bank manager's basis for judgement regarding LLP is subject to periodic review by regulators. As such, LLP represents a combination of both a nondiscretionary component (the part that raises loan loss allowances to an acceptable level) and a discretionary component (which is seemingly closely regulated) (Cornett et al., 2009). In accordance with the literature (e.g., Cornett et al., 2009; Cohen et al. 2014; Kanagaretnam et al., 2014; Chaity and Islam, 2022), we used the following regression model to estimate DLLP:³

$$LLP_{it} = \alpha + \beta_1 LNASSET_{it} + \beta_2 NPL_{it} + \beta_3 LLR_{it} + \beta_4 LOANR_{it} + \beta_5 LOANIC_{it} + \beta_6 LOANC_{it} + \beta_7 LOANO_{it} + \beta_8 LOANB_{it} + \varepsilon_{it} \quad (1)$$

Where:

LLP_{it} = loan loss provisions for bank i in year t ;

$LNASSET_{it}$ = the natural logarithm of total assets for bank i in year t ;

NPL_{it} = non-performing loans (includes loans past due 90 days or more and still accruing interest and loans in nonaccrual status) for bank i in year t ;

LLR_{it} = loan loss reserve for bank i in year t ;

$LOANR_{it}$ = real estate loans for bank i in year t ;

$LOANIC_{it}$ = commercial and industrial loans for bank i in year t ;

$LOANC_{it}$ = consumer loans for bank i in year t ;

$LOANO_{it}$ = other loans for bank i in year t ;

$LOANB_{it}$ = loans to other banks i in year t ;

ε = error term.

All variables in (1) were expressed as a percentage of total loans (e.g., Cornett et al., 2009; Cohen et al. 2014; Chaity and Islam, 2022). All β s were estimated using a firm-level time-series approach, and the residual (ε) from (1) was our measure of DLLP.

Model (1) was estimated through the time-series approach. The ordinary least-squares (OLS) method was used to estimate the coefficients of the LLP model (1) for the period 1992–2013.⁴ The fitted coefficients were then used to derive estimated (normal) LLP for each year; DLLP was defined as the residuals from the regression. Higher values of residuals indicated higher DLLP, higher EM, and lower earnings quality.

We analysed 22 years of GBES consolidated financial statements data (1992–2013) to estimate the firm-level time-series regression model (1). Data were collected from the Bankscope database.

The ability of the LLP model to detect extreme cases of EM was assessed in several ways. First, we categorised the sampled years into a pre-fraud period (1992 to 2007) and a fraud period (2008–2013) and compared the mean, median, and standard deviation of the signed and absolute values of the DLLP. The fraud period was identified using the parliamentary report on the GBES case. The standard

³ This model is very similar to the widely used methods of Beatty et al. (1995, 2002).

⁴ The R^2 from the OLS regression used to estimate the coefficients of the LLP models is 0.78.

deviation of the firm-specific residuals is described by Dechow and Dechow (2002) as a firm-level measure of accrual quality, where a higher standard deviation denotes lower quality. We adapted this procedure to compare the standard deviation value for DLLP in the pre-fraud period with the fraud period. Second, we used a t-test, a Wilcoxon test, and a sdtest to assess whether the differences in the mean, median, and standard values of the DLLP of the pre-fraud and the fraud periods were statistically significant (we considered the signed and the absolute values). Third, we graphically displayed the level (signed values) of reported LLP and the estimated (normal) LLP and DLLP values longitudinally.

3.2. Earnings management in GBES – a difference-in-difference approach

We built on a related analysis made by Dechow et al. (1995) to test for GBES's EM. Therefore, DLLP of GBES and of a control sample of non-fraudulent banks was regressed on a portioning variable (*Fraud* = a dummy variable assuming a value of 1 for the fraud period and 0 for the pre-fraud period) and on the interaction of *Fraud* and *GBes* (a dummy variable assuming a value of 1 for GBES and 0 for the non-fraudulent banks). According to Dechow et al. (1995), earnings are managed when the estimated coefficient of *Fraud* is statistically significant. Our main interest lay in the *Fraud*GBes* coefficient.

The DLLP values of GBES and the control sample were computed using the time-series approach of model (1); the data were drawn from the period 2005 to 2013.⁵ Thus, for the *Fraud* variable, we considered the fraud period from 2008 to 2013 and the pre-fraud period from 2005 to 2007.

For the non-fraudulent sample, we selected nine healthy Portuguese banks that could be matched with GBES based on the following characteristics: the type of bank (i.e., commercial); the number of subsidiary companies (i.e., banks with a similar average number of subsidiary firms); and listed firms with consolidated financial statements. We included a bank that was fully owned by the Portuguese state (*Caixa Geral de Depósitos*). The banks in question were *Caixa Geral de Depósitos*; *Banco Comercial Português*; *SA-Millennium BCP*; *Banco Santander Totta SA*; *Banco BPI SA*; *Caixa Económica Montepio Geral*; *Crédito Agrícola Financial Group-CCAM*; *Banco Bilbao Vizcaya Argentaria (Portugal) SA*; *Haitong Bank SA*; and *Caixa - Banco de Investimento SA*.

We also carried out a *t*-test to assess whether the mean DLLP values were statistically different for GBES and the non-fraudulent banks, taking into account the pre- and fraud periods. We further graphically displayed longitudinally the levels (signed values) of DLLP for the respective groups.

4. Empirical results and discussion

4.1. The loan loss provision model evidence

Our main objective was to evaluate the LLP model's ability to detect the GBES fraud. Two distinct periods in the life of GBES were examined: (1) the years preceding the fraud period; and (2) the fraud period itself. As was noted above, we used GBES data from 1992 to 2013 (pre-fraud period: 1992–2007; fraud period: 2008–2013). Descriptive statistics for both periods are presented in Table 1.

⁵ Bankscope only presents sufficient reliable data on non-fraudulent banks to calculate the LLP model from 2005 onwards.

Table 1. Descriptive statistics for DLLP of GBES.

