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TESIS DOCTORAL

# An international analysis of banks' disclosure policies: dividends and provisions

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## 2. INTRODUCTION

Crisis is a word which we are getting used to. Crisis episodes seem to be cyclical. Nowadays, we are facing the consequences of the COVID-19 pandemic, shortly after overcoming the financial crisis of 2007-08. In addition, in the previous decade, we have suffered the dot-com bubble crisis. These times of trial are also renewal moments and opportunities for learning from mistakes made. During these crisis periods, banks failures have happened and financial systems have adapted, more or less successfully, in order to mitigate the negative impact on the economy and to implement new legal frameworks that might prevent future crises.

Due to the saliency of the crises, the research on them has been widely developed, trying to find its causes and ways for avoiding future problems. This is also the context of this dissertation. According to Altman (2009), the crisis arisen in 2007-08 has been the worst after the great depression of 1929. It has had enormous consequences, including bank failures and stock markets decline around the world. The influence of financial entities over real economy has been proved in this dramatic situation with millions of affected citizens that lost their jobs and viewed their purchasing power drastically decreased. Policymakers reacted by strengthening banks' legal requirements, particularly increasing capital requirements, and implementing a special supervision over systemic banks.

Banks have been considered major causes of the financial crisis of 2007-08 and they still face a number of unresolved issues. A high number of branches have been closed and the decrease of the interest rate of deposit facility threatens the banks margins. At the same time, there are several challenges that they must address to remain competitive: Fintechs have become a threat for banks that cannot adapt to customers' requirements, which are increasingly more sophisticated

and technologically demanding; the reputation of financial institutions among the population has worsened, which puts them under pressure when dealing with lawsuits. In addition, the increasing regulation on the financial sector is a growing concern. All these factors leave a challenging frame for banks in order to keep profitable.

The motivation of this dissertation relies, firstly, on the interest of analysing the development of banks in recent times, after overcoming the financial crisis of 2007-08, considering the several difficulties that they need to face, and the relevance of the financial system for the whole economy of a country. Secondly, nowadays interest and importance of disclosure policies provides an interesting insight for the study of classic financial topics, such as agency problems, risk-taking policies and managerial behaviour. The combination of these two circumstances provides a remarkable framework for contributing to the literature and giving advice to policy-makers and practitioners. Specifically, the study of dividends policies and provisions can shed light from a new point of view.

In this regard, we can observe how European Central Banks, in a recommendation of 27 March 2020 on dividend distributions during the COVID-19 pandemic, has recommended that *at least until 1 October 2020 no dividends are paid out and no irrevocable commitment to pay out dividends is undertaken by the credit institutions for the financial year 2019 and 2020 and that credit institutions refrain from share buy-backs aimed at remunerating shareholders.* In a footnote, they specify that this recommendation refers to cash-dividends. Another interesting anecdotal evidence is how banks provisioning policy has been influenced by the situation driven by COVID-19 pandemic. Almost all banks haw multiplied their provisions in order to cover potential credit losses and other defaults. For

example, HSBC provisions have multiplied by six (EUR 969 million in the first half of 2019 and EUR 5.830 million in the first half of 2020).

Research efforts concerning crisis circumstances have resulted in several actions. Mainly related to stronger regulation and more severe supervising, the role of disclosure has risen as an interesting tool. In a worldwide-communicated society that is becoming more and more sensitive to corruption, disclosure issues are considered as essential, leading to a reinforced effort to be completely transparent. Does this disclosure effort really worth? Is it healthy developed or can hide self-interest behaviour? This particular point of view underlies this research, which has been developed through three empirical analyses. The objective is to contribute with a study of the years after the financial crisis of 2007-08 concerning banks behaviour, paying particular attention to the disclosure they made through their provisions and dividends policy. The research is focused on Europe, where regulation is more severe, but also banks from other countries are taken into account.

Right after the financial crisis of 2007-08, the Basel Committee on Banking Supervision imposed strict capital requirements on banks. They need to reach a minimum level of capital reserves in order to face difficult situations, like the one that just happened and they had to overcome. Dividend payout policy was not only suffering the crisis, but also the more strict capital requirements. Given the adverse signalling effect of a dramatic decline in dividend payout and the negative impact on stock price that may have, banks have been forced to come up with new ways of remunerating shareholders. The scrip dividend is one such new way. Through these, the firm's cash reserves are converted into new shares and given to existing shareholders rather than paying them a cash dividend. This al-

lows banks to keep their payout policy while increasing their equity, according to new capital requirements.

Many European banks have adopted this payout system between 2012 and 2017 (Murphy 2018), solving two issues with just one action: they have kept the remuneration of shareholders at pre-crisis levels and they have increased their equity. In a parallel path, banks are expected to base their current payout policy to previous dividends, according to dividend smoothing findings (Lintner 1956; Fernau & Hirsch 2019). This trend could have been affected by the financial crisis directly or indirectly through the modifications on the legal frameworks. In this vein, the distinction between cash and scrip dividends will be interesting when analysing dividend smoothing in the recent years.

In this line, we analyse the role of scrip dividends in these difficult situations for banks. We empirically study the trend among European banks towards scrip dividends after the financial crisis of 2007-08. Using a sample of 79 banks from 20 European countries between 2014 and 2018, we find that scrip dividends have dramatically modified the payout policy of European banks. Whereas banks do not seem to smooth cash dividends, we find clear evidence that they do smooth total dividends, which includes both cash and scrip dividends. We also find that the new legal requirements (resulting from the Basel Accords and other country-level laws) have different implications on cash and scrip dividends. Whereas the need for better and more capital imposed by these rules has led banks to cut cash dividends, there is a positive relationship between the legal requirements on capital adequacy and scrip dividends.

Therefore, the contribution of this initial analysis is in two ways. Firstly, we analyse banks' scrip dividends in a recent period of time. As far as we are aware,

there is no research on recent years towards scrip dividends. Secondly, we extend previous studies which explored the effect of the financial crisis on banks' payout going a step further by introducing not only country-level but also international regulations and by taking into account the legal protection of shareholders' rights.

But adapting their payout policy has not been the only action that banks have introduced as a result of the financial crisis and the changes in legal requirements. Banks worldwide have had to face numerous litigious in recent years. The risk of litigation is supposed to be covered by legal provisions. As prevention against stakeholders' complaints, legal provisions amounts might be created accordingly to banks risk. Legal issues are not a new challenge for financial entities, but the increasing number of lawsuits requires a deeper research.

Some anecdotal evidence on recent issues may be illustrative. In Spain, in June 2017, the failure of the Banco Popular generated a multitude of complaints from different stakeholders. Worth noting is the concentration of control in Ángel Ron, who was CEO and chairman of the board at the same time, and the risky strategy in mortgage investments. As a consequence, the Santander (the acquiring bank) had to create certain legal provisions in anticipation of the expected increase in litigation. The Spanish Stock Market Commission has observed the importance of provisions in the last years of this bank, and affirmed that, if the provision had been the right ones (in accordance with the criteria for late payments) between 2010 and 2015, it would have caused losses on its balance sheet. In 2012, it did indeed report them.

In 2014, the Banco Espirito Santo was rescued by the Portuguese Government and divided into a good bank, Novo Banco, and another bad bank which was destined to disappear. In December 2015, Novo Banco bonds were

transferred to the bad bank, with the corresponding loss of value. As a result, the legal provisions of Novo Banco reached very high values in this period, soaring from EUR 42.7 million in 2014 to EUR 132.9 million in 2015. In 2016, international bond holders, such as BlackRock and Pimco, took legal action against Banco de Portugal. Another example is Lloyds Bank, for which a simple search in Google shows some potential sources of risk for the bank: personal slips by the CEO in 2016 that affected the bank and a computer attack in 2017. Over the last few years, there has been a dramatic increase in the legal provisions of Lloyds Bank, which rose from EUR 1,339 million in 2016 to EUR 2,778 million in 2017.

Therefore, we have a second study concerning banks' legal provisions, taking into account the influence of corporate governance and institutional environment. The aim of such study is to contribute to the literature by exploring legal provisions as a disclosure tool. We analyse the legal provisions of 92 European systemic banks from 18 countries over the years 2008-2017. Normative considers that there is an important weight of managers' subjectivity in the creation of legal provisions. The reason for this is that anticipating the impact and probability of possible risks is quite uncertain. Hence, the estimation of the amount of these provisions mostly relies on managers' experience. Managerial motivation to recognize risks and, consequently, to create provisions can be curbed by self-interest to the detriment of the bank. Therefore, managerial incentives to disclose information play an important role here. Indeed, results show an initial negative relationship between managers' discretionary investments and legal provisions, supporting that managers' overconfidence or self-interests take precedence over the corporate perspective that would lead to create more provisions when there is a situation of overinvestment.

The control of the management is one of the main duties of the board of directors. Its efficiency moderating this classical agency conflicts has been widely studied. The influence of the institutional environment also has its role when trying to understand better the relationships within a company. Both internal and external control mechanisms have been addressed, finding positive moderating effects in order to guard against future lawsuits.

The main contribution of this research is to offer a pioneering study of the quantitative analysis of legal provisions. Although legal provisions must be reported in annual financial statements following International Financial Reporting Standards, there are not strict enough requirements on the report format. As far as we are aware, our research is the first step in quantifying banks' legal provisions in the international arena. We also go a step further by analysing how the recognition of risks is shaped by both internal and external corporate governance control mechanisms.

Succeeding the study of legal provisions as a disclosure tool, in our third empirical analysis we address banks' loan loss provisions, also considering the effect of the board of directors. Bearing in mind the challenging situation of financial entities and the role of risk and disclosure, we analyse, in a similar way as we do with legal provisions, the loan loss provisions. The appeal of this research stems from the wide recognition in the literature of the use of these provisions for managerial objectives (Curcio *et al.* 2017; Olszak *et al.* 2017; Nicoletti 2018; Bratten *et al.* 2020; Ng *et al.* 2020). This research question has also included corporate governance issues and institutional and legal concerns, but there are few authors –i.e. Andries *et al.* (2017)– that introduce the perspective of loan loss provisions as a disclosure tool.

We address this research question with a worldwide empirical study, focusing on the role of these provisions in the disclosure of banks' risk. We also address the effectiveness of the board of directors and the compensation policies, regarding their role in the control of managers. Therefore, we consider internal control mechanisms looking for their relevance in explaining the quality of the disclosure of risk through loan loss provisions. Using a sample of 1,351 banks from 52 countries over the period 2000-2019, we find that the recognition of risk by the banks through loan loss provisions does indeed depend on its board size and independence, the tenure of the board and the presence of female directors. However, we do not find evidence for the influence of compensation policies.

The contribution to the literature of this analysis is threefold. Firstly, we study the role of the board of directors as an influential factor in bank provision policy. Whereas previous research has explored the financial factors related to loan loss provisions, we show that corporate governance can also be a relevant factor. This contribution is even more significant given the unique features of bank governance (Adams & Mehran 2012; John *et al.* 2016). Secondly, we also contribute by considering a worldwide sample of banks that allows cross-country comparisons to be drawn. Finally, we propose a novel variable for measuring disclosure; the ratio between loan loss provisions and non-performing loans, which can provide a clearer insight into how banks are aware of the risk taken.

The remainder of this thesis is organized as follows. In section 3, we present a literature review and justification of the various viewpoints regarding banks' situation, dividend policy, provisions and internal and external control mechanisms. The fourth section compiles the hypotheses stated for the empirical analysis, which is described in section 5. Finally, in the sixth section, we analyse the results, and, in the final section, we draw the conclusions to emerge from the the-

sis. Appendices collect the definition of the variables used for the empirical studies and bibliometrics.

## 3. LITERATURE REVIEW

In this section, we make a review of banks' literature that is organised accordingly to the empirical analyses. Firstly, we compile the studies on dividend smoothing and scrip dividends, also paying attention to the institutional and legal factors. Secondly, we analyse banks' legal provisions, considering the influence of internal and external control mechanisms on its creation. Finally, we study the literature on loan loss provisions and the relevant influence of the board of directors. This research drives to a number of hypotheses that are stated in section three.

### 3.1. Banks' payout smoothing and scrip dividends

In the aftermath of the Lehman Brothers collapse in 2007-2008, the Basel Committee on Banking Supervision imposed strict capital requirements on banks in order to avoid decapitalization problems (Cubillas & Suárez 2018; Nguyen *et al.* 2020). In line with this legal framework, banks are required to reach a minimum level of capital reserves in order to pass the stress test and, as a result, have been facing major difficulties distributing large dividend payouts (Acharya *et al.* 2011b; Floyd *et al.* 2015). Nevertheless, a dramatic decline in dividend payout may have a negative impact on stock price due to the adverse signal effect. Since repurchase programmes are subject to legal restrictions (Wesson *et al.* 2018), banks have been forced to come up with new ways of remunerating shareholders. The scrip dividend is one such new way. Through these, the firm's cash reserves are converted into new shares and given to existing shareholders, rather than paying them a cash dividend.

The list of scrip dividend payers in recent times is long, and includes most large European banks: BBVA, Santander, Barclays, HSBC, Credit Suisse, etc.

(Colvin 2017). In fact, one in every eight large European companies used shares instead of cash payments during the 2012-2017 period (Murphy 2018). The case of Credit Suisse is particularly significant, since it is the third largest scrip payer in Europe. Another significant case is Banco Santander, which since 2009 has paid up to 22 scrip dividends, amounting to the equivalent of 25% of its current shareholding. Another Spanish bank, BBVA, recently reported that two dividends will be paid in cash and two in scrip (Markit 2016). As a result of applying this policy, banks have thus killed two birds with one stone: on the one hand, they have kept payout policy at pre-crisis levels, maintaining shareholder remuneration and, on the other, they have bolstered their equity.

Running parallel to this, so-called "dividend smoothing" is one of the most robust findings to emerge from the empirical literature on dividends (Koussis & Makrominas 2019). According to this finding, firms base their current dividend to a large extent on previous dividends (Lintner 1956; Fernau & Hirsch 2019). The smoothing theory of dividends proposes that managers follow a long-term objective coefficient of dividend payout, namely a target payout ratio. The study by Lintner (1956) was pioneering in describing the dividend smoothing policy as a relation between current earnings and the previous year's dividends. In a survey of 28 US companies, the author concluded that "the relationship between current earnings and the existing dividend rate was very generally much the most important single factor determining the amount of any change in dividends decided upon".