Panel A: DLLPs in pre-fraud and fraud periods (absolute and signed values).											
Absolute values of DLLPs						Signed values DLLPs					
Pre-fraud (n=16)	Fraud (n=6)	Pre-fraud (n=16)	Fraud (n=6)	Pre-fraud (n=16)	Fraud (n=6)	Pre-fraud (n=16)	Fraud (n=6)	Pre-fraud (n=16)	Fraud (n=6)	Pre-fraud (n=16)	Fraud (n=6)
mean	mean	median	media	s.d.	s.d.	mean	mean	media	median	s.d.	s.d.
0,00095	0,00095	0,00080	0,00050	0,00078	0,00105	-0,00001	0,00002	-0,00002	0,00003	0,00125	0,00148

Note: the pre-fraud is 1992–2007; the fraud period is 2008–2013.

Panel B: LLPs, Estimated LLP and DLLP by year (signed values).

Year	LLPs	Estimated	DLLPs
1992	0,00657	0,00646	0,00011
1993	0,00926	0,00849	0,00077
1994	0,00441	0,00683	-0,0024
1995	0,00447	0,00569	-0,0012
1996	0,00667	0,00585	0,00082
1997	0,00775	0,00559	0,00216
1998	0,00796	0,00558	0,00238
1999	0,00589	0,00613	-0,0002
2000	0,00532	0,00623	-0,0009
2001	0,00514	0,00636	-0,0012
2002	0,00708	0,00696	0,00012
2003	0,00663	0,00679	-0,0001
2004	0,00669	0,00688	-0,0001
2005	0,00571	0,00455	0,00116
2006	0,00413	0,00462	-0,0005
2007	0,00409	0,00487	-0,0007
2008	0,00514	0,00548	-0,0003
2009	0,00933	0,00718	0,00215
2010	0,00613	0,00853	-0,0023
2011	0,01091	0,01095	-0,0000
2012	0,01442	0,01376	0,00066
2013	0,01805	0,01796	0,00009

The absolute mean and median values of DLLP were similar in both periods, while the standard deviation was slightly higher in the fraud period. Regarding the signed values, the mean and median values showed negative DLLP for the pre-fraud period and positive DLLP for the fraud period; a slightly higher standard deviation in the fraud period is also found.

From Figure 2 we verify that the reported LLP and the estimated LLP (values that were computed through the LLP model) followed a similar pattern, especially from 2002 onwards, except for 2009 and 2010, when the level of reported and estimated LLP differed substantially.

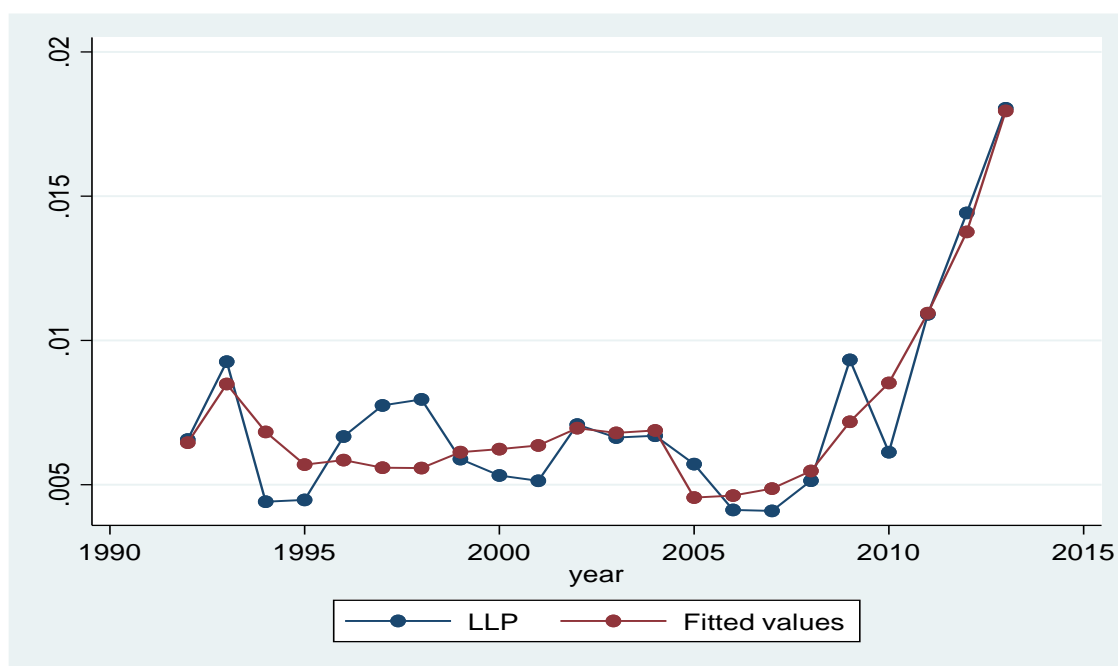


Figure 2. LLP and estimated LLP of GBES.

Table 2 displays the mean, median, and standard deviation differences for DLLP (signed and absolute values) in the pre-fraud and the fraud periods. A *t*-test, a Wilcoxon test, and a *sctest* revealed that these values were not significantly different depending on the period.

Table 2. Tests of mean, median and Sd differences between DLLP in pre-fraud and fraud periods of GBES.

	Mean difference (<i>t</i> -test)	Median difference (Wilcoxon test)	Sd Differences (SdTest)
DLLPs (signed values)	-0.0429	-0.147	0.7200
DLLPs (absolute values)	0.0043	0.663	0.5537

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Overall, the evidence suggests that GBES did not use DLLP in the fraud period differently than during the pre-fraud period. However, Figures 3 (which shows the DLLP from 1992 to 2013) and 4 (which compares LLP and ROA in the same period) reveal a procyclicality in GBES's LLP between 1994 and 1998 and the fraud periods 2009–2010 and 2011–2013. In these periods GBES's LLP and economic performance fluctuated in opposite directions.

Olszak et al. (2017) define the procyclicality of LLP as a negative link between LLP and a bank's business cycle. Ozili (2017a) explains that during economic upturns (or economic booms), banks report fewer problematic loans, and the level of LLP is usually low; by contrast, LLP increases during economic downturns because expected loan defaults are usually high and the extent of LLP is expected to significantly increase if a recession persists.