More recent studies, such as Aivazian *et al.* (2003), Larkin *et al.* (2017), Al-Najjar and Kilincarslan (2017), Chemmanur *et al.* (2010) and Baker and De Ridder (2018), among others, have confirmed smoothing dividends for different

periods and countries[1]. Dividends give out a very important signalling effect, such that a stable payout policy sends a signal to capital markets that is easily recognizable by investors (Chen *et al.* 2002; Hutagaol-Martowidjojo & Valentincic 2016). As stated by Forti and Schiozer (2015), banks need to signal their financial health through dividends during crises, which may have harmful effects by intensifying pro-cyclicality. In times of financial crisis, this policy can prove even more relevant since managers try to avoid the dramatic impact of dividend cuts or omissions, given the negative signal this sends out to capital markets at such sensitive moments (Amihud & Li 2006).

In a financial environment that sees a drop in profits coupled with high capital stringency, European banks use scrip dividends to maintain dividends. This policy emerges as a feasible strategy to preserve shareholder compensation while averting the negative consequences on capital legal requirements. Scrip dividends are share issuances made to remunerate shareholders rather than giving them cash dividends. Shareholders can choose to sell the subscription rights provided by the firm in exchange for liquidity and thereby obtain a normal dividend. The alternative option open to shareholders is to accept the subscription rights and to increase the number of shares they hold in the company. The controversy surrounding the scrip dividend system arises due to the lack of agreement concerning their nature, with the Stock Exchange Commissions of different European countries discussing whether they should be considered as dividends or single equity increases.

In turn, European banks have been able to use these scrip dividends to recapitalize as mandated by the new regulatory requirement, without the need to

[1] Contrasting evidence has been provided by Basse *et al.* (2014), although their data-span stops before the financial crisis.

issue fresh equity. In this sense, scrip dividends seem to play a more prominent role during periods of financial instability by allowing shareholders to keep payments during moments of low earnings and high equity need. Thus, despite the difficulties banks are having in maintaining the large dividends paid out in the years before the 2007-2008 financial crisis, we still expect European banks to smooth dividends in order to meet a dividend target.

### 3.1.1. Dividends and institutional and legal factors

The dividend smoothing theory suggests that dividends basically depend on two firm-level variables: earnings and previous dividends. Although dividend smoothing is regarded as a robust finding, as evidenced by the meta-analysis of Fernau and Hirsch (2019), dividend policy also depends on other issues, which are related to the institutional structure, such as the country's financial system, the legal and institutional environment, and industrial organization (La Porta *et al.* 2000a; Booth & Zhou 2017).

Banks are likely to be affected by these factors given the specific characteristics of the financial sector. Moreover, banks are assumed to operate in a more transparent sector, which should lead to more smoothing (Leary & Michaely 2011). This may prove relevant for scrip dividends because the increasing legal capital requirements may make banks unable to comply with the dividend target, with scrip dividends emerging as an alternative form of shareholder remuneration.

Specifically, the Basel Accords were adopted to establish the minimum capital required to cover a bank's credit activities and the minimum liquidity required to stay afloat in the face of possible contingencies. Particularly, the Basel III regulation establishes a solvency ratio of 6% commencing in 2015, which increased up

to 10% in 2018 (Bank for International Settlements 2011). The ratio used is the so-called Tier1, such that high-quality equity must be proportional to the total risk-weighted assets. As shown by Oino (2018), this ratio has been a yardstick in the growth of European banks after the financial crisis. In this vein, as Basse *et al.* (2014) and Ashraf *et al.* (2016) suggest, a stricter capital legal requirement in European banks in the years after the last financial crisis may be an important constraint to maintain dividend payments at pre-crisis levels. These authors show that banks paid lower dividends where regulators imposed common equity based capital regulation and more stringent risk-based capital requirements. Following this argument, as a new way to remunerate shareholders and reinforce capital, scrip dividends would allow European banks to maintain their payout policy and fulfil the new legal capital requirements.

Another important legal factor, as La Porta *et al.* (2000a) propose, is the legal protection offered to shareholders in each country. These authors introduce two alternative hypotheses regarding the agency theory of dividends. The *outcome hypothesis* predicts that firms in countries with better shareholder rights pay more dividends in order to disgorge cash and decrease the free cash flow (Chang *et al.* 2018). The opposite argument is to consider the legal framework as a substitute, namely the *substitution hypothesis*, with dividends being a way to make up for poor shareholder protection in order to keep open the option of raising external capital in the future. In a context of financial instability and legal rules, which impose greater equity requirements, there is a risk of expropriating minority shareholder wealth through a drastic reduction in dividends. We posit that, in this situation, the outcome hypothesis should prevail, such that a more protective corporate governance framework should result in higher payments to shareholders.

### 3.2. Disclosure of risk through legal provisions

Just over ten years after the onset of the 2007-2009 global financial crisis, banks worldwide have had to face an endless number of lawsuits, whose risk is supposed to have been covered by legal provisions. Whereas in recent years we have witnessed some of the consequences of such lawsuits, we still lack sufficient studies about the drivers of the legal provisions.

There is a growing concern about banks' legal responsibilities in the aftermath of the crisis, with particular interest focusing on enforcement actions (Delis *et al.* 2019). In this context, legal provisions can be seen as a recognition of the legal risks and as a tool for anticipating possible accounting losses arising from legal claims. The years prior to the crisis can be characterized by the deregulation and low interest rates that enabled the availability of money. This abundant money supply could have led some banks to overinvest and to erroneous risk management (Acharya & Naqvi 2012; Huang *et al.* 2018; Chen *et al.* 2019). Thus, banks' legal provisions are closely related to the risk taken by these institutions and emerge as a topic that calls for research in order to know to what extent the creation of provisions has been a sensible response to the likelihood and estimated impact of the claims.

Most firms have had to develop and invest in their compliance departments, as shown by the increase in consulting services; and banks are no exception. Partially related to this increasing responsibility, banking regulation has grown considerably in recent years. Although this regulation aims to improve the health of the financial system, it might have unintended side-effects (Barucci & Milani 2018; Danisewicz *et al.* 2018; Nguyen *et al.* 2019). For instance, banks may have been forced to formally comply with capital requirements even at customers' expense (Ertürk 2016; Banerjee & Mio 2018).

The basic accounting rules for provisions are standardized in the International Financial Reporting Standards (1998), which defines provisions as "liabilities of uncertain timing or amount." The IFRS also establish that "a provision should be recognized when, and only when: (a) an entity has a present obligation (legal or constructive) as a result of a past event; (b) it is probable (i.e., more likely than not) that an outflow of resources embodying economic benefits will be required to settle the obligation; and (c) a reliable estimate can be made of the amount of the obligation." The IFRS note that it is only in extremely rare cases that a reliable estimate will not be possible[2].

Banks can report different kinds of provisions but, as the IRFS affirm, legal provisions display a particular lack of clarity. From this standpoint, provisions can be seen as the recognition of potential obligations faced by banks and which may arise from prior investment or financial decisions. Thus, legal provisions are driven by a two-level motivation: at the firm level, legal provisions are a result of potential liabilities with the bank's stakeholders (employees, depositors, shareholders, customers, etc.). At the managerial level, legal provisions are supposed to be related to managers' assessment of corporate risk, as "the estimates of outcome and financial effect are determined by the judgement of the management of the entity, supplemented by experience of similar transactions and, in some cases, reports from independent experts."[3] Consequently, legal provisions are not only affected by the estimation of the consequences of possible claims but also by the managerial interests and incentives to recognize such claims. In turn, our theoretical framework should cover two levels of decision:

[2] IAS 37, Introduction, n. 2
[3] IAS 37, n. 38

corporate disclosure policy and the mechanisms (both internal and external to the bank) that can curb managerial self-interested decisions.

### 3.2.1. Legal provisions and managerial discretionary decisions

Easy credit and low interest rates in the years before the 2008 crisis led to an environment with abundant cash flow available for firms, which may have resulted in firms overinvesting. The combination of these high free cash flows and the decreasing risk-adjusted investment opportunities might have triggered corporate overinvestment (Schnabl & Hoffmann 2008; Hoffmann 2010; Ying *et al.* 2013). Although the problem of overinvestment has in fact been widespread, banks and financial institutions have been accused of being major actors and of having exacerbated the financial crisis (Kirkpatrick 2009; Acharya & Naqvi 2012; Fernández *et al.* 2013; Akbar *et al.* 2017; Huang *et al.* 2018; Chen *et al.* 2019).

Due to the lack of reference to the risk-return relationship, overinvestment in many cases may result in excessive corporate risk, which should somehow be reflected in financial statements. Given that legal provisions are the recognition of possible obligations arising from prior risky decisions, provisions should —depending on the impact and probability— reflect the situation resulting from stakeholder reaction to overinvestment or excessive risk taking. Loan loss provisions can also be considered as a disclosure tool (Wahlen 1994; Leventis *et al.* 2011; Elnahass *et al.* 2014). Moreover, the literature concludes that the non-discretionary component of loan loss provisions is the most relevant (Bouvatier & Lepetit 2008; Caporale *et al.* 2018; Aristei & Gallo 2019). Given such a standpoint, legal provisions provide a unique opportunity for research since they may be considered as mainly discretional.

Consequently, as managers are supposed to estimate provisions, the riskier managerial decisions permitted by greater free cash flow should be translated into more abundant legal provisions. However, the recognition implied by legal provisions is conditional on managers' personal interests. In fact, prior literature shows that managers' personal traits and incentives may moderate risk taking in banks (Guo *et al.* 2015; Palvia *et al.* 2015). Managers may be reluctant to admit to having taken excessive risk, and the previously stated relationship between free cash flows and legal provisions may be blurred by managerial self-interest.

### 3.2.2. Legal provisions and boards of directors

As is widely known, corporate governance mechanisms can attenuate managers' discretionary behaviour. The board of directors emerges as one of the most effective internal corporate governance mechanisms. Boards are usually charged with three main duties: managerial oversight, provision of critical resources, and strategic guidance (Adams *et al.* 2010). Although conditional on a number of issues, the literature has often underlined the monitoring of managers as the main duty of the board of directors (Huse *et al.* 2011).

There are a number of board characteristics that can impact their functioning: size, independence, activity, CEO duality (Andrés & Vallelado 2008; Fracassi & Tate 2012; Chou *et al.* 2013; García-Ramos & García-Olalla 2014; Kim *et al.* 2014; Muravyev *et al.* 2014; Villanueva-Villar *et al.* 2016; Aldamen *et al.* 2019). As far as risk taking strategies are concerned, previous literature has shown a conflicting relationship between board size and corporate risk (Pathan 2009; Nakano & Nguyen 2012; Huang & Wang 2015), and a negative relationship between board independence and risk taking (Gonzalez & André 2014).

Specifically in the financial sector, banks' boards of directors display several particular features, among which we highlight greater independence (Arun & Turner 2004; Andrés *et al.* 2012; García-Meca *et al.* 2015; John *et al.* 2016). Board independence is likely to be one of the most influential issues for managerial oversight (Lei & Deng 2014; Muravyev *et al.* 2014; Akbar *et al.* 2017). Independent directors are supposed to act on behalf of minority shareholders and to improve corporate transparency. Indeed, organizations with less independent boards and with a chairman who is at the same time the CEO seem to have lower disclosure (Chen & Jaggi 2000; Eng & Mak 2003; Gul & Leung 2004; Cheng & Courtenay 2006; Huafang & Jianguo 2007; Sihombing & Pangaribuan 2017). Interestingly, Akbar *et al.* (2017) find a negative relationship between independent non-executive directors and corporate risk-taking behaviour in British banks. In the same vein, Erkens *et al.* (2012) underline the importance of corporate governance in bank performance during the crisis through firms' risk taking.

### 3.2.3. Legal provisions and the institutional setting

Corporate risk-taking decisions can be affected by legal, institutional and cultural factors from the setting in which the firm operates (Acharya *et al.* 2011a; Li *et al.* 2013; Wei *et al.* 2019). Among all these factors, we focus on those to which the literature has paid much attention (La Porta *et al.* 1998; La Porta *et al.* 2000b; Molyneux 2019). These authors classify countries into two groups (common law and civil law countries), with the former providing better legal protection for investors. Acharya *et al.* (2011a), Levine (1998), and Peni and Vähämaa (2012) show that the relationship between investors' legal protection and corporate risk taking is conditional on a number of factors. Nevertheless, in

terms of disclosure, common law countries are associated with higher financial disclosure compared to firms from civil law countries (Casu *et al.* 2017).

Since legal provisions are a way of corporate financial disclosure, we posit that the effectiveness of internal corporate governance mechanisms (i.e., the board of directors) is complemented by the external environment. This can be applied particularly to banks, given their sensitivity to the environment as a result of stronger regulation (Laeven 2013). Moreover, the suitability of legal provisions may be an outcome of investor protection. Thus, we expect a better legal environment to lead to a more effective influence of the board of directors on the relationship between managers' discretional behaviour and legal provisions.

### 3.3. Disclosure of risk through loan loss provisions

The challenging landscape to emerge following the last financial crisis has resulted in public concern about the stability of the banking system coupled with great pressure on bank managers to keep their firms profitable, and which led to heightened attention being paid to corporate governance practices. Although much research has been carried out, there are still pending issues regarding the financial crisis from which we can learn in order to overcome present and future recessions. Grove *et al.* (2011) suggest that banks' corporate governance proved ineffective at preventing damaging lending practices which led to an extremely vulnerable financial system. Pirson and Turnbull (2011), among others, have pointed out that corporate boards did a very poor job of exercising their fiduciary duty to manage risk. Since establishing an optimal level of risk is a key point for financial institutions and given that the vulnerability of the banking sector during the 2007-08 financial crisis was, at least in part, caused by a build-up of excessive risk by some banks, governance failures have been brought under the spotlight (Srivastav & Hagendorff 2016). Moreover, the different risk-taking policies of

financial institutions are affected by board of director supervision (Faleye & Krishnan 2017).

This issue is related to the question "What is special about banks and how might it affect bank governance?", highlighted by John *et al.* (2016). Given the characteristics of the banking business, not all value losses can be attributed to bad management, since risk taking is a strategic decision. In this vein, risk disclosure arises as a relevant factor in risk monitoring. Not only do banks adopt different risk strategies but may also pursue different risk disclosure policies (Jungherr 2018). In fact, bank disclosure is one of the concerns of the Basel Committee[4]. Closely associated to risk disclosure, loan loss provisions aim to improve the accurate assessment of possible loan defaults and to improve the informational content of financial statements. Nevertheless, the literature widely recognizes that these provisions can also be used for self-interest, such as income smoothing (Bouvatier *et al.* 2014; Curcio *et al.* 2017; Olszak *et al.* 2017), earnings management (Anandarajan *et al.* 2003; Bratten *et al.* 2020), and signaling (Ahmed *et al.* 1999; Ng *et al.* 2020). In this vein, loan loss provisions may also be conditioned by banks' governance structure by showing how risks are assessed as well as revealed by managers and directors (Andries *et al.* 2017).