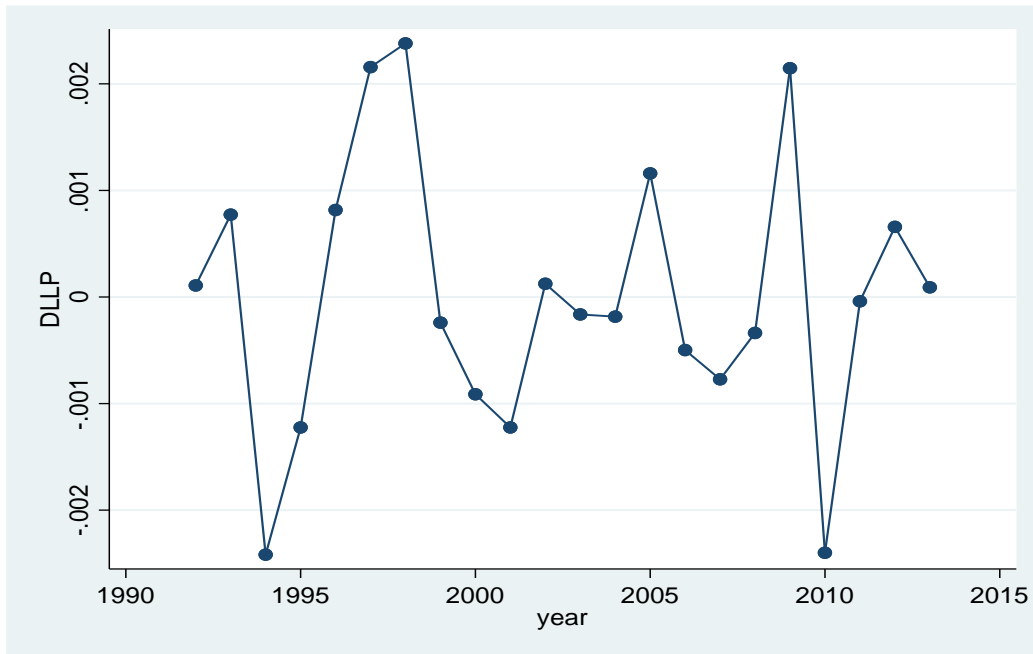


Figure 3. DLLP of GBES.

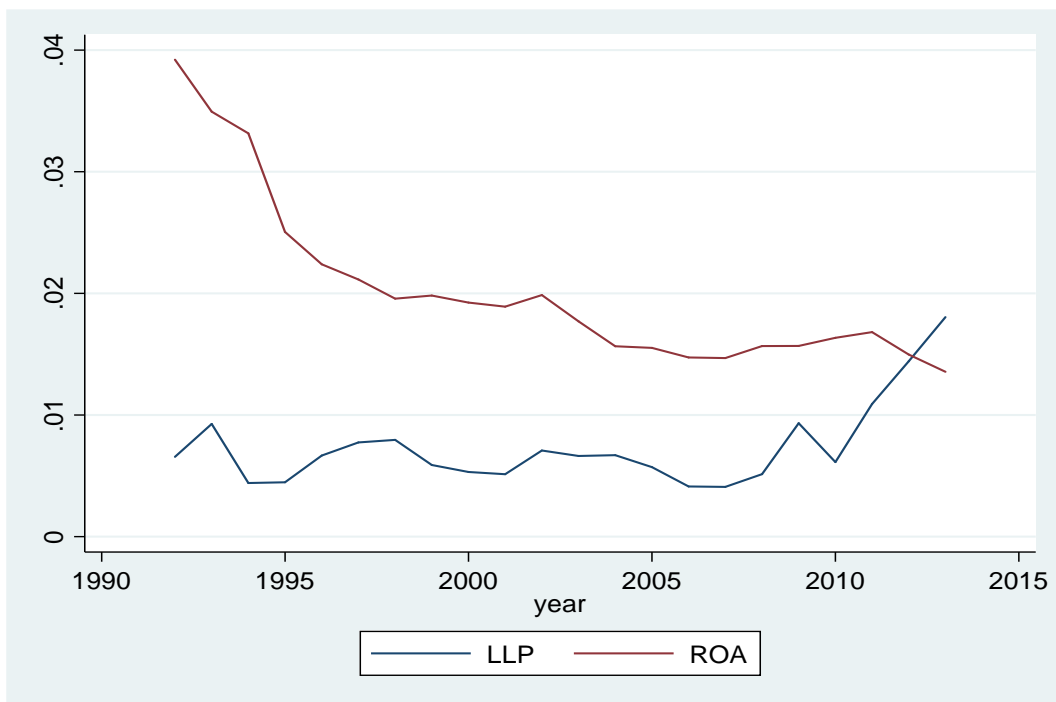


Figure 4. LLP and ROA of GBES.

The *t*-test results (Table 3) revealed that the level of GBES's LLP was statistically significantly different (higher) between the fraud period (2008 to 2013) and the pre-fraud period (1992 to 2007), confirming its procyclical nature.

Table 3. Tests of mean differences between LLP in pre-fraud and fraud periods of GBES.

	obs	LLPs (mean)
Pre-fraud (1992–2007)	16	0.0061113
Fraud (2008–2013)	6	0.0106609
Difference (Fraud – Pre-fraud)		0.00455
Mean difference (t-test)		–3.4136***

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Previous studies have provided evidence of the procyclical nature of LLP. El Sood (2012) shows that (in the US context) banks increase LLP to smooth income when they: (1) hit the regulatory minimum target; (2) are in non-recessionary periods; and (3) are more profitable. In crisis periods, they use LLP more extensively to smooth income upwards. Skała (2015) presents evidence that central European banks used LLP to smooth income between 2004 and 2013 and that provisions were procyclical. Ozili (2017b) reports that DLLP by Western European banks was procyclical in the same period. Using data from European commercial banks from 1996 to 2011, Olszak et al. (2017) observed that LLP was procyclical amongst the large and listed institutions. Ozili (2017a) presents similar evidence but in an African context.

Contrary to El Sood (2012), Skała (2015) and Ozili (2017b) who found that LLP procyclicality is linked with income smoothing, while our results reveal the procyclicality nature of GBES's LLP, we do not find significant evidence supporting the view that GBES used LLP in a discretionary way during the fraud period. In essence, the proven facts of the GBES fraud indicate that, in terms of the group's consolidated financial statements, the impact was a significant undervaluation of loans and financial instruments and an income overvaluation (via LLP underestimation).⁶ This should have been reflected in negative DLLP during the fraud period. However, this only applied to the years 2008, 2010, and 2011. Also, DLLP levels should have differed significantly between the pre-fraud and the fraud periods, but we did not find this to be the case. In sum, the LLP model did not prove to be effective in detecting DLLP in the GBES fraud case.

4.2. Evidence from a difference-in-difference approach

As was described in Section 3.2., the DLLP of GBES and a control sample of non-fraudulent banks was regressed on a portioning variable (*Fraud* [a dummy variable] = 1 for the fraud period and 0 for the pre-fraud period) and on the interaction of *Fraud* and *GBes* (a dummy variable = 1 for GBES and 0 for non-fraudulent banks). We were mostly interested in the *Fraud*GBes* coefficient. Because data were lacking for non-fraudulent banks, the pre-fraud period was defined as that between 2005 and 2007, while the fraud period was the same as in the previous analysis (2008 to 2013). The baseline model specification was as follows:

$$DLLP = \beta_0 + \beta_1 \text{Fraud} + \beta_2 \text{GBes} + \beta_3 \text{Fraud*GBes} + \varepsilon_{it} \quad (2)$$

⁶ In terms of the impact on the ESI holding company, the parliamentary report stated that liabilities were significantly undervalued and assets overvalued.

Table 4 reports a significantly positive association between *Fraud* and *DLLP* and a statistically insignificant association between *GBes* and *DLLP* – and, more importantly, between *Fraud*GBes* and *DLLP*. The results indicated that, while in general, the banks presented higher DLLP in the fraud period, GBES did not.⁷

Table 4. OLS regression of DLLP on *Fraud* for GBES and non-fraudulent banks.

	$DLLP = \beta_0 + \beta_1 Fraud + \beta_2 GBes + \beta_3 Fraud*GBes + \varepsilon_{it}$
<i>Fraud</i>	0,0008117** (0,0005)
<i>GBes</i>	0,000557 (0,0011)
<i>Fraud*GBes</i>	-0,0008253 (0,0014)
Observations	89
R ²	0.05

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

DLLPs are regressed in signed values. Standard Error in parentheses.

DLLPs of GBES and non-fraudulent banks are computed for the 2005 to 2013 period.

Fraud is a dummy variable = 1 for the period of 2008 to 2013, and 0 otherwise (2005 to 2007); *GBes* is a dummy variable = 1 for GBES, and 0 otherwise (non-fraudulent banks); *Fraud*GBes* is the interaction between *Fraud* and *GBes*.

The results of a *t*-test (reported in Table 5) revealed that the signed values of DLLP were not statistically significantly different between GBES and the non-fraudulent banks for either period.

Table 5. Tests of mean differences of DLLPs for GBES and non-fraudulent banks.

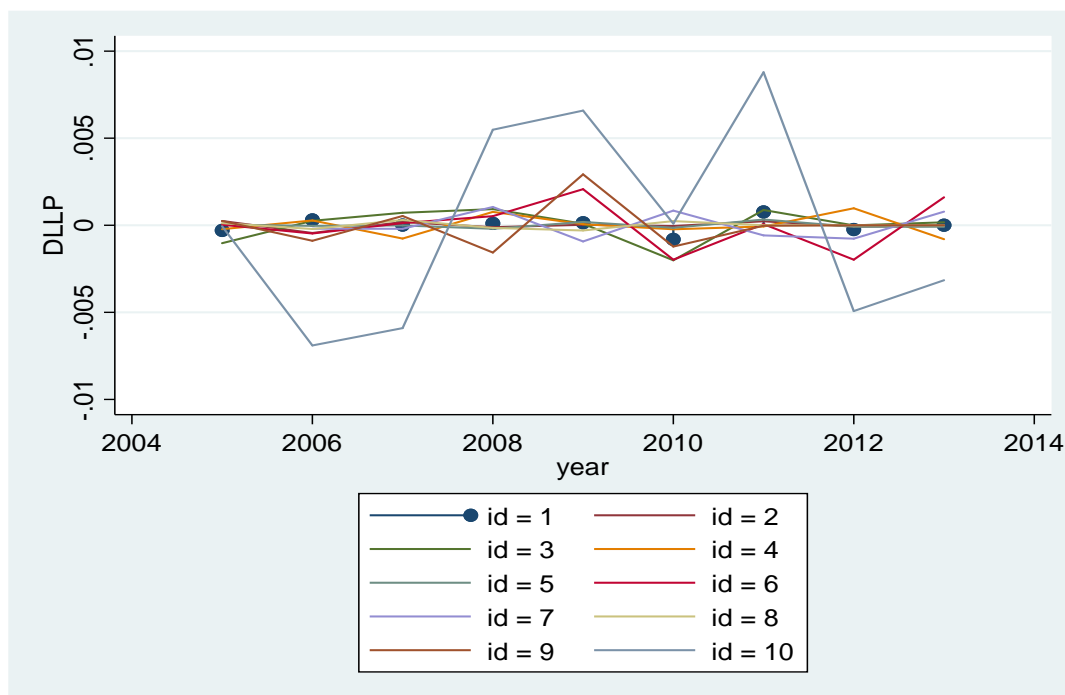
	<i>t</i> -test for GBES and Non-fraudulent Banks (2005–2013)	<i>t</i> -test for GBES and Non-fraudulent Banks in the fraud period (2008–2013)
DLLPs (signed values)	0,00000	0,3183

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively.

Additionally Figure 5 shows the similarity between the DLLP of GBES and the non-fraudulent banks for the period 2005 to 2013 (the exception being the bank *Caixa- Banco de Investimento SA*).