Consequently, we study the influence of corporate governance on risk disclosure through loan loss provisions. Since the board of directors sits at the apex of internal corporate governance mechanisms (Jensen 1993), a well-performing board is supposed to align the interests of managers and shareholders and should theoretically lead to a more informative disclosure policy.

[4]Basel Committee on Banking Supervision (2018)

### 3.3.1. Loan loss provisions and board of directors

As stated in the International Financial Reporting Standards (1998), provisions are created in the face of a present obligation, because of a past event, which is probable and estimable. Therefore, provisions can be considered as a disclosure tool that depends on the managerial assessment of these unforeseen circumstances. According to this perspective, managers create provisions conditional on their subjective estimates and their own incentives. There are different kinds of provisions, amongst which loan loss provisions are of particular interest because they involve a significant element of subjectivity. In fact, several authors recognize how they are used in bank financial statements to smooth earnings (Beatty *et al.* 1995; Ahmed *et al.* 1999; Fonseca & González 2008), manage capital (Leventis *et al.* 2011), and signal financial strength (Wahlen 1994; Beaver & Engel 1996).

Loan loss provisions are expected to reflect estimated losses in loan portfolios (International Financial Reporting Standards). Hence, loan loss provisions might disclose the entity's risk associated with lending activities. Given the subjectivity related to these provisions, there can be two opposing motivations to create loan loss provisions. On the one hand, loan loss provisions aim to improve the reliability of financial statements by including an assessment of potential loan defaults and expenses. On the other hand, the literature has shown that bank managers can use these provisions for self-interest and conceal excess risk-taking. Therefore, we can understand loan loss provisions as a measure of how managers assess and decide to disclose risk. Low levels of loan loss provisions do not necessarily mean a low level or risk but could be the results of managers' incentives to hide risky decisions and pursue self-interest. Similarly, a high level of loan loss provisions might not only be due to high bank risk-taking but also to the pressure on managers to enhance transparency by disclosing such risk.

Although there is no commonly accepted model for studying loan loss provisions (Beatty & Liao 2014), two components are usually considered: the discretional, which refers to earnings and regulatory capital variables, and the non-discretional, which includes different measures of loans and assets and sometimes other variables, such as GDP, commissions, risk, etc. However, other variables, such as corporate governance variables, which model the decision-taking sphere and which may influence the accounting of loan loss provisions, are not taken into consideration as frequently.

Given the possibility that managers might use loan loss provisions for personal objectives, we investigate the potential of internal corporate governance mechanisms to change managerial incentives and improve the informational content of financial statements. From an agency theory perspective, this will reduce information asymmetry between managers and investors (Jensen & Meckling 1976). The board of directors is a widely recognized monitoring mechanism, which is designed to control opportunistic behavior by managers (Huse *et al.* 2011; Cashman *et al.* 2012; Faleye & Krishnan 2017). Banks' boards display particular characteristics as they have more stakeholders than non-financial firms and are also heavily regulated in order to prevent bank failures and their negative consequences (Fernandes *et al.* 2018). We study five characteristics of the boards of directors in banks: size, independence, experience, gender diversity, and compensation. As far as we are aware, no research has addressed what effect these factors have on loan loss provisions, such that we translate prior research on other corporate issues into this field.

As regards board size, the research remains inconclusive. Whereas Adams and Mehran (2012), Belkhir (2009) and Isik and Ince (2016) find a positive relationship with performance, Pathan and Faff (2013) show that board size decreas-

es bank performance. Grove *et al.* (2011) and Andrés and Vallelado (2008) show an inverse U-shaped relationship with bank value. This relationship is the result of a trade-off between the advantages of small boards (in terms of efficient communication and exchange of information) and those of large boards (such as the possibility of greater director specialization and of having a large number of people involved). We build on these arguments to posit a similar non-linear relationship with loan loss provisions. Initially, an increase in the number of directors would imply a greater capacity to monitor the reporting of loan losses and would result in a greater amount of provisions. However, after a critical level of board size, loan loss provisions may fall because coordination and information flows become increasingly difficult in oversized boards.

As far as board independence is concerned, the banking sector tends to have more independent directors than the non-financial sector because they must address complex instruments and trading activities (García-Meca *et al.* 2015; John *et al.* 2016). A number of papers have shown a wide range of relationships in financial entities: while Pathan and Faff (2013) show that independent directors diminish bank performance, Vallascas *et al.* (2017) establish that board independence has led to more prudent bank risk-taking after the crisis of 2007-08, although this effect does not hold in other periods, in line with Adams and Mehran (2012) and Pi and Timme (1993) who find no relationship with bank performance. However, board independence seems to be one of the most influential issues for managerial oversight (Akbar *et al.* 2017). In this vein, and also with regard to a greater concern for minority and outside shareholders, a more independent board can imply more informative financial statements and higher standards of information disclosure. Therefore, more independent boards should lead to a greater recognition of risks through loan loss provisions.

We also take into account board member tenure. The effects of directors' tenure can be analyzed from two contrasting theoretical lenses: the management friendliness and the expertise hypotheses (Vafeas 2003; Sun & Bhuiyan 2020). On the one hand, as the length of board service increases, outside director independence may be compromised. On the other hand, long tenure may proxy for greater outside director experience and competence. Huang and Hilary (2018) support both perspectives, and find an inverse U-shaped relationship between board tenure and firm value and accounting performance. Beasley (1996) also referred to the possibility of directors with long tenure becoming entrenched in their positions, thus reducing the firm's resilience. For the banking sector, Kaymak and Bektas (2008) report a negative association between board tenure and the performance of a sample of Turkish banks. Although there are no specific papers addressing the relationship between board tenure and reporting quality in the banking sector, prior research on non-financial firms has failed to report any conclusive evidence. Some authors have found a negative association between board tenure and accruals quality (Kim *et al.* 2014; Bravo & Reguera-Alvarado 2018). Nevertheless, boards with a high average tenure are more effective at avoiding financial statement fraud (Beasley 1996) and misleading disclosures (Donoher *et al.* 2007).

We complement these views with the behavioral economics approach. Firstly, the career concern hypothesis states that explicit incentives should be stronger for workers who are close to retirement because career concerns are weaker for these workers (Gibbons & Murphy 1992). In this vein, boards with more tenure would be less focused on the interests of the bank and might be less concerned about disclosure issues. Secondly, lack of experience in the board of directors may result in overconfident decisions. Thus, taking into account that the longer direc-

tors have spent on a bank's board, the more knowledge they will have accumulated about the institution and how it is managed, we expect boards with higher levels of tenure to avoid excessive risk-taking behavior. Therefore one might expect this higher level of tenure to be related –considering its negative relationship with risk and assuming ethical behavior– to a more transparent disclosure of risk. In addition, disclosure policies may also be driven by fear and by trying to avoid the risk of being caught taking disreputable decisions. In this case, when tenure is higher, risk aversion might lead to more transparent decisions.

Considering all of the previous arguments, and following Berger *et al.* (2014), we expect a positive influence of board tenure in the recognition of risk through loan loss provisions.

The role of female directors in the board is commonly understood as being characterized by a high degree of risk aversion (Bart & McQueen 2013; Palvia *et al.* 2015). However, Poletti-Hughes and Briano-Turrent (2019) find the opposite to be true for family firms. Moreover, the literature recognizes the ability of female directors to avoid earnings management (Gavious *et al.* 2012; Arun *et al.* 2015) whilst at the same time urging caution when interpreting female contribution to board monitoring effectiveness, as it may be driven by discrimination when assigning board seats (García Lara *et al.* 2017). Particularly in bank boards, the presence of women has a positive influence on performance –Owen and Temesvary (2018) support the need for a threshold level– and a negative relation with risk-taking, added to which it is also positively valued by markets (Gulamhussen & Santa 2015; Bennouri *et al.* 2018). In this vein, given that our sample is made up of banks, we expect boards with a greater presence of female directors to be less risk-taking. In addition, women are often seen as exhibiting more ethical behavior (Bernardi *et al.* 2009; Rodriguez-Dominguez *et al.* 2009).

This particular influence of female directors would be consistent with a more transparent disclosure of risk through loan loss provisions. Therefore, we expect a positive influence of board diversity in the recognition of risk through loan loss provisions.

In the 2007-08 financial crisis, managerial compensation allegedly led banks to excessive risk-taking policies that could benefit executives' self-interest whilst jeopardizing banking institutions and their stakeholders (Bhagat & Bolton 2014; Díaz Díaz *et al.* 2017). As regards board compensation, Hui and Matsunaga (2014) provide evidence of a positive influence of bonuses on financial disclosure quality, which is consistent with the idea that incentives improve the monitoring role of the board. Hence, we expect a positive relationship between board compensation and the recognition of risk through loan loss provision. Considering the timing of such compensation, the existence of deferred payments may be an incentive to avoid short-termism and to align managers' and shareholders' long-term interest, since managers will have less incentives to conceal their risk-taking. If there is deferred compensation, there would be no great advantage in postponing the recording of loan loss provisions, such that one would expect a positive impact of deferred compensation on the recording of loan loss provisions.

# 4. HYPOTHESES

Following the literature review, in this section we summarize the theoretical arguments that lead us to establish the hypotheses that we will empirically test. As the previous section, it is organised following the empirical analysis. After developing the hypotheses related to the dividend smoothing and scrip dividends, we propose the ones from the legal provisions literature and finally those associated to loan loss provisions.

## 4.1. Banks' payout smoothing and scrip dividends

Regarding the smoothing theory of dividends that suggests that managers follow a target payout ratio, and the signalling effect of dividends, banks need to signal their financial health through dividends during crises. In this financial environment characterised by a drop in profits and high capital stringency, European banks use scrip dividends to maintain dividends. This policy allows preserving shareholder compensation while avoiding the negative consequences on capital legal requirements. European banks have been able to use these scrip dividends to recapitalize as mandated by the new regulatory requirement, without the need to issue fresh equity. In this sense, scrip dividends seem to play a more prominent role during periods of financial instability by allowing shareholders to keep payments during moments of low earnings and high equity need. Thus, despite the difficulties banks are having in maintaining the large dividends paid out, we still expect European banks to smooth dividends in order to meet a dividend target. Therefore, we propose the following hypothesis:

H1: Scrip dividends have increased the dividend smoothing of European banks during the years after the 2007-2008 financial crisis.

#### 4.1.1. Dividends and institutional and legal factors

The dividend smoothing theory proposes that dividends basically depend on earnings and previous dividends. Dividend policy also depends on other issues, such as the country's financial system, the legal and institutional environment, and industrial organization. Moreover, banks are assumed to operate in a more transparent sector, which should lead to more smoothing. This may prove relevant for scrip dividends because the increasing legal capital requirements may make banks unable to comply with the dividend target. The stricter capital legal requirement in European banks in the years after the last financial crisis may be an important constraint to maintain dividend payments at pre-crisis levels. Scrip dividends would allow European banks to maintain their payout policy and fulfil the new legal capital requirements. Based on these arguments, we state the following hypothesis:

H2: The negative influence of capital requirements on dividends should be lower (or even positive) for scrip dividends.

Another important legal factor is the legal protection of shareholders in each country. In a context of financial instability and legal rules that impose greater equity requirements, a more protective corporate governance framework should result in higher payments to shareholders. Accordingly, we set out the hypothesis:

H3: Bank payout is higher in countries with stronger shareholder rights.

### 4.2. Disclosure of risk through legal provisions

As legal provisions display a particular lack of clarity, they can be seen as the recognition of potential obligations faced by banks and which may arise from

prior investment or financial decisions. At the firm level, legal provisions are a result of potential liabilities with the bank's stakeholders; at the managerial level, legal provisions are supposed to be related to managers' assessment of corporate risk. Therefore, legal provisions are not only affected by the estimation of the consequences of possible claims but also by the managerial interests and incentives to recognize such claims. In turn, we cover two levels of decision: corporate disclosure policy and the mechanisms that can curb managerial self-interested decisions.

### 4.2.1. Legal Provisions and Managerial Discretionary Decisions

The abundant cash flow available for firms in the years before the financial crisis of 2007-08 may have resulted in firms overinvesting. This, in many cases, may result in excessive corporate risk, which should somehow be reflected in financial statements. Given the role of legal provisions, they should reflect the situation. As managers are supposed to estimate provisions, the riskier managerial decisions permitted by greater free cash flow should be translated into more abundant legal provisions. However, the recognition implied by legal provisions is conditional on managers' personal interests. Therefore, we expect the relationship between free cash flow and legal provisions to be driven by two opposing forces. On the one hand, the bank's disclosure policy to provide stakeholders with relevant information should lead to a positive relationship in the sense that more overinvestments should be translated into a greater recognition of risk. On the other hand, managers' self-interest in hiding overinvestments or managers' overconfidence would lead to a negative relationship. In turn, the relationship between free cash flow and legal provisions can be stated in a dual way, as follows:

H4a: There is a positive relationship between banks' free cash flows and legal provisions.

H4b: There is a negative relationship between banks' free cash flows and legal provisions.

### 4.2.2. Legal Provisions and Boards of Directors

Given the effectiveness of the board of directors as internal corporate governance mechanism, the greater independence of banks' boards and being one of the most influential issues for managerial oversight, we focus on the relevance of independent directors when disclosing the risk of the entity. We posit that board independence is an effective issue to force managers to disclose information on risk taking. Since the availability of greater cash flows can lead to more and riskier corporate investments, more independent boards should result in incentives to managers for a timelier recognition of this risk through legal provisions. Thus, the influence of an independent board will be positive vis-à-vis strengthening the alignment of interests with other stakeholders. Consequently, we state the following hypothesis:

H5: The independence of the board of directors positively moderates the relationship between banks' free cash flows and legal provisions.

### 4.2.3. Legal Provisions and the Institutional Setting

Corporate risk-taking decisions can be affected by legal, institutional and cultural factors from the setting in which the firm operates. Since legal provisions are a way of corporate financial disclosure, we posit that the effectiveness of internal corporate governance mechanisms (i.e., the board of directors) is complemented by the external environment. This can be applied particularly to banks, given their sensitivity to the environment as a result of stronger

regulation. Thus, we expect a better legal environment to lead to a more effective influence of the board of directors on the relationship between managers' discretional behaviour and legal provisions. In turn, our hypothesis can be stated as follows:

H6: The legal environment moderates the influence of board independence on the relationship between banks' free cash flows and legal provisions.