Overall, the difference-in-difference approach did not reveal significant differences in DLLP levels of GBES and non-fraudulent banks, namely in the fraud period. It is worth noting that the full bank sample (i.e., including GBES) presented higher DLLP in the fraud period (2008 to 2013), which is consistent with the procyclical nature of LLP.

⁷ The result holds if we exclude *Caixa Geral de Depósitos* (a bank fully owned by the Portuguese state).



Note: id=1 is GBES; id=2 is Caixa Geral de Depósitos; id=3 is Banco Comercial Português, SA-Millennium BCP; id=4 is Banco Santander Totta SA; id=5 is Banco BPI SA; id=6 is Caixa Económica Montepio Geral; id=7 is Crédito Agrícola Financial Group-CCCAM; id=8 is Banco Bilbao Vizcaya Argentaria (Portugal) SA; id=9 Haitong Bank SA; id=10 is Caixa - Banco de Investimento SA.

Figure 5. DLLP on GBES and non-fraudulent banks.

The fraud period included the years of financial crisis (and periods of economic downturn), after which the banking environment in Western Europe became more strictly regulated, especially post-2008 (Ozili, 2017b). The European Union introduced changes to its system of financial oversight by creating a macro-prudential supervision board and three micro-prudential supervisors (Curcio et al., 2016). Furthermore, the procyclical nature of capital requirements and provisioning rules was acknowledged through the introduction of the Basel II and III Accords (Curcio et al., 2016). Nevertheless, several scholars have documented the procyclicality of LLP amongst European banks in the financial crisis (e.g., Skała, 2015; Olszak et al., 2017; Ozili, 2017b), and the evidence collected in this paper supports their contention.

4.3. Additional analysis

To ensure that the transition from the Portuguese generally accepted accounting principles (GAAP) to international financial reporting standards (IFRS) did not affect the main results—the latter, which came into force on 1 January 2005, concerned the consolidated accounts of listed companies—we re-estimated the LLP model by including a year indicator to separate the GAAP period from the IFRS period (a dummy = 1 if the year was 2005 or higher and 0 otherwise). Using the argument that the incurred loss model of IAS 39 requires a relatively low level of judgement compared with alternative models that exist under local GAAPs, Marton and Runesson (2017) explored the predictive

ability of LLP with respect to actual losses under IFRS and local GAAPs. They discovered that LLP in IFRS bank years predict future credit losses to a lesser extent than in local GAAP bank years. Untabulated results reveal that our baseline results remain qualitatively similar.

In a further analysis, we re-estimated the LLP model by including as a deflator variable total assets rather than total loans. According to Ozili and Outa (2017), one major methodological issue in the literature is the choice of deflator for the LLP (dependent) variable in LLP models. Using this procedure, the untabulated baseline results remain qualitatively similar.

The use of LLP for earnings smoothing

Building on Curcio et al. (2016) and Ozili (2017b), we carried out a test to discover whether GBES and the control sample of non-fraudulent banks used LLP to smooth earnings during the GBES fraud period. The baseline model specification was as follows:

$$LLP_{it} = \alpha + \beta_1 NPL_{it} + \beta_2 LNASSET_{it} + \beta_3 LOANC_{it} + \beta_4 EBTP_{it} + \beta_5 Fraud + \beta_6 GBes + \beta_7 EBTP * Fraud + \beta_8 EBTP * Fraud * GBes + \varepsilon_{it} \quad (3)$$

Where:

LLP_{it} = loan loss provisions for bank i in year t ;

NPL_{it} = non-performing loans (includes loans past due 90 days or more and still accruing interest and loans in nonaccrual status) for bank i in year t ;

$LNASSET_{it}$ = the natural logarithm of total assets for bank i in year t ;

$LOANC_{it}$ = consumer loans for bank i in year t ;

$EBTP_{it}$ = earnings before taxes and loan loss provisions (loan loss provisions added back to profit before tax) for bank i in year t ;

$Fraud$ = a dummy variable = 1 for the period of 2008 to 2013, and 0 otherwise (2005 to 2007);

$GBes$ = a dummy variable = 1 for GBES, and 0 otherwise (non-fraudulent banks);

$Fraud * EBTP$ = interaction between $Fraud$ and $EBTP$

$Fraud * EBTP * GBes$ = interaction between $Fraud$, $EBTP$ and $GBes$

All variables in (3) were scaled by total assets (Curcio et al., 2016). Following previous studies (e.g., Curcio and Hasan, 2015; Curcio et al., 2016; Ozili, 2017a, b), the explanatory variables were used principally to test for the discretionary use of LLP. The NPL variable was an ex-post measure of the quality of bank loan portfolios and was expected to be positively related to LLP. $LNASSET$ was used as a proxy for bank size and $LOANC$ (customer loans) was our proxy for the contemporaneous credit risk (Curcio and Hasan, 2015; Ozili, 2017a, b). Following previous studies (e.g., Leventis et al., 2011; Curcio and Hasan, 2015; Curcio et al., 2016; Ozili, 2015, 2017a, b), $EBTP$ was used to test the income smoothing hypothesis. A positive $EBTP$ coefficient would confirm the income smoothing hypothesis, meaning that banks with earnings lower (or higher) than their target values would reduce (or increase) LLP to stabilise them. Finally, we introduced two indicator variables: $Fraud$ (a dummy variable = 1 for the 2008–2013 period and 0 otherwise); and $GBes$ (a dummy variable = 1 for GBES and 0 for the non-fraudulent banks). Thus, we could generate the coefficients of interest: the two interaction terms $Fraud * EBTP$ and $Fraud * EBTP * GBes$, which were used to investigate whether the non-fraudulent banks and GBES used LLP to smooth income either during the fraud years or the pre-fraud years.

Table 6. OLS regression - the use of LLP for income smoothing.
$$LLP_{it} = \alpha + \beta_1 NPL_{it} + \beta_2 LNASSET_{it} + \beta_3 LOANC_{it} + \beta_4 EBTP_{it} + \beta_5 Fraud + \beta_6 GBes + \beta_7 EBTP * Fraud + \beta_8 EBTP * Fraud * GBes + \varepsilon_{it}$$

NPL	0,031035 (0,0270656)
LNASSET	-0,0094551** (0,0043516)
LOANC	0,003575** (0,0017368)
EBTP	-0,2434895*** (0,0826534)
Fraud	0,0057488** (0,0026154)
GBes	0,0320591** (0,0150311)
EBTP*Fraud	0,0089704 (0,089489)
EBTP* Fraud*GBes	-0,0795206 (0,1040338)
Year-fixed effects	✓
Bank-fixed effects	✓
Observations	89
R ²	0,794

*, ** and *** indicate significance at the 10%, 5% and 1% levels, respectively. Standard Error in parentheses. The dependent variable is LLP, i.e., the ratio of loan loss provisions to total assets. NPL is the ratio non-performing loans to total assets; LNASSET is the natural logarithm of total assets; LOANC is the ratio of consumer loans to total assets; EBTP is the ratio of earnings before taxes and loan loss provisions to total assets; Fraud is a dummy variable = 1 for the period of 2008 to 2013, and 0 otherwise (2005 to 2007); GBes is a dummy variable = 1 for GBES, and 0 otherwise (non-fraudulent banks); Fraud*EBTP is the interaction between Fraud and EBTP; Fraud*EBTP*GBes is interaction between Fraud, EBTP and GBes.

Table 6 displays the estimation of the pooled regression model (3), with year- and bank-fixed effects included to control for the unobservable variables and constant heterogeneity, and robust standard errors to correct heteroskedasticity. In terms of the main results, the *EBTP* coefficient was negative and statistically significant at 1%, indicating that, over the sample period, banks with higher earnings tended to reduce their LLP. The negative impact of *EBTP* on LLP suggests that the banks did not apply LLP to smooth their earnings (Olszak et al., 2017). The coefficients of *Fraud*EBTP* and *Fraud*EBTP*GBes* were statistically insignificant. The evidence therefore suggests that income smoothing via LLP was not pronounced during the fraud period, neither amongst the full sample of banks nor in GBES.

5. Conclusions

The present paper aimed to provide empirical evidence regarding the external capacity of the LLP model to detect extreme cases of EM. To achieve this, we examined the largest fraud involving a business group in the Portuguese banking sector – the GBES case. LLP is considered to be the most important and discretionary component when detecting EM in banking institutions (e.g., Ozili and Outa, 2017; Chaity and Islam, 2022). Furthermore, few academics are interested in LLP research (Ozili and Outa, 2017).

Having explored GBES's time-series behaviour from 1992 to 2013 using the LLP model, we conclude that it did not use DLLP in the fraud period differently than in the pre-fraud years. However, we found evidence that the level of LLP was statistically significantly different (i.e., higher) during the fraud period (2008 to 2013) than the pre-fraud period (1992 to 2007). Previous studies have provided evidence of the procyclical nature of LLP and its link with income smoothing (e.g., El Sood, 2012; Skąła, 2015; Ozili, 2017b). Our results reveal the procyclicality of GBES's LLP between the fraud and pre-fraud period, but we did not find significant evidence that GBES used DLLP during the fraud period.

The results from the difference-in-difference approach did not reveal significant differences in GBES's DLLP levels compared with non-fraudulent banks in the fraud period. However, the full sample of banks (including GBES) presented higher levels of DLLP in the fraud period (2008 to 2013) compared with the pre-fraud years. This is consistent with the procyclical nature of LLP. Several studies have documented the procyclicality of LLP amongst European banks in the financial crisis (e.g., Skąła, 2015; Olszak et al., 2017; Ozili, 2017b), and the evidence we gathered for the present paper points in the same direction. While the procyclical nature of provisioning rules has been emphasised by the Basel II and III Accords, our evidence reinforces the need for regulators to pay attention to how much discretion banking institutions should be allowed in determining LLP (Ozili and Outa, 2017).

In an additional test, and building on a related analysis from previous studies (e.g., Curcio et al., 2016; Ozili, 2017a, b), we explored whether GBES and the control sample of non-fraudulent banks used LLP to smooth earnings during the GBES fraud period. We found significant evidence that the banks did not use LLP for earnings smoothing between 2005 and 2013 and that it was not pronounced during the fraud period compared with the pre-fraud years (either for the sample as a whole or for GBES).

The GBES fraud revealed a significant undervaluation of loans and financial instruments and an income overvaluation (via LLP underestimation). This should have been reflected in negative DLLP during the fraud period and DLLP levels that differed significantly between the pre-fraud and the fraud periods. In addition, we expected GBES's DLLP levels to be significantly different from those of non-fraudulent banks, particularly during the fraud period. The LLP model did not prove to be effective in detecting DLLP in the present case. This is consistent with Jackson (2018), who found that in known ex-post cases of material accounting misstatements, discretionary accrual models did not capture EM.

While Ozili and Outa (2017) argue that the proxies "(...) used to measure discretionary LLPs and its determinants in most LLP models have low construct validity problems because there have [sic] been some serious commitment among academics and researchers to ensure that each LLP construct and the explanatory variables measure what it intends to measure (...)," they also draw attention to the fact that "[O]ne major methodology issue in the empirical literature is the choice of deflator for LLP

(dependent) variable and the explanatory variables”; “LLP research may be complicated by the process, assumptions, methods and other unobservable factors that bank managers take into consideration to determine LLP estimates.” The LLP model proved to be ineffective in detecting GBES fraud and, in particular, evaluating the decisions taken by Ricardo Salgado and his management team regarding the use of DLLP. The issues raised by Ozili and Outa (2017) should therefore be explored further.

Acknowledgements

This work is supported by national funds through FCT - Foundation for Science and Technology, I.P., within the scope of multi-annual funding UIDB/04043/2020.

Conflicts of interest

All authors declare no conflicts of interest in this paper.