### 4.3. Disclosure of risk through loan loss provisions

Loan loss provisions involve a significant element of subjectivity. They are expected to reflect estimated losses on the loan portfolios. Hence, loan loss provisions might disclose the risk of the entity that relates to loans. However, these provisions can be used for self-interested reasons, such as income smoothing, earnings management and signalling. Therefore, we can understand loan loss provisions as a measure of how managers disclose risk. In risky situations, high loan loss provisions would mean high transparency and low loan loss provisions would be the result of managers hiding risk, pursuing self-interests.

#### 4.3.1. Loan loss provisions and board of directors

The board of directors is a widely recognised monitoring mechanism, with the main purpose of controlling opportunistic behaviour on the part of managers. Hence, we analyse the influence of some characteristics of the board on the disclosure of risk through loan loss provisions. Firstly, we study the influence of board size. With a larger number of directors, boards have greater capacity to monitor the reporting of loan losses and this would justify a larger amount of loan loss provisions. However, after a critical level of board size, loan loss provisions may become lower because coordination and monitoring become increasingly difficult with very large boards. We thus posit the following hypothesis:

H7: There is an inverse U-shaped relationship between the board size and the disclosure of risk through loan loss provisions.

Secondly, as independent directors also have the duty to protect minority shareholders and improve the disclosure of information, more independent boards should lead to a clearer recognition of risks through loan loss provisions. So the hypothesis is formulated as follows:

H8: Board independence positively moderates risk disclosure through loan loss provisions.

We take into account the tenure of the board members. On the one hand, the lack of experience in the board of directors can result in overconfident decisions; on the other hand, the more time in the board of the bank, the more knowledge about the institution and how it is managed. Therefore, the higher level of tenure would be related -assuming an ethical behaviour- to more transparent disclosure of risk. In addition, when the tenure is higher, risk aversion would lead to more transparent decisions. Consequently, we expect the following relationship:

H9: Board tenure positively moderates risk disclosure through loan loss provisions.

The role of female directors in the board is commonly understood as avoiding risk and the presence of women is also positively valued by markets; in addition, women also are intended to have more ethical behaviours. This particular influence of female directors will be consistent with a more transparent disclosure of risk through loan loss provisions. As a result, our hypothesis states the following:

H10: The number of female directors positively moderates risk disclosure through loan loss provisions.

Incentives are expected to be potentially relevant instruments for monitoring executives. We consider if this compensation depends on the moment when it was received. If the compensation is paid some years after a decision was taken, managerial performance could be more clearly measured and risk-taking would be more clearly disclosed, helping to provide a greater alignment with shareholder's and the firm's longer term's interests. Therefore, we expect that the relationship between loan loss provisions and board compensation to be positive, and also between loan loss provisions and the time horizon of the board member's targets to reach full compensation:

H11: There is a positive relationship between board compensation and risk disclosure through loan loss provisions.

H12: There is a positive relationship between deferred compensation payments and risk disclosure through loan loss provisions.

# 5. EMPIRICAL DESIGN

In this section we describe the empirical research. The definition of all the variables used is summarized in Appendix A. We follow the same structure as in previous sections.

## 5.1. Banks' payout smoothing and scrip dividends

### 5.1.1. Sample and method

In the first empirical analysis, we study a sample of 79 listed banks from 20 European countries between 2014 and 2018, as shown in Table 1. Initially, we select the 118 European systemic entities supervised by the Single Supervisory Mechanism. After removing banks whose information on scrip dividends was ambiguous or not available, the use of dynamic panel data estimation and lagged variables reduces the sample to 79 listed banks. Thus, our sample can be considered as sufficiently representative of the European bank landscape. The combination of cross-section and time series data gives a final sample of 395 observations. Data regarding the balance sheet and market prices were obtained from the Thomson Reuters Eikon database. Scrip dividends were hand-collected after a careful scrutiny of European banks that increased capital during the study period. Information on country-level indicators of shareholder protection is taken from the studies of La Porta *et al.* (2000a), updated by Djankov *et al.* (2007). Information on the capital stringency index was obtained from Barth and Caprio (2013) and the World Bank databases (Kaufmann *et al.* 2011).

Table 1. Sample of European banks by country and level of institutional factors

| País | Obs. | # Banks | Shareholders' Rights Index | Capital Stringency Index |
|---|---|---|---|---|
| Austria | 20 | 4 | 2.5 | 5 |
| Belgium | 10 | 2 | 3 | 5.5 |
| Czech Republic | 25 | 5 | 2.5 | 5 |
| Denmark | 25 | 5 | 4 | 7 |
| Finland | 5 | 1 | 3.5 | 8 |
| France | 15 | 3 | 3.5 | 9 |
| Germany | 15 | 3 | 3.5 | 8 |
| Greece | 10 | 2 | 2 | 7 |
| Hungary | 5 | 1 | 2.5 | 5 |
| Ireland | 10 | 2 | 5 | 5 |
| Italy | 25 | 5 | 2 | 7 |
| Netherlands | 10 | 2 | 2.5 | 9 |
| Norway | 10 | 2 | 3.5 | 8 |
| Poland | 20 | 4 | 2 | 9 |
| Portugal | 5 | 1 | 2.5 | 8 |
| Spain | 20 | 4 | 5 | 9 |
| Sweden | 35 | 7 | 3.5 | 4 |
| Switzerland | 45 | 9 | 3 | 8 |
| Turkey | 25 | 5 | 3 | 11 |
| United Kingdom | 60 | 12 | 5 | 8 |
| Total | 395 | 79 | | |

Our empirical study includes both a descriptive and an explanatory analysis to check whether European banks smooth dividends à la Lintner. Our database combines time series with cross-sectional data, thus creating unbalanced panel data. We estimate the model through the dynamic panel data method using the Generalized Method of Moments (GMM), which deals with the individual effects and endogeneity problems to arise from the use of dividends lagged as an independent variable (Arellano, 2003).

### 5.1.2. Model and variables

Aivazian *et al.* (2003) propose a model based on Lintner's in order to check dividend smoothing for a sample of US firms as follows:

$$DPS_{i,t} = \alpha + \beta_1 EPS_{i,t-1} + \beta_2 DPS_{i,t-1} + \varepsilon_{i,t} \quad [1]$$

where $DPS_{i,t}$ is the cash dividend per share, which depends on net earnings per share ($EPS_{i,t-1}$) and the dividend decision adopted in the previous year ($DPS_{i,t-1}$). We again apply the Lintner model using the variable $TDPS_{i,t}$ (total dividends per share), which includes not only cash dividends but also scrip dividends as the sum of cash dividends and scrip dividends (measured as the difference between stock price before and after the new issuance).

We also estimate model (2), in which we introduce the effect of the institutional framework and legal requirements on capital:

$$DIV_{i,t} = \alpha + \beta_1 DIV_{i,t-1} + \beta_2 TIER_{i,t-1} + \beta_3 CAPST + \beta_4 SR + \text{Control Variables} + \text{Time Dummies (years)} + \mu_{i,t} \quad [2]$$

where DIV is the cash dividends-to-assets ratio. Alternatively, we use the total dividend pay (TDIV) that includes cash and scrip dividends, and which is also divided by total assets. As independent variables, we use TIER1 that represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets. CAPST is the Capital Stringency Index developed by Barth and Caprio (2013) which determines the nature of capital requirements and how capital is assessed and verified by banks and regulators. This index ranges from 0 to 11, where 11 represents the highest level of capital stringency. SR is the index of shareholders' rights in each country measured by La Porta *et al.* (1998) and updated by Djankov *et al.* (2007). As control variables, we use SIZE as a measure of bank size (calculated as the logarithm of total assets), ROA (return on assets), and the market-to-book ratio MB, measured as the market capitalization of the bank divided by the book value of assets (Song 2017). TIER and control variables are lagged one period because the dividends paid in year t depend on the company's earnings and financial situation in the previous year.

## 5.2. Disclosure of risk through legal provisions

### 5.2.1. Sample and Method

In this second analysis, in line with our aim of analysing European systemic banks, we study a sample of 92 listed banks from 18 European countries (Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Republic of Ireland, Italy, the Netherlands, Poland, Portugal, Spain, Sweden, Switzerland, and the United Kingdom) between 2008 and 2017, as shown in Table 2. Our sample is smaller than that of Hanzlík and Teplý (2019), who also analyse an international sample of banks but cover a longer period. Initially, we selected the 118 European systemic entities supervised by the Single Supervisory Mechanism. After removing banks whose information on legal provisions was ambiguous or not available, the final sample includes 92 banks. Therefore, our sample can be considered as sufficiently representative of the European banking landscape. The combination of cross-section and time series data gives a final sample of 920 observations. Data on the balance sheet, board structure and market prices were obtained from the Thomson Reuters Eikon database. Legal provisions were obtained after a careful scrutiny of the notes to the financial statements of each entity and each year. Information on the countries' legal and institutional setting is taken from the World Bank databases (Kaufmann *et al.* 2011).

The empirical analysis includes a descriptive analysis of the main characteristics of the sample. We then check our hypotheses with the subsequent explanatory analysis. Our database consists of a panel. For adequate estimation thereof, the panel data technique is applied (Arellano 2003). This technique allows banks' fixed effects and possible endogeneity problems to be considered.

Table 2. Distribution of the Sample by Country

| Country | Obs | Percent |
|---|---|---|
| Alemania | 40 | 4.35 |
| Austria | 40 | 4.35 |
| Bélgica | 10 | 1.09 |
| Dinamarca | 50 | 5.43 |
| España | 80 | 8.70 |
| Finlandia | 10 | 1.09 |
| Francia | 30 | 3.26 |
| Grecia | 50 | 5.43 |
| Hungría | 10 | 1.09 |
| Irlanda | 20 | 2.17 |
| Italia | 170 | 18.48 |
| Países Bajos | 20 | 2.17 |
| Polonia | 100 | 10.87 |
| Portugal | 10 | 1.09 |
| Reino Unido | 110 | 11.96 |
| República Checa | 20 | 2.17 |
| Suecia | 60 | 6.52 |
| Suiza | 90 | 9.78 |
| Total | 920 | 100 |

### 5.2.2. Variables and model

Our dependent variable is legal provision in each year (LP). As previously stated, legal provisions are found in the notes of banks' annual reports and reflect the risks of litigation, legal proceedings and other claims that banks are exposed to. The provision of each year is scaled by total assets.

Collecting values on legal provisions is a challenging process due to the differences among countries and even among banks. For instance, some of them call these provisions legal provisions, while others refer to provisions for litigation or for legal disputes. In many cases, a more in-depth search was needed to find the right amount, since it was subsumed in other provisions or other

liabilities. In order to show the many issues related to legal provisions and to gauge the relative importance of each, Figure 1 displays the frequency of the terms used in the annual reports through the size of each word[5].

Figure 1. Legal Provisions Literal Account Frequency


FCF is the free operating cash flow, calculated as cash from operations for the fiscal period minus capital expenditures and dividends paid for the same period, divided by total assets. This variable can be seen as indicative of the manager's discretionary power. As Jensen (1986) pointed out, managers have incentives to over-invest in order to seek more reputation, power and prestige. Overinvestment is usually concealed to external markets and is funded with internally generated funds. Consequently, the higher the free cash flow of the firm, the greater the possibilities for managerial discretionary investments which generate agency costs (the so-called "free cash flow hypothesis"). In fact, the FCF variable has been used as a proxy for these agency costs in numerous studies

[5] Data are available from the authors on request. Literal accounts have been also gathered.

(Richardson 2006; Chen *et al.* 2016; Ding *et al.* 2019). To test board of director ability to curb a manager's discretionary behaviour, we introduce board independence (IND), measured as the proportion of independent directors on the total size of the board. To test the specific moderating effect of board independence on the relationship between FCF and LP, we compute the interacted variable IND*FCF, defined as the product of FCF and IND. We also use CEO duality (CEOCH), a common variable in the literature (Judge *et al.* 2003; Gul & Leung 2004; Stockmans *et al.* 2013; Singh & Delios 2017). This equals 1 if a CEO simultaneously chairs the board or if the chairman of the board has been CEO of the company.

We control for the following firm-level issues: ROA measures a company's operating performance and is calculated as EBITDA divided by total assets. MB is the equity market to book ratio (Adam & Goyal 2008). SIZE is a measure of the size of the bank as the logarithm of total assets. LEV is the leverage calculated as total liabilities over total assets. ZSCORE is a measure of risk that captures the probability of a bank defaulting as the distance to insolvency. It compares capitalization and returns with the volatility of those returns. As shown in the appendix, it is measured as the return on assets and the weight of equity over assets, both divided by the standard deviation of the return on assets (Boyd *et al.* 1993; Boyd *et al.* 2006; Zigraiova 2015). TIER1 is the ratio of Tier 1 capital as a percentage of total risk-weighted assets. The ratio represents high-quality sources of capital that banks and other financial institutions are required to keep in order to be protected against bankruptcy. It is also referred to as the core capital ratio, or as the going-concern capital ratio.

We introduce a number of country level variables. First, PROTECT is the strength of investor protection, provided by the World Bank, based on Djankov

*et al.* (2008), and which measures the degree of minority investor protection to prevent their expropriation. Second, RULELAW reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. Third, REGQUA reflects perceptions of the government's ability to formulate and implement sound policies and regulations that permit and promote private sector development. Fourth, CORRUPTCONTROL reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as state capture by elites and private interests. These latter three variables are reflected in Worldwide Governance Indicators (WGI) established by the World Bank. Finally, we use CORRUPTSC, which reflects perceptions of the degree of corruption as seen by business people and country analysts, and which ranges between 10 (highly clean) and 0 (highly corrupt). It is obtained from the Transparency International website.

Given the similar information provided by the country level variables, in order to summarize the information related to the legal quality of the environment we apply a factor analysis, which gives rise to two new variables: F_PROT and F_ENV. The first is mainly the strength of investor protection, and the second represents the level of legal quality by country, quantifying the rule of law, the quality of regulation and the level of corruption as well as how it is controlled. The results are shown in Table 3. The first factor (i.e. F_PROT) explains 20.17% of the variance and the second factor (i.e. F_ENV) 74.19%. The Kaiser-Meyer-Olkin (KMO) measure of sample suitability is 0.829, above 0.5, and the Bartlett test of sphericity is significant at the 99.9% confidence level, meaning

that the results obtained provide an adequate basis for the empirical examination of factorial analysis (Hair *et al.* 1998).

Table 3. Factorial Analysis

| | F_PROT | F_ENV |
|---|---|---|
| PROTECT | 0.9997 | -0.0019 |
| RULELAW | 0.0640 | 0.9715 |
| REGQUA | -0.0685 | 0.9612 |
| CORRUPTCONTROL | 0.0042 | 0.9869 |
| CORRUPTSC | -0.0152 | 0.9315 |
| Accounted variance | 20.17% | 74.19% |
| Eigenvalue | 1.008 | 3.709 |
| KMO | | 0.829 |
| Bartlett test (Chi-square) | | 5969.86 |
| p-Value | | 0.000 |
| Observations | | 920 |

Our baseline model is as follows:

$$LP_{i,t} = \beta_0 + \beta_1 \cdot FCF_{i,t} + \beta_2 \cdot IND_{i,t} + \beta_3 \cdot IND^{*}FCF_{i,t} + \beta_4 \cdot ROA_{i,t} + \beta_5 \cdot MB_{i,t} + \beta_6 \cdot SIZE_{i,t} + \beta_7 LEV_{i,t} + \beta_8 ZSCORE_{i,t} + \sum_1^{10} \gamma_t + \varepsilon_{i,t} \quad [3]$$

We apply this model to the whole sample to test hypotheses 1 and 2 (the relationship between free cash flow and legal provisions, and the moderating effect of the board of directors). Bearing in mind that the role of the board can be conditional on the external framework, we split our sample into two different groups (depending on the legal quality of the environment) and then apply the model in each sub-sample. We control for time effects through a set of year dummies.

### 5.3. Disclosure of risk through loan loss provisions

#### 5.3.1. Sample and method

In this analysis, we study a sample of 1,351 banks from 52 countries around the world between 2000 and 2019, as shown in Table 4. The sample included only banks provided by *Thomson Reuters Eikon*, i.e., excluding corporate financial ser-

vices and consumer lending, from the most relevant countries on each continent, according to their development level and historical relevance. Data were obtained from the *Thomson Reuters Eikon* database, except the information on countries' disclosure level, which was taken from the World Bank database. Although *Thomson Reuters Eikon* provides information on 1,686 firms from these countries, the availability of data on loan loss provisions reduced the sample to 1,351 banks. The combination of variables leads to a decrease in the number of observations due to data availability restrictions imposed by some of them, such as NPL and those measuring internal and external control mechanisms, and the use of lagged variables. Therefore, the size of our sample drops from the initial 27,000 to 7,000 firm-year observations and even less when including additional moderation of control variables. Outliers have been removed through a winsorization at 99% in the upper level, and negative values have been deleted when not economically meaningful.

The empirical analysis includes a descriptive analysis of the main characteristics of the sample. We then check our hypotheses with the subsequent explanatory analysis under a panel data approach (Arellano 2003). This methodology allows for banks' fixed effects while also addressing possible endogeneity problems.

Table 4. Distribution of the sample by country

| Country | Freq. | Perc. | Country | Freq. | Perc. |
|---|---|---|---|---|---|
| Argentina | 140 | 0.52 | Japan | 1,780 | 6.59 |
| Australia | 220 | 0.81 | Kenya | 220 | 0.81 |
| Austria | 180 | 0.67 | Lebanon | 120 | 0.44 |
| Belgium | 60 | 0.22 | Lithuania | 20 | 0.07 |
| Brazil | 460 | 1.7 | Malaysia | 200 | 0.74 |
| Bulgaria | 80 | 0.3 | Mexico | 160 | 0.59 |
| Canada | 200 | 0.74 | Morocco | 120 | 0.44 |
| Chile | 100 | 0.37 | Netherlands | 60 | 0.22 |
| China | 720 | 2.66 | New Zealand | 20 | 0.07 |
| Croatia | 160 | 0.59 | Nigeria | 420 | 1.55 |
| Cyprus | 40 | 0.15 | Norway | 780 | 2.89 |
| Czech Republic | 40 | 0.15 | Philippines | 360 | 1.33 |
| Denmark | 440 | 1.63 | Poland | 280 | 1.04 |
| Egypt | 260 | 0.96 | Portugal | 20 | 0.07 |
| Estonia | 20 | 0.07 | Romania | 60 | 0.22 |
| Finland | 40 | 0.15 | Russia | 480 | 1.78 |
| France | 400 | 1.48 | Slovenia | 120 | 0.44 |
| Germany | 260 | 0.96 | South Africa | 200 | 0.74 |
| Greece | 120 | 0.44 | Spain | 180 | 0.67 |
| Hong Kong | 440 | 1.63 | Sweden | 120 | 0.44 |
| Hungary | 180 | 0.67 | Switzerland | 760 | 2.81 |
| India | 920 | 3.4 | Turkey | 260 | 0.96 |
| Indonesia | 880 | 3.26 | Uganda | 60 | 0.22 |
| Republic of Ireland | 60 | 0.22 | Ukraine | 620 | 2.29 |
| Israel | 200 | 0.74 | United Kingdom | 300 | 1.11 |
| Italy | 820 | 3.03 | United States of America | 11,860 | 43.89 |
| | | | **Total** | **27,020** | **100** |

### 5.3.2. Model and variables

Our dependent variable is based on loan loss provisions, which represent provisions established for possible defaults by customers on loans from a financial institution. The literature usually uses loan loss provisions over total assets or sometimes, as Leventis *et al.* (2011) do, over net loans; Ahmed *et al.* (1999) deflate loan provisions by the average amount of loans outstanding. We propose the ratio between loan loss provisions and non-performing loans (in default or close to default) as a better measure (DISC). This gives a relative value of how loan loss provisions cover the riskiest loans, such that it may be a clearer variable for

measuring how banks manage the acquiring risk and therefore a better measure for how they disclose their risk through loan loss provisions.

Following Bouvatier *et al.* (2014), the independent variable RISK is measured through the volatility of ROE (its standard deviation within three years). We also use ZSCORE as an insolvency measure, calculated as (ROA+ CAPSTR)/SDROA divided by 1000 and multiplied by -1 in order to facilitate the interpretation of the results. SDROA is the statistical standard deviation of ROA using 3 years $\sqrt{\sum(\mathrm{ROA_i} - \overline{\mathrm{ROA}})^2 / 3}$). ZSCORE usually measures the distance to bankruptcy: higher values for this variable mean the bank is in a better position. We have multiplied by -1 the mathematical expression typically used to calculate the ZSCORE in an effort to find parallelism with RISK that will allow both variables to be interpreted in the same way. When considering DISC and RISK/ZSCORE together we look for manager behavior in risk management, i.e. we seek to observe whether their assessment of risk is consistent with the manner in which they cover their risky loans. This provides us with a measure of their risk recognition.

We include the ordinary firm-level control variables used in the literature when analyzing loan loss provisions: LLP represent loan loss provisions, established for possible defaults by customers on loans from a financial institution. It is divided by total assets and scaled by 100. We use its lagged value (L_LLP) and expect a positive sign (Bouvatier *et al.* 2014). ROA measures a company's operating performance and is calculated as EBTDA (earnings before taxes, depreciation, and amortization for the fiscal year) divided by total assets. A positive relationship with DISC will show that loan loss provisions are being used to smooth a bank's income, as widely recognized in the literature (Beatty *et al.* 1995; Ahmed *et al.* 1999); a negative coefficient could be seen as a rationale use of loan loss

provisions. CAPSTR is the ratio of capital strength calculated as equity over assets. We include this variable as banks can also use loan loss provisions for capital management, which could be shown by a negative coefficient. As an alternative to CAPSTR, we also use TIER1, which is the ratio of Tier 1 capital as a percentage of total risk-weighted assets, and which represents high-quality sources of capital that banks and other financial institutions are required to keep in order to be protected against bankruptcy (regulatory requirements mandate this ratio to exceed 6% as of 2015). Following Bouvatier *et al.* (2014), we use the lagged values (L_CAPSTR and L_TIER1). LOANS represents total loans to customers, reduced by possible default losses and unearned interest income, divided by total assets. We expect a positive sign, as it is generally used as an indicator of default risk. We also use its yearly change (D_LOANS) to find a relationship that shows how fast the bank is adapting its lending activity. A positive sign would show a prudent behavior whereas a negative sign could be interpreted as a delay in provisioning when lending activity accelerates. COM is fees and commissions earned from commercial banking operations (money transferring fees, late fees, check clearing fees, and other fees and commissions) divided by total assets. When these incomes are high, banks are expected to create more provisions as a positive signal; we thus expect a positive coefficient. SIZE is a measure of bank size as the logarithm of total assets. We expect a positive influence.

We introduce five boards of director characteristics: size, independence, tenure, gender diversity, and compensation. Board size (BDSIZE) is measured as the number of board members at the end of the fiscal year. Board independence (IND) is measured as the proportion of independent directors out of the total number of board members. Board tenure (BDTEN) is the average number of

years each board member has been on the board; and gender diversity (BDGEN) is the percentage of female members on the board.

We use two compensation policy variables: board compensation (COMP), measured as the ratio between total board member compensation in US dollars and EBTDA, and we expect a positive sign, as the greater the proportion of EBT-DA paid to directors as remuneration, the greater the incentive to better carry out their monitoring role (Hui & Matsunaga 2014); and a dummy that measures whether deferment exists in the payment of part of the compensation (DPCOMP), and which equals 1 when there is a time horizon of board members' targets to reach full compensation. DPCOMP provides information on directors' long-term incentives. A longer term board orientation should avoid short term biased provisions and, in turn, be positively related to loan loss provisions.

The main empirical model is presented in the following equation:

$$DISC_{i,t} = \beta_0 + \beta_1 \cdot LLP_{i,t-1} + \beta_2 \cdot ROA_{i,t} + \beta_3 \cdot CAPSTR_{i,t-1} + \beta_4 \cdot LOANS_{i,t} + \beta_5 \cdot \Delta LOANS_{i,t} + \beta_6 \cdot COM_{i,t} + \beta_7 \cdot SIZE_{i,t} + \beta_8 \cdot RISK_{i,t} + \sum_1^n VOI + \sum_1^{20} \gamma_t + \varepsilon_{i,t} \quad [4]$$

where $\sum_1^n VOI$ represents the *variables of interest* included in each regression and $\sum_1^{20} \gamma_t$ is the term for year dummies.

# 6. RESULTS

In this section, we show the results of the empirical analyses. For each study, we include a descriptive analysis and the results of the regressions in the explicative analysis, supporting or refusing the hypothesis stated in section 3.

## 6.1. Banks' payout smoothing and scrip dividends

### 6.1.1. Descriptive Analysis

In Table 5, we report the mean value, standard deviation, as well as the maximum and minimum values of the main variables. As expected, the mean value of TDIV (0.048) is higher than that of DIV (0.045), due to the importance of scrip dividends for European banks during this period. In Table 6, we report Pearson's correlation matrix.

Table 5. Descriptive Statistics

| | Mean | Std. Dev. | Median | Min. | Max. |
|---|---|---|---|---|---|
| DIV | 0.045 | 0.007 | 0.002 | 0.000 | 0.103 |
| TDIV | 0.048 | 0.148 | 0.006 | 0.000 | 1.000 |
| ROA | 0.016 | 0.034 | 0.014 | -0.580 | 0.236 |
| TIER1 | 0.156 | 0.136 | 0.142 | 0.058 | 0.310 |
| CAPST | 7.757 | 1.744 | 8.000 | 4.000 | 11.000 |
| SR | 3.280 | 1.055 | 3.000 | 2.000 | 5.000 |
| MB | 1.269 | 1.240 | 0.971 | 0.037 | 6.697 |
| SIZE | 10.699 | 0.818 | 10.681 | 8.340 | 12.353 |

Mean, median, standard deviation and minimum and maximum of the variables. DIV is cash dividends divided by total assets. TDIV is the total (cash plus scrip) dividend divided by total assets. ROA is return on total assets. TIER1 is the ratio of Tier1 capital as a percentage of total risk-weighted assets. MB is the market value (market capitalization of the bank) divided by the book value of assets. SIZE is the log of total assets. CAPST is the Capital Stringency Index, which ranges from 0 to 11. SR is the index of shareholders' rights.

Table 6. Correlations matrix of variables of model 2 for cash dividends

| | DIV | ROA | TIER1 | CAPST | SR | MB |
|---|---|---|---|---|---|---|
| ROA | 0.335 | | | | | |
| TIER1 | 0.224 | 0.337 | | | | |
| CAPST | -0.189 | -0.101 | -0.392 | | | |
| SR | -0.125 | -0.194 | -0.117 | 0.046 | | |
| MB | 0.465 | 0.428 | 0.282 | -0.195 | -0.022 | |
| SIZE | -0.392 | -0.386 | -0.132 | 0.015 | 0.219 | -0.380 |

DIV is cash dividends divided by total assets. ROA is return on total assets. TIER1 is the ratio of Tier1 capital as a percentage of total risk-weighted assets. MB is the market value (market capitalization of the bank) divided by the book value of assets. SIZE is the log of total assets. CAPST is the Capital Stringency Index, which ranges from 0 to 11. SR is the index of shareholders' rights.

### 6.1.2. Explicative Analysis

In Table 7, we present the results of the estimations of model 1 and compare our results to those of previous studies. In his pioneering study, Lintner (1956) obtained a 0.70 coefficient for lagged dividends, and a 0.15 coefficient for current earnings, with the adjusted-$R^2$ being 85%. More recently, Aivazian *et al.* (2003) obtained similar results for a sample of over 100,000 firm year observations of US firms during the period 1981 to 1999. They obtained a coefficient on lagged dividends of 0.62 and a coefficient of current earnings of 0.13 with an adjusted-$R^2$ of 82.4% using fixed effects panel data. We apply the same method as employed by Aivazian *et al.* (2003)[6] to our sample of EU banks during the period 2014-2018. Our coefficient of lagged dividends is -0.209, which differs substantially from that of previous research. In addition, we fail to find a significant coefficient of current earnings, with ours being 0.058. Our adjusted-$R^2$ is 15.6%, which is much lower than that of Lintner (1956) and Aivazian *et al.* (2003), and might be due to the problems which EU banks have in maintaining dividends during periods of financial turmoil. In the fourth row of Table 7, we replace cash dividends per

[6] The selection of the fixed effects model is based on the (not tabulated) Hausman test.

share (DPS) by total dividends per share, i.e., the addition of cash and scrip dividends (TDPS). The results change dramatically and closely resemble previous evidence. First, the coefficient of lagged total dividends (TDPS) becomes positive and is close to benchmark studies. Second, the adjusted-$R^2$ rises to 73.85%. These results lend support to the hypothesis that EU banks continue to smooth dividends, but that this policy applies basically to total dividends, i.e. the combination of scrip and cash dividends.