References

- Ab-Hamid MF, Asid R, Sulaiman NF, et al. (2018) The effect of earnings management on bank efficiency. *Asian J Account Gov* 10: 73–82. <https://doi.org/10.17576/AJAG-2018-10-07>
- Ahmed AS, Takeda C, Thomas S (1999) Bank loan loss provisions: A reexamination of capital management, earnings management and signalling effects. *J Account Econ* 28: 1–25. [https://doi.org/10.1016/S0165-4101\(99\)00017-8](https://doi.org/10.1016/S0165-4101(99)00017-8)
- Alali F, Jaggi B (2011) Earnings versus capital ratios management: Role of bank types and SFAS 114. *Rev Quant Financ Account* 36: 105–132. <https://doi.org/10.1007/s11156-010-0173-4>
- Amaral L (2015) *Em Nome do Pai e do Filho... O Grupo Espírito Santo, da privatização à queda*, Lisboa: Edições D. Quixote.
- Anandarajan A, Hasan I, Lozano-Vivas A (2003) The role of loan loss provisions in earnings management, capital management, and signaling: the Spanish experience. *Adv Int Account* 16: 45–66. [https://doi.org/10.1016/S0897-3660\(03\)16003-5](https://doi.org/10.1016/S0897-3660(03)16003-5)
- Anandarajan A, Hasan I, McCarthy C (2007) Use of loan loss provisions for capital, earnings management and signalling by Australian banks. *Account Financ* 47: 357–379. <https://doi.org/10.1111/j.1467-629X.2007.00220.x>
- Andries K, Gallemore J, Jacob M (2017) The effect of corporate taxation on bank transparency: Evidence from loan loss provisions. *J Account Econ* 63: 307–328. <https://doi.org/10.1016/j.jacceco.2017.03.004>
- Antunes JE (2018) Banco Espírito Santo - The Anatomy of a Banking Scandal in Portugal. In G. DB Ferrarini & GG Van Solingue (Eds.). *Corporate Governance of Financ Inst* 2–4. Oxford University Press. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3225343
- Beatty AL, Chamberlain SL, Magliolo J (1995) Managing financial reports of commercial banks: the influence of taxes, regulatory capital, and earnings. *J Account Res* 333: 231–262. <https://doi.org/10.2307/2491487>
- Beatty AL, Ke B, Petroni KR (2002) Earnings management to avoid earnings declines across publicly and privately held banks. *Account Rev* 77: 547–570. <https://doi.org/10.2308/accr.2002.77.3.547>

- BES Parliamentary Commission Report (2015) Available from: <https://www.parlamento.pt/sites/COM/XIILEG//CPIBES/Paginas/RelatoriosActividade.aspx>
- Bouvatier V, Lepetit L, Strobel F (2014) Bank income smoothing, ownership concentration and the regulatory environment. *J Bank Financ* 41: 253–270. <https://doi.org/10.1016/j.jbankfin.2013.12.001>
- Bryce C, Dadoukis A, Hall M, et al. (2015) An analysis of loan loss provisioning behaviour in Vietnamese banking. *Financ Res Lett* 14: 69–75. <https://doi.org/10.1016/j.frl.2015.05.014>
- Cavaleiro D, Vicente I (2022) Mais recente condenação de Ricardo Salgado prescreve em novembro. *Express*, Available from: <https://expresso.pt/economia/2022-04-22-Mais-recente-condenacao-de-Ricardo-Salgado-prescreve-em-novembro-b6948959>
- Chaity NS, Islam KMZ (2022) Bank efficiency and practice of earnings management: a study on listed commercial banks of Bangladesh. *Asian J Account Res* 7: 114–128. <https://doi.org/10.1108/AJAR-09-2020-0080>
- Chang RD, Shen WH, Fang CJ (2008) Discretionary loan loss provision and earnings management for the banking industry. *Int Bus Econ Res J* 7: 9–20. <https://doi.org/10.19030/iber.v7i3.3230>
- Cohen LJ, Cornett MM, Marcus AJ, et al. (2014) Bank Earnings Management and Tail Risk during the Financial Crisis. *J Money Credit Bank* 46: 171–197. <https://doi.org/10.1111/jmcb.12101>
- Cornett MM, Marcus AJ, Saunders A, et al. (2009) Corporate governance and earnings management at large US bank holding companies. *J Corp Financ* 15: 412–430. <https://doi.org/10.1016/j.jcorpfin.2009.04.003>
- Curcio D, Hasan I (2015) Earnings and capital management and signaling: The use of loan-loss provisions by European banks. *Eur J Financ* 21: 26–50. <https://doi.org/10.1080/1351847X.2012.762408>
- Curcio E, Simone AD, Gallo A (2016) Financial crisis and international supervision: new evidence on the discretionary use of loan loss provisions at Euro Area commercial banks. *British Account Rev* 49: 181–193. <https://doi.org/10.1016/j.bar.2016.09.001>
- Dahl D (2013) Bank audit practices and loan loss provisioning. *J Bank Financ* 37: 3577–3584. <https://doi.org/10.1016/j.jbankfin.2013.05.007>
- Dechow PM, Dichev ID (2002) The Quality of Accruals and Earnings: The Role of Accrual Estimation Errors. *Account Rev* 77: 35–59. <https://doi.org/10.2308/accr.2002.77.s-1.35>
- Dechow PM, Ge W, Schrand C (2010) Understanding Earnings Quality: A Review of the Proxies, their Determinants and their Consequences. *J Account Econ* 50: 344–401. <https://doi.org/10.1016/j.jacceco.2010.09.001>
- Dechow PM, Sloan RG, Sweeney AP (1995) Detecting Earnings Management. *Account Rev* 70: 193–225.
- DeFond ML (2010) Earnings quality research: Advances, challenges and future research. *Account Econ* 50: 402–409. <https://doi.org/10.1016/j.jacceco.2010.10.004>
- El SH (2012) Loan loss provisioning and income smoothing in US banks pre and post the financial crisis. *Int Rev Financ Anal* 25: 64–72. <https://doi.org/10.1016/j.irfa.2012.06.007>
- Ferreira A (2016) *BES: Os dias do fim revelados*, 2 Eds., Lisboa: CHIADO Editora.
- Fonseca AR, Gonzalez F (2008) Cross-country determinants of bank income smoothing by managing loan-loss provisions. *J Bank Financ* 32: 217–228. <https://doi.org/10.1016/j.jbankfin.2007.02.012>