Table 7. Estimation of Lintner model

| | Observations | Intercept | $DPS_{i,t-1}$ | $TDPS_{i,t-1}$ | $EPS_{i,t}$ | Adj.-$R^2$ |
|---|---|---|---|---|---|---|
| Lintner (1956) | 28 (US firms) Period 1918-41 | 352.3*** (2.85) | 0.70*** (3.40) | | 0.15*** (2.16) | 85 |
| Aivaziain et al. (2003) | 127,516 (US firms) Period 1981-98 | 131.07*** (6.13) | 0.62*** (204.08) | | 0.124*** (104.19) | 82.4 |
| Our study (2019) | 395(European Banks) Period 2014-18 | 0.004*** (3.76) | -0.209*** (-2.75) | | 0.058 (1.12) | 15.60 |
| Our study (2019) | 395(European Banks) Period 2014-18 | 0.009 (0.53) | | 0.453*** (9.67) | 0.173 (0.20) | 73.85 |

Estimated coefficients (t-statistic) of the Lintner model (equation 1). Cash dividends per share (DPS) at time 't' is regressed against the lagged dividend ($DPS_{i,t-1}$) and earnings per share ($EPS_{i,t-1}$). We report the coefficients and adjusted R-squared obtained by Lintner (1956) for a sample of 28 US firms, and by Aivazian *et al.* (2003) for a sample of 127,516 US firm-year observations for the period 1981 to 1999. TDPS is total dividend *(i.e.* cash dividends and scrip dividends) per share. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

In Table 8, we report the results of estimating model 2 through the GMM method. We include lagged dividends and current earnings, calculated as ratios scaled by total assets, since they are the most important factors for determining dividend policy, as our model 1 suggests. In addition to lagged dividends, we introduce a number of variables related to our hypotheses. In columns 1, 2, and 3, we control for each of the legal environment issues. In columns 4, 5, and 6, we introduce the variables by pairs, and in column 7 we introduce the three variables simultaneously.

The coefficient of previous dividends ($DIV_{t-1}$) is negative and significant in all of the estimations, thus confirming the decrease in cash dividends among EU banks in the years after the 2007-2008 financial crisis. In Columns 1, 4, 5, and 7 of Table 8, we include the TIER1 ratio used by banks to fulfil the Basel agreements (TIER1). It can be seen that this variable has a negative and significant relationship with current dividends. This result might indicate that, given the need to increase reserves in order to reach the required level, banks have had to cut dividends and to use earnings as an internal source of funds.

In columns 2, 4, 6, and 7 of Table 8, we introduce CAPST, the index of capital stringency. The coefficient is negative and significant in all estimations. These results show that banks in EU countries with higher capital stringency pay lower dividends because of the more demanding capital legal requirements. In turn, the results reported in Table 8 concerning TIER and CAPST confirm our second hypothesis regarding the effect of the legal requirements on banks' dividend policy.

In columns 3, 5, 6, and 7, we include the index of shareholder rights (SR) calculated by La Porta *et al.* (2000b), and used more recently by Lepetit *et al.* (2018) and Chang *et al.* (2018). Contrary to our third hypothesis, the negative and significant coefficients of the SR variable lend support to the substitution hypothesis, such that dividends may act as a substitute mechanism to make up for poorer legal shareholder protection.

As far as the control variables are concerned, the market-to-book (MB) variable is positively and significantly related to cash dividends. This can be seen as evidence that dividends play a key role as signals of growth opportunities (Dempsey *et al.* 2020). The negative coefficient of the SIZE variable implies that

dividends fell, particularly among the largest European banks in the years after the 2007-2008 financial crisis.

Table 8. Dynamic panel data estimation for cash dividends

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| $DIV_{t-1}$ | -0.045*** | -0.034*** | -0.013*** | -0.038*** | -0.018*** | -0.039*** | -0.140*** |
| | (0.003) | (0.002) | (0.002) | (0.001) | (0.001) | (0.003) | (0.002) |
| $ROA_{t-1}$ | 0.034*** | 0.045*** | 0.008** | 0.063*** | 0.070*** | 0.060* | 0.016*** |
| | (0.002) | (0.002) | (0.003) | (0.003) | (0.003) | (0.004) | (0.004) |
| $MB_{t-1}$ | 0.001*** | 0.001** | 0.001*** | 0.001*** | 0.001*** | 0.001*** | 0.001*** |
| | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $SIZE_{t-1}$ | -0.002*** | -0.002*** | -0.001*** | -0.001*** | -0.001*** | -0.011*** | -0.001*** |
| | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $TIER1_{t-1}$ | -0.008*** | | | -0.008** | -0.010* | | -0.002* |
| | (0.001) | | | (0.001) | (0.000) | | (0.001) |
| CAPST | | -0.001** | | 0.001 | | -0.001* | -0.001* |
| | | (0.000) | | (0.001) | | (0.000) | (0.000) |
| SR | | | -0.001*** | | -0.001*** | -0.001*** | -0.001*** |
| | | | (0.000) | | (0.000) | (0.000) | (0.000) |
| Intercept | 0.022** | 0.028*** | 0.025*** | 0.022*** | 0.003*** | 0.024*** | 0.023*** |
| | (0.001) | (0.001) | (0.002) | (0.002) | (0.001) | (0.002) | (0.002) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| # Observations | 225 | 237 | 237 | 222 | 222 | 237 | 222 |
| Wald Test (d.f.) | 39755.2(9)*** | 29468.26(9)*** | 22686.46(9)*** | 48664.45(10)*** | 147396.7(9)*** | 18996.1(9)*** | 130394.4(9)*** |
| $m_1$ | 0.80 | 0.85 | 0.85 | 0.78 | 0.69 | 0.84 | 0.84 |
| $m_2$ | 0.30 | 0.32 | 0.37 | 0.30 | 0.04 | 0.41 | 0.34 |
| Hansen test (d.f.) | 50.71(15) | 5.38(15) | 4.08(10) | 6.14(15) | 10.75(15) | 3.57(15) | -1.86(15) |

Estimated coefficients (standard errors) of the estimation of equation (2) through the GMM. The dependent variable is DIV, which is the cash dividend paid to shareholders divided by total assets. ROA is return on assets. TIER1 represents the ratio of Tier1 capital as a percentage of total risk-weighted assets. CAPST is the Capital Stringency Index with a range from 0 to 11, where 11 represents the highest level of capital stringency. SR is the index of shareholders' rights in each economy proposed by La Porta et al. (1998) and updated by Djankov et al. (2007). MB is the ratio of market capitalization and total assets. SIZE is the log of total assets. All the estimates include year dummy variables. The Wald test reflects the validity of instruments (degrees of freedom in brackets). The $m_2$ is a test to check the absence of second order correlation, and the Hansen test is the test for the over-identification of restrictions. ***, **, and * indicate significance at the 99, 95%, and 90% confidence level, respectively.

We run an analogous analysis for total (cash plus scrip) dividends with the dependent variable (TDIV). Results are reported in Table 9. These new estimates change dramatically compared to those for cash dividends reported in Table 8. The coefficient of lagged dividends ($TDIV_{t-1}$) now becomes positive, consistent with the smoothing theory and with the estimates of model 1 shown in Table 7. In turn, EU banks used scrip dividends to smooth total dividends during the study period. In addition, the coefficients of TIER1 and CAPST are no longer negative but positive and statistically significant. Consequently, stricter regulation concerning capital requirements is positively related to total dividends. These results suggest that scrip dividends play a dual role since, on top of shareholder remuneration, they are used to increase equity in order to comply with both the Basel Agreements and with national regulation. In contrast, the shareholders' rights variable (SR) is no longer significant, except in Column 7, in which the coefficient is positive, in line with the outcome hypothesis of dividends (and counter to the substitution hypothesis proved above).

The market-to-book (MB) variable is positively and significantly related to total dividends, confirming the role played by dividends as signalling mechanisms. In contrast to the results of cash dividends reported in Table 8, the coefficient of the variable (SIZE) is mainly positive (except in columns 4 and 7), which may indicate greater use of scrip dividends among the largest European banks.

Table 9. Dynamic panel data estimation for total dividends

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| $TDIV_{t-1}$ | 0.287*** | 0.2999*** | 0.293*** | 0.230*** | 0.298*** | 0.268*** | 0.244*** |
| | (0.014) | (0.014) | (0.007) | (0.013) | (0.013) | (0.009) | (0.013) |
| $ROA_{t-1}$ | 0.019 | 0.252*** | 0.294*** | 0.010 | 0.049** | 0.132*** | 0.003 |
| | (0.026) | (0.025) | (0.033) | (0.020) | (0.019) | (0.024) | (0.022) |
| $MB_{t-1}$ | 0.001** | 0.001** | 0.001*** | 0.001 | 0.001*** | 0.001*** | 0.001*** |
| | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $SIZE_{t-1}$ | 0.001*** | 0.006*** | 0.005*** | -0.002** | 0.001 | 0.001** | -0.002** |
| | (0.000) | (0.000) | (0.001) | (0.001) | (0.001) | (0.000) | (0.001) |
| $TIER1_{t-1}$ | 0.060*** | | | 0.157*** | 0.058*** | | 0.165*** |
| | (0.006) | | | (0.020) | (0.007) | | (0.019) |
| CAPST | | 0.001*** | | 0.003*** | | 0.001 | 0.033*** |
| | | (0.000) | | (0.000) | | (0.000) | (0.001) |
| SR | | | -0.001 | | 0.001 | 0.001 | 0.001** |
| | | | (0.001) | | (0.000) | (0.000) | (0.000) |
| Intercept | -0.016** | -0.072*** | -0.057*** | -0.018 | -0.004*** | -0.019** | -0.014 |
| | (0.010) | (0.006) | (0.001) | (0.013) | (0.001) | (0.001) | (0.132) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 201 | 216 | 216 | 198 | 198 | 216 | 198 |
| Wald test (d.f.) | 7291.79(9)*** | 1800.72(9)*** | 9543.54(9)*** | 94231.26(10)*** | 10989.7(10)*** | 4720.15(10)*** | 23173.2(10)*** |
| $m_1$ | -2.74 | -2.97 | -2.93 | -2.81 | -2.75 | -2.91 | -2.90 |
| $m_2$ | 1.39 | 1.02 | 0.99 | 1.36 | 1.74 | 1.17 | 1.42 |
| Hansen test (d.f.) | 48.87 (15) | 54.16 (15) | 50.79 (15) | 48.24 (15) | 47.87 (15) | 52.83 (15) | 51.47 (15) |

Estimated coefficients (standard errors) of the estimation of equation (2) through the GMM. The dependent variable is TDIV, which is the total (cash plus scrip) dividend divided by total assets. ROA is return on assets. TIER1 represents the ratio of Tier1 capital as a percentage of total risk-weighted assets. CAPST is the Capital Stringency Index, with a range from 0 to 11, where 11 represents the highest level of capital stringency. SR is the index of shareholders' rights in each economy proposed by La Porta et al. (1998) and updated by Djankov et al. (2007). MB is the ratio of market capitalization and total assets. SIZE is the log of total assets. All the estimates include year dummy variables. The Wald test reflects the validity of instruments (degrees of freedom in brackets). The $m_2$ is a test to check the absence of second order correlation, and the Hansen test is the test for the over-identification of restrictions. ***, **, and * indicate significance at the 99, 95%, and 90% confidence level, respectively.

In order to enhance the comparability of our results with previous research, in Table 10 we split the sample according to the median of the CAPST variable and run differentiated regressions for each sub-sample. The coefficient of previous dividends is positive for both subsamples, thus supporting total dividend smoothing by banks, irrespective of capital adequacy regulation. Interestingly, the sign of the SR variable switches between columns: being positive for countries with the highest capital stringency ratio and negative for those with the lowest capital constraints. This result reconciles our previous findings in the sense that dividends may be due both to the outcome model (in countries with higher capital stringency) and to the substitute model (in countries with lower capital restrictions).

Table 10. Dynamic panel data estimation for total dividends

| | (1) Higher CAPST | (2) Lower CAPST |
|---|---|---|
| $TDIV_{t-1}$ | 0.252*** | 0.428*** |
| | (0.123) | (0.025) |
| $ROA_{t-1}$ | 1.091*** | 0.091* |
| | (0.546) | (0.041) |
| $TIER1_{t-1}$ | -0.189 | 0.103** |
| | (0.112) | (0.023) |
| SR | 0.009** | -0.001** |
| | (0.003) | (0.000) |
| $MB_{t-1}$ | -0.006* | -0.001 |
| | (0.009) | (0.000) |
| $SIZE_{t-1}$ | -0.007* | -0.002 |
| | (0.006) | (0.002) |
| Intercept | 0.091 | 0.001 |
| | (0.097) | (0.020) |
| Year dummies | Yes | Yes |
| Observations | 59 | 143 |
| Wald test (d.f.) | 844.16(9)*** | 10048.3(10)*** |
| $m_1$ | -2.27** | -2.47** |
| $m_2$ | 1.61 | 0.74 |
| Hansen test (d.f.) | 2.88(12) | 4.77(15) |

Estimated coefficients (standard errors) of the estimation of equation (2) through the GMM. The dependent variable is TDIV, which is the total (cash plus scrip) dividend divided by total assets. ROA is return on assets. TIER1 represents the ratio of Tier1 capital as a percentage of total risk-weighted assets. SR is the index of shareholders' rights in each economy proposed by La Porta et al. (1998) and updated by Djankov et al. (2007). MB is the ratio of market capitalization and total assets. SIZE is the log of total assets. All the estimates include year dummy variables. The $m_2$ is a test to check the absence of second order correlation, and the Hansen test is the test for the over-identification of restrictions ***, **, and * indicate significance at the 99, 95%, and 90% confidence level, respectively.

As a robustness check, we use an alternative definition of the dependent variables, DIV and TDIV, defined as the ratio of cash dividends and total dividends (cash plus scrip) to equity market value. Results are reported in Tables 11 and 12 and confirm those of Tables 8 and 9.

Table 11. Robustness table, Dynamic panel data estimation for cash dividends by total shares

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| $DIV_{t-1}$ | -0.142*** | -0.113*** | -0.114*** | -0.135*** | -0.127*** | -0.109*** | -0.175*** |
| | (0.003) | (0.002) | (0.002) | (0.009) | (0.008) | (0.007) | (0.004) |
| $ROA_{t-1}$ | 0.026*** | 0.044*** | 0.043*** | 0.025*** | 0.024*** | 0.048*** | 0.037*** |
| | (0.002) | (0.002) | (0.003) | (0.003) | (0.005) | (0.004) | (0.004) |
| $MB_{t-1}$ | -0.003*** | -0.001** | -0.001*** | -0.001*** | -0.001*** | -0.001*** | -0.001*** |
| | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $SIZE_{t-1}$ | -0.001*** | -0.001*** | -0.001*** | -0.001*** | -0.001* | -0.011*** | -0.001* |
| | (0.001) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) | (0.000) |
| $TIER1_{t-1}$ | -0.013*** | | | -0.016*** | -0.015*** | | -0.013* |
| | (0.001) | | | (0.002) | (0.002) | | (0.001) |
| CAPST | | 5.3e-06** | | 0.001 | | 0.001** | 0.001 |
| | | (0.000) | | (0.001) | | (0.000) | (0.000) |
| SR | | | -1.8e-06*** | | 0.001*** | 0.001* | 0.001 |
| | | | (0.000) | | (0.000) | (0.000) | (0.000) |
| Intercept | 0.010** | 0.009*** | 0.025*** | 0.012*** | 0.009*** | | 0.008** |
| | (0.001) | (0.001) | (0.002) | (0.001) | (0.001) | | (0.002) |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| # Observations | 225 | 237 | 237 | 222 | 222 | 237 | 216 |
| Wald Test (d.f.) | 18918.1(9)*** | 20618.59(9)*** | 22686.46(9)*** | 40978(10)*** | 58960.36(9)*** | 8.2e+09(10)*** | 807202.6(9)*** |
| $m_1$ | -0.71 | -0.77 | -0.77 | -0.72 | -0.72 | -0.77 | -0.70 |
| $m_2$ | 1.02 | 1.43 | 1.43 | 0.90 | 0.87 | 1.43 | 1.02 |
| Hansen test (d.f.) | 9.15(15) | 6.11(15) | 8.44(10) | 5.98(15) | 6.69(15) | 68.85(15) | 9.25(15) |

Estimated coefficients (standard errors) of the estimation of equation (2) through the GMM. The dependent variable is DIV, which is the cash dividend paid to shareholders divided by equity. ROA is return on assets. TIER1 represents the ratio of Tier1 capital as a percentage of total risk-weighted assets. CAPST is the Capital Stringency Index with a range from 0 to 11, where 11 represents the highest level of capital stringency. SR is the index of shareholders' rights in each economy proposed by La Porta et al. (1998) and updated by Djankov et al. (2007). MB is the ratio of market capitalization and total assets. SIZE is the log of total assets. All the estimates include year dummy variables. The Wald test reflects the validity of instruments (degrees of freedom in brackets). The $m_2$ is a test to check the absence of second order correlation, and the Hansen test is the test for the over-identification of restrictions. ***, **, and * indicate significance at the 99, 95%, and 90% confidence level, respectively.

Table 12. Dynamic panel data estimation for total dividends by total shares

| | (1) | (2) | (3) | (4) | (5) | (6) | (7) |
|---|---|---|---|---|---|---|---|
| $TDIV_{t-1}$ | 0.606*** | 0.510*** | 0.587*** | 0.390*** | 0.604*** | 0.513*** | 0.474*** |
| | (0.011) | (0.014) | (0.007) | (0.045) | (0.027) | (0.004) | (0.021) |
| $ROA_{t-1}$ | 0.576*** | 0.492*** | 0.914*** | 0.698*** | 1.080*** | 0.176*** | 0.413 |
| | (0.015) | (0.008) | (0.008) | (0.097) | (0.019) | (0.089) | (0.042) |
| $MB_{t-1}$ | -0.002*** | 0.003** | -0.004** | -0.001 | -0.001*** | 0.003*** | -0.001 |
| | (0.001) | (0.000) | (0.000) | (0.001) | (0.000) | (0.000) | (0.001) |
| $SIZE_{t-1}$ | 0.018*** | 0.007*** | 0.001** | -0.003* | -0.001 | 0.002** | -0.002** |
| | (0.002) | (0.000) | (0.001) | (0.001) | (0.001) | (0.000) | (0.001) |
| $TIER1_{t-1}$ | 0.062*** | | | 0.503*** | 0.601*** | | 0.455*** |
| | (0.027) | | | (0.045) | (0.028) | | (0.045) |
| CAPST | | 0.009*** | | 0.013*** | | 0.009*** | 0.011*** |
| | | (0.000) | | (0.001) | | (0.001) | (0.001) |
| SR | | | 0.004*** | | 0.003** | 0.009*** | -0.004** |
| | | | (0.001) | | (0.001) | (0.001) | (0.002) |
| Intercept | -0.295** | -0.134** | -0.035*** | -0.077*** | -0.025 | -0.105** | |
| | (0.090) | (0.0013) | (0.012) | (0.003) | (0.024) | (0.002) | |
| Year dummies | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Observations | 225 | 216 | 216 | 215 | 215 | 236 | 215 |
| Wald test (d.f.) | 413319.1(9)*** | 1.6e+06(9)*** | 47049.22(9)*** | 94231.26(10)*** | 1.34e+06(10)*** | 207367.8(10)*** | 1.8e+08(10)*** |
| $m_1$ | -1.48 | -1.83 | -1.84 | -2.81 | -1.63 | -1.83 | -1.54 |
| $m_2$ | 1.64 | 1.11 | 0.87 | 1.36 | 1.64 | 1.09 | 1.64 |
| Hansen test (d.f.) | 48.87 (10) | 30.18 (10) | 46.55 (10) | 4.43 (10) | 5.66 (10) | 9.40 (10) | 7.79 (12) |

Estimated coefficients (standard errors) of the estimation of equation (2) through the GMM. The dependent variable is TDIV, which is the total (cash plus scrip) dividend divided by equity. ROA is return on assets. TIER1 represents the ratio of Tier1 capital as a percentage of total risk-weighted assets. CAPST is the Capital Stringency Index, with a range from 0 to 11, where 11 represents the highest level of capital stringency. SR is the index of shareholders' rights in each economy proposed by La Porta et al. (1998) and updated by Djankov et al. (2007). MB is the ratio of market capitalization and total assets. SIZE is the log of total assets. All the estimates include year dummy variables. The Wald test reflects the validity of instruments (degrees of freedom in brackets). The $m_2$ is a test to check the absence of second order correlation, and the Hansen test is the test for the over-identification of restrictions. ***, **, and * indicate significance at the 99, 95%, and 90% confidence level, respectively.

## 6.2. Disclosure of risk through legal provisions

### 6.2.1. Descriptive Analysis

The evolution of legal provisions is displayed in Figure 2. An increase in legal provisions, which double over the period studied, can be seen. Nevertheless, this period could be split into two more different periods: one, reflecting an initial jump in the years 2008-2011, namely the years after the 2007-2008 collapse when there might have been some pressure on banks to create abundant legal provisions; and another, flat evolution since 2012. However, this overall evolution may conceal different patterns across countries. Accordingly, in Figure 3, we report the evolution for common law and civil law countries. Despite beginning at a similar level, common law countries use fewer legal provisions than civil law countries. In addition to the different level of legal provisions, the timing is also different. Whereas in civil law countries the greatest increase took place in the early years of the crisis, it was not until 2011 that banks began to create more provisions in common law countries. Likewise, despite the difference in the time-pattern, there is a convergence between the two groups of countries.

Figure 2. Evolution of Legal Provisions

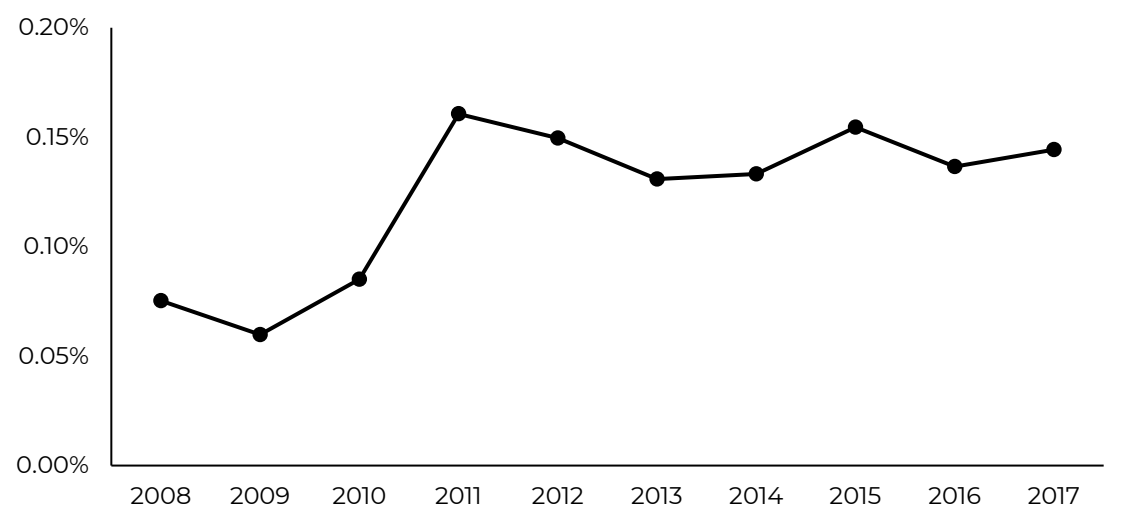


Figure 3. Evolution of Legal Provisions by Legal Origin

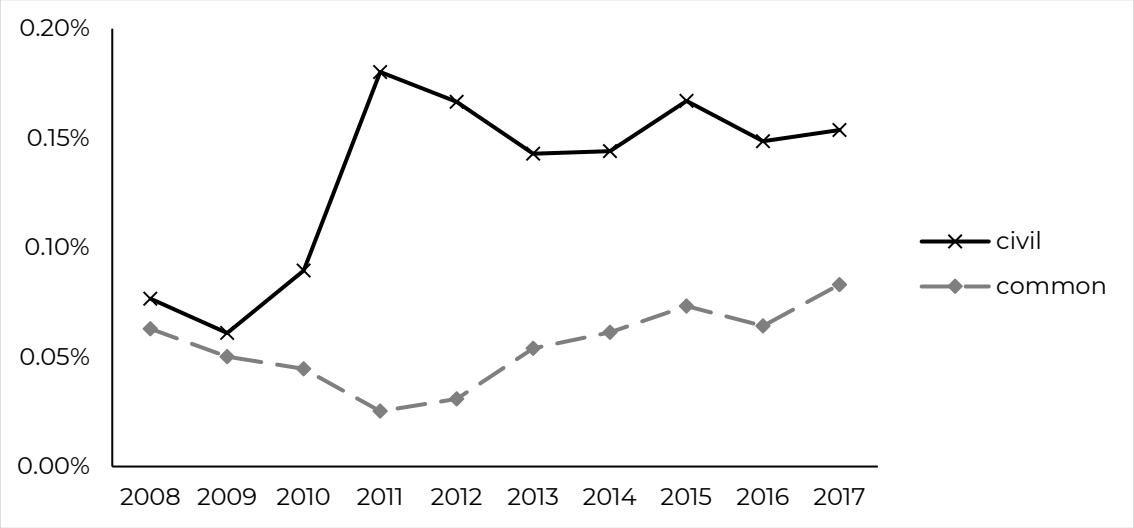



Table 13 reports the mean value, the standard deviation, and quartiles (Q25, Q50 and Q75) of the main variables of our whole sample during the period 2008-2017. The mean legal provision is around 0.117% of total assets, as scaled by 1000. It is worth noting the independence percentage (49.76%), since banks are characterized by highly independent boards compared to nonfinancial firms. Our descriptive statistics are homogeneous and similar to those found in previous literature (Lepetit *et al.* 2008; Farag & Mallin 2017).

Table 13. Descriptive Statistics of the Variables

| | Obs. | Mean | Std. Dev. | Q25 | Q50 | Q75 |
|---|---|---|---|---|---|---|
| LP | 811 | 1.176 | 4.780 | 0.106 | 0.439 | 0.919 |
| FCF | 851 | 0.003 | 0.054 | -0.012 | 0.002 | 0.022 |
| IND | 615 | 49.761 | 26.973 | 28.570 | 54.550 | 70.000 |
| ROA | 862 | 0.014 | 0.036 | 0.007 | 0.012 | 0.019 |
| MB | 788 | 1.243 | 1.162 | 0.619 | 0.976 | 1.572 |
| SIZE | 864 | 24.845 | 1.942 | 23.573 | 24.664 | 26.253 |
| LEV | 864 | 0.917 | 0.078 | 0.910 | 0.933 | 0.950 |
| ZSCORE | 549 | 1.672 | 2.589 | 0.514 | 0.923 | 1.697 |
| TIER1 | 783 | 0.139 | 0.054 | 0.110 | 0.130 | 0.160 |

Mean, standard deviation, and quartiles (Q25, Q50 and Q75) of the variables. LP is legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). TIER1 represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets.

Table 14 shows that LP is statistically negatively related to size; that is, larger firms have fewer legal provisions. This could be due to economies of scale and scope for legal issues as well as to large firms having specific legal departments that may possess the expertise to cut the legal costs involved. Interestingly, ROA is statistically positively related to FCF, consistent with successful banks generating more cash flows. However, the higher ROA may stem from riskier investments or higher fees. Were it to be the result of riskier investments, banks having higher free cash flows would be less valued by the market, consistent with MB being negatively related to FCF. Correlation coefficients are low, such that multicollinearity is not an issue which affects the reliability of our results.

Table 14. Correlation Matrix

| | LP | FCF | IND | ROA | MB | SIZE | LEV | ZSCORE |
|---|---|---|---|---|---|---|---|---|
| FCF | -0.3340 | | | | | | | |
| IND | 0.1084 | 0.0230 | | | | | | |
| ROA | 0.0366 | 0.0680 | -0.0199 | | | | | |
| MB | 0.3391 | -0.1007 | -0.0373 | 0.3196 | | | | |
| SIZE | -0.2451 | 0.0459 | 0.2984 | -0.0582 | -0.3783 | | | |
| LEV | -0.3088 | 0.0387 | 0.1640 | -0.0178 | -0.2408 | 0.4476 | | |
| ZSCORE | -0.0271 | -0.0435 | 0.0021 | 0.1078 | 0.0903 | -0.1312 | -0.2466 | |
| TIER1 | 0.0694 | -0.1053 | -0.0332 | 0.0341 | 0.1993 | -0.2978 | -0.6011 | 0.1041 |

Correlation ratio and p-value. LP is legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). TIER1 represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets.

### 6.2.2. Explanatory Analysis

Based on the Hausman test (not tabulated), we run the fixed effects model. In the first column of Table 15, we report the results of the baseline model. The free cash flow (FCF) is negatively and significantly related to legal provisions. This result supports hypothesis H4b and can be understood as proof that the discretionary power of bank managers has led to fewer legal provisions, and may be due to managers' self-interest in hiding overinvestments or the result of managerial overconfidence.