- Guerreiro PS (2018) A batalha de Titãs: como Pedro Queiroz Pereira destruiu Ricardo Salgado. *Express*. Available from: <https://expresso.pt/economia/2018-08-21-A-batalha-de-Titas-como-Pedro-Queiroz-Pereira-destruiu-Ricardo-Salgado>
- Hamadi M, Heinen A, Linder S, et al. (2016) Does Basel II affect the market valuation of discretionary loan loss provisions? *J Bank Financ* 70: 177–192. <https://doi.org/10.1016/j.jbankfin.2016.06.002>
- Jackson AB (2018) Discretionary Accruals: Earnings Management ... or Not? *Abacus* 54: 136–153. <https://doi.org/10.1111/abac.12117>
- Jones J (1991) Earnings management during import relief investigations. *J Account Res* 29: 193–228. <https://doi.org/10.2307/2491047>
- Kanagaretnam K, Lim CY, Lobo GJ (2014) Effects of International Institutional Factors on Earnings Quality of Banks. *J Bank Financ* 39: 87–106. <https://doi.org/10.1016/j.jbankfin.2013.11.005>
- Kanagaretnam K, Lobo GJ, Mathieu R (2003) Managerial incentives for income smoothing through bank loan loss provisions. *Rev Quant Financ Account* 20: 63–80. <https://doi.org/10.1023/A:1022187622780>
- Kanagaretnam K, Lobo GJ, Yang DH (2004) Joint tests of signaling and incomes smoothing through bank loan loss provisions. *Contemp Account Res* 21: 843–884. <https://doi.org/10.1506/UDWQ-R7B1-A684-9ECR>
- Kanagaretnam K, Lobo GJ, Yang DH (2005) Determinants of signalling by banks through loan loss provisions. *J Bus Res* 58: 312–320. <https://doi.org/10.1016/j.jbusres.2003.06.002>
- Kanagaretnam K, Lim CY, Lobo GJ (2010) Auditor reputation and earnings management: International evidence from the banking industry. *J Bank Financ* 34: 2318–2327. <https://doi.org/10.1016/j.jbankfin.2010.02.020>
- Kilic E, Lobo GJ, Ranasinghe T, et al. (2012) The impact of SFAS 133 on income smoothing by banks through loan loss provisions. *Account Rev* 88: 233–260. <https://doi.org/10.2308/accr-50264>
- Kothari SP, Leone AJ, Wasley CE (2005) Performance matched discretionary accrual measures. *J Account Econ* 39: 163–197. <https://doi.org/10.1016/j.jacceco.2004.11.002>
- Leventis S, Dimitropoulos P, Anandarajan A (2011) Loan loss provisions, earnings management and capital management under IFRS: the case of EU commercial banks. *J Financ Serv Res* 40: 103–122. <https://doi.org/10.1007/s10693-010-0096-1>
- Lima AP (2000) Is blood thicker than economic interest in familial enterprises? In: Schweitzer P.P. Author, *Dividends of Kinship: Meanings and Uses of Social Relatedness*, London: Routledge, 151–176.
- Lobo GJ, Yang DH (2001) Bank managers' heterogeneous decisions on discretionary loan loss provisions. *Rev Quant Financ Account* 16: 223–250. <https://doi.org/10.1023/A:1011284303517>
- Marton J, Runesson E (2017) The predictive ability of loan loss provisions in banks e Effects of accounting standards, enforcement and incentives. *British Account Rev* 49: 162–180. <https://doi.org/10.1016/j.bar.2016.09.003>
- McNichols M, Wilson GP (1988) Evidence of earnings management from the provision for bad debts. *J Account Res* 26: 1–31. <https://doi.org/10.2307/2491176>

- Olszak M, Pipien´ M, Kowalska I, et al. (2017) What drives heterogeneity of cyclicity of loan loss provisions in the EU? *J Financ Serv Res* 51: 55–96. <https://doi.org/10.1007/S10693-015-0238-6>
- Owens E, Wu JS, Zimmerman J (2017) Idiosyncratic Shocks to Firm Underlying Economics and Abnormal Accruals. *Account Rev* 92: 183–219. <https://doi.org/10.2308/accr-51523>
- Ozili PK (2015) Loan loss provisioning, income smoothing, signalling, capital management and procyclicality: Does IFRS matter? Empirical evidence from Nigeria. *Mediterr J Soc Sci* 6: 224–232. <https://doi.org/10.5901/mjss.2015.v6n2p224>
- Ozili PK (2017a) Bank earnings smoothing, audit quality and procyclicality in Africa. The case of loan loss provisions. *Rev Account Financ* 16: 142–161. <https://doi.org/10.1108/RAF-12-2015-0188>
- Ozili PK (2017b) Discretionary provisioning practices among Western European banks. *J Financ Econ Policy* 9: 109–118. <https://doi.org/10.1108/JFEP-07-2016-0049>
- Ozili PK, Outa E (2017) Bank loan loss provisions research: A review. *Borsa Istanbul Rev* 17: 144–163. <https://doi.org/10.1016/j.bir.2017.05.001>
- Perez D, Salas-Fumas V, Saurina J (2008) Earnings and capital management in alternative loan loss provision regulatory regimes. *Eur Account Rev* 17: 423–445. <https://doi.org/10.1080/09638180802016742>
- Santos BS (1984) A Crise e a Reconstituição do Estado em Portugal (1974–1984). *Revista Crítica de Ciências Sociais* 14: 9–29.
- Silva AF, Amaral L, Neves P (2016) Business groups in Portugal in the *Estado Novo* period (1930–1974): family, power and structural change. *Bus Hist* 58: 49–68. <https://doi.org/10.1080/00076791.2015.1044520>
- Skała D (2015) Saving on a rainy day? Income smoothing and procyclicality of loan loss provisions in Central European Banks. *Int Financ* 18: 25–46. <https://doi.org/10.1111/1468-2362.12058>
- Wahlen JM (1994) The nature of information in commercial bank loan loss disclosures. *Account Rev* 69: 455–478.



AIMS Press

© 2022 the Author(s), licensee AIMS Press. This is an open access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>)