In the second column, we test the effect of board of director independence in the relation between free cash flow and legal provisions. Whereas IND has no significant direct relationship, we obtain a positive and significant coefficient for IND*FCF, thus supporting hypothesis 5. This means that board of director independence works as a control mechanism, such that greater managerial power (and presumably greater risk) translates into more legal provisions in firms with more independent boards. The results obtained for the control variable ZSCORE is consistent, since there are more legal provisions when the bank is closer to

insolvency. The negative coefficient of SIZE could be explained by diversification and a reputation effect: big banks are more likely to have a diversified portfolio (Demsetz & Strahan 1997; Anderson & Fraser 2000) or to have a better reputation (Carnevale & Mazzuca 2014), such that the risk they need to recognize is lower.

Table 15. Results of the estimation

| | (1) | (2) | (3) | (4) |
|---|---|---|---|---|
| FCF | -1.092*** | -4.204*** | -1.625*** | -4.926*** |
| | (0.402) | (1.238) | (0.551) | (1.641) |
| IND | | 0.001 | | -0.001 |
| | | (0.002) | | (0.002) |
| IND*FCF | | 0.037* | | 0.052* |
| | | (0.021) | | (0.028) |
| ZSCORE | | | -0.020** | -0.021** |
| | | | (0.009) | (0.010) |
| ROA | 1.663 | 2.586 | 5.051 | 4.410 |
| | (2.338) | (2.607) | (3.415) | (3.901) |
| MB | -0.058** | -0.033 | -0.111*** | -0.058 |
| | (0.027) | (0.034) | (0.042) | (0.075) |
| SIZE | -0.270*** | -0.268** | -0.437*** | -0.419** |
| | (0.100) | (0.120) | (0.139) | (0.174) |
| LEV | -0.931 | 0.530 | -0.857 | 0.622 |
| | (1.311) | (1.585) | (2.507) | (3.052) |
| Observations | 733 | 561 | 497 | 420 |
| Adjusted R-squared | 0.059 | 0.078 | 0.110 | 0.105 |
| F-test | 2.834*** | 2.518*** | 3.320*** | 2.310*** |

Estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is LP, the legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets calculated as EBITDA divided by total assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

In order to test the effect of the institutional environment, we include the new variable F_PROT and F_ENV obtained from the factor analysis of the institutional variables shown in Table 3. In Table 16, we thus run differentiated estimates depending on certain characteristics of the institutional setting. Specifically, in columns 1 and 2, we separate banks from countries that offer lower or greater minority investor protection, respectively, according to the median of the variable F_PROT. In columns 3 and 4, we include the results for the banks of countries with low or high levels of legal quality, using the median of the comprehensive variable F_ENV which results from factor analysis.

Although the results reported in column 1 do not show any relationship between FCF and legal provisions, the results from column 2 point to some interesting insights. In this case, both free cash flow (FCF) and interaction with the board's independence (IND*FCF) are significantly related to legal provisions. Therefore, banks being in an environment with high investor protection would disclose better, and their board would be more effective. Both results are in line with our hypotheses H4b and H5.

Table 16. Results of the Estimation by Institutional Variables

| | by F_PROT | | by F_ENV | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| FCF | -1.152 | -7.961** | -2.285 | -13.517*** |
| | (2.677) | (3.577) | (1.414) | (3.975) |
| IND | 0.001 | -0.002 | 0.001 | -0.002 |
| | (0.003) | (0.005) | (0.002) | (0.004) |
| IND*FCF | -0.017 | 0.123** | 0.010 | 0.156*** |
| | (0.048) | (0.615) | (0.036) | (0.057) |
| ZSCORE | -0.007 | -0.049** | 0.004 | -0.079*** |
| | (0.012) | (0.021) | (0.008) | (0.022) |
| ROA | 0.945 | 0.908 | -1.496 | 15.978* |
| | (6.532) | (7.021) | (3.249) | (8.966) |
| MB | -0.073 | -0.099 | -0.029 | -0.084 |
| | (0.075) | (0.199) | (0.075) | (0.132) |
| SIZE | -0.472** | -0.527 | -0.271 | -0.898** |
| | (0.204) | (0.342) | (0.181) | (0.361) |
| LEV | -2.793 | 3.070 | -3.538 | 11.541 |
| | (4.491) | (5.272) | (2.449) | (7.203) |
| Observations | 216 | 199 | 208 | 212 |
| Adjusted R-squared | 0.122 | 0.139 | 0.156 | 0.226 |
| F-test | 1.233 | 1.282 | 1.711** | 2.744*** |

Estimated coefficients (standard errors) from the fixed effect estimation. In models (1) and (2), the sample is divided by the median of F_PROT (column 1 for observations below the median and column 2 for observations above the median value). In models (3) and (4), the sample is divided using F_ENV (column 3 for observations below the median and column 4 for observations above the median value). The dependent variable is LP, the legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets calculated as EBITDA divided by total assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Similarly, when we split the sample based on the quality of the institutional environment (F_ENV), both FCF and IND*FCF prove significant in column 4; i.e., for the subsample of firms in environments which display better institutional quality. Taken together, the results reported in Table 16 confirm our hypothesis 6. This means that the influence of the board of directors on the creation of legal provisions is affected by investor protection and by the quality of the institutional setting.

The results in Table 16 confirm that the significance of free cash flow (either directly or interacting with board independence) and the ZSCORE would only hold in settings that display the best scores. For European banks, it seems that internal corporate governance mechanisms (i.e., the board of directors) require external mechanisms to function more effectively in terms of greater risk disclosure through the creation of the required legal provisions.

Furthermore, in order to test the robustness of the result concerning the greater transparency obtained for European banks that have closer relations between internal and external mechanisms, Table 17 includes a set with more institutional variables. In particular, we use the four variables combined in the F_ENV factor: rule of law (columns 1 and 2), control of corruption (columns 3 and 4), regulation quality (columns 5 and 6), and the corruption score (columns 7 and 8).

The results are fully consistent with previous ones and substantiate the notion that board independence only affects legal provisions in the most protective environments, i.e., where the rule of laws prevails or when corruption is fought (columns 2, 4, 6, and 8). In contrast, in the least protective settings (columns 1, 3, 5, and 7) board independence does not play any relevant role.

Table 17. Results of the Estimation by Institutional Sub-Variables

| | by RULELAW | | by CORRUPTCONTROL | | by REGQUA | | by CORRUPTSC | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| FCF | -2.817** | -13.134*** | -2.349* | -15.156*** | -2.432* | -14.654*** | -3.012** | -12.727*** |
| | (1.385) | (4.111) | (1.390) | (4.187) | (1.381) | (4.056) | (1.502) | (3.404) |
| IND | 0.001 | -0.002 | 0.001 | -0.002 | 0.001 | -0.002 | -0.001 | 0.000 |
| | (0.002) | (0.004) | (0.002) | (0.004) | (0.002) | (0.004) | (0.002) | (0.004) |
| IND*FCF | 0.022 | 0.148** | 0.016 | 0.176*** | 0.013 | 0.169*** | 0.023 | 0.149*** |
| | (0.036) | (0.058) | (0.034) | (0.060) | (0.035) | (0.058) | (0.037) | (0.051) |
| ZSCORE | 0.002 | -0.081*** | 0.005 | -0.082*** | 0.004 | -0.080*** | 0.016 | -0.066*** |
| | (0.008) | (0.021) | (0.008) | (0.022) | (0.008) | (0.022) | (0.011) | (0.018) |
| ROA | -1.814 | 20.223** | -1.735 | 20.769** | -1.674 | 15.374 | -2.146 | 18.079* |
| | (3.129) | (9.390) | (3.172) | (9.656) | (3.186) | (9.337) | (3.138) | (9.281) |
| MB | -0.072 | 0.004 | -0.031 | -0.18 | -0.028 | -0.057 | 0.017 | -0.157 |
| | (0.073) | (0.134) | (0.073) | (0.161) | (0.074) | (0.1349) | (0.077) | (0.145) |
| SIZE | -0.201 | -0.907** | -0.298* | -0.984** | -0.294 | -0.944** | -0.350* | -0.933*** |
| | (0.177) | (0.360) | (0.174) | (0.381) | (0.178) | (0.366) | (0.206) | (0.332) |
| LEV | -3.531 | 12.376 | -3.370 | 12.509* | -3.673 | 11.412 | -1.384 | 13.290* |
| | (2.439) | (7.562) | (2.383) | (7.521) | (2.387) | (7.260) | (2.674) | (7.323) |
| Observations | 212 | 208 | 218 | 202 | 210 | 210 | 194 | 226 |
| Adjusted R-squared | 0.143 | 0.248 | 0.156 | 0.245 | 0.174 | 0.239 | 0.188 | 0.234 |
| F-test | 1.559* | 3.000*** | 1.780** | 2.862*** | 1.961** | 2.883*** | 1.851** | 3.010*** |

Estimated coefficients (standard errors) from the fixed effect estimation. In columns 1, 3, 5, and 7 the observations are below the median value of the dividing variable; in columns 2, 4, 6, and 8 the observations are above the median vale. The dependent variable is LP, the legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets calculated as EBITDA divided by total assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively

Table 18. Results of the Estimation by CEO – Chairman Duality

| | coincide | | do not coincide | |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| FCF | 1.718 | 4.271 | -1.506** | -5.567*** |
| | (2.341) | (6.190) | (0.617) | (1.842) |
| IND | | 0.002 | | -0.001 |
| | | (0.006) | | (0.002) |
| IND*FCF | | -0.065 | | 0.063** |
| | | (0.124) | | (0.0310) |
| ZSCORE | -0.015 | -0.028 | -0.027** | -0.032** |
| | (0.023) | (0.035) | (0.012) | (0.013) |
| ROA | 12.578** | 9.837 | 5.003 | 5.019 |
| | (4.843) | (6.708) | (4.533) | (5.162) |
| MB | 0.017 | 0.133 | -0.098** | -0.063 |
| | (0.174) | (0.265) | (0.048) | (0.087) |
| SIZE | -0.996*** | -1.015 | -0.301* | -0.311 |
| | (0.341) | (0.709) | (0.172) | (0.214) |
| LEV | -6.451 | -8.559 | -2.023 | 1.087 |
| | (3.960) | (5.630) | (3.376) | (4.108) |
| Observations | 48 | 42 | 392 | 350 |
| Adjusted R-squared | 0.803 | 0.766 | 0.093 | 0.100 |
| F-test | 4.899*** | 2.120 | 2.127*** | 1.762** |

Estimated coefficients (standard errors) from the fixed effect estimation. In models (1) and (2), the CEO is also the board chairman; in models (3) and (4) the opposite holds. The dependent variable is LP, the legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets calculated as EBITDA divided by total assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

In Table 18, we run an analogous examination, but this time focusing on internal rather than on external mechanisms. We use CEO duality to divide the sample. Whereas in columns 1 and 2 we study firms in which the CEO chairs or has chaired the board of directors, in columns 3 and 4 we report the results when there is a separation of roles between two different people. Once again, free cash flow, the ZSCORE, and the board of directors are significantly related to legal provisions when there is a separation of roles.

Thus, a chairman who is not at the same time the CEO can enforce board of director independence and facilitate the creation of banks' legal provisions, thus confirming hypothesis 5 concerning the positive influence of free cash flow in banks which display greater board independence.

To check the robustness of our analysis, we change some of the control variables and the estimation method. In Table 19, we report the results of the baseline model estimations when we control for tier 1 ratio instead of leverage. Results bear out the previous ones: the negative effect of free cash flow (H4b), the moderating role of board independence (H5), and the relevance of the institutional environment (H6). We also use the General Method of Moments as an alternative method of estimation (Arellano & Honore 2001). Although we do not expect endogeneity to be a problem given that legal provisions are not likely to affect the independent variables, we use this method to check the robustness of our results. The results, reported in Table 20, confirm the validity of the previous ones.

Table 19. Results of the Estimation Using TIER1

| | | | | | Legal protection | | Regulation quality | |
|---|---|---|---|---|---|---|---|---|
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| FCF | -1.135*** | -4.132*** | -1.580*** | -4.760*** | -1.641 | -10.408*** | -3.195** | -11.527*** |
| | (0.423) | (1.246) | (0.560) | (1.604) | (2.805) | (3.693) | (1.425) | (4.170) |
| IND | | 0.001 | | 0.003 | 0.002 | -0.002 | 0.001 | 0.001 |
| | | (0.002) | | (0.002) | (0.003) | (0.005) | (0.002) | (0.005) |
| IND*FCF | | 0.038* | | 0.054* | -0.011 | 0.185*** | 0.026 | 0.135** |
| | | (0.022) | | (0.028) | (0.050) | (0.063) | (0.037) | (0.059) |
| ZSCORE | | | -0.024** | -0.025** | -0.010 | -0.050** | -0.005 | -0.075*** |
| | | | (0.010) | (0.011) | (0.014) | (0.021) | (0.009) | (0.022) |
| ROA | 2.466 | 2.817 | 5.192 | 4.116 | 1.337 | -0.972 | -0.296 | 10.713 |
| | (2.292) | (2.579) | (3.326) | (3.825) | (5.972) | (6.915) | (3.247) | (9.078) |
| MB | -0.070*** | -0.039 | -0.116*** | -0.078 | -0.075 | -0.163 | -0.077 | -0.023 |
| | (0.025) | (0.032) | (0.042) | (0.075) | (0.079) | (0.191) | (0.077) | (0.131) |
| SIZE | -0.419*** | -0.389*** | -0.567*** | -0.506*** | -0.525** | -0.776** | -0.351* | -0.659** |
| | (0.106) | (0.119) | (0.142) | (0.164) | (0.205) | (0.334) | (0.181) | (0.302) |
| TIER1 | -0.900 | -1.160 | -1.717 | -2.033 | -0.463 | -9.587*** | 0.008 | -2.901 |
| | (0.817) | (0.968) | (1.119) | (1.309) | (1.469) | (3.365) | (1.962) | (1.885) |
| Observations | 684 | 526 | 461 | 392 | 205 | 183 | 196 | 196 |
| Adjusted R-squared | 0.073 | 0.094 | 0.133 | 0.128 | 0.122 | 0.223 | 0.148 | 0.230 |
| F-test | 3.255*** | 2.852*** | 3.737*** | 2.674*** | 1.140 | 2.012** | 1.490 | 2.524*** |

Estimated coefficients (standard errors) from the fixed effect estimation. In models (3) and (4), the sample is divided by the median of F_PROT (column 3 for observations below the median and column 4 for observations above the median value). In models (5) and (6), the sample is divided using F_ENV (column 5 for observations below the median, and column 6 for observations above the median value). The dependent variable is LP, the legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets calculated as EBITDA divided by total assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. TIER1 is the ratio of Tier 1 capital as a percentage of total risk-weighted assets. ZSCORE is a measure of risk (see Appendix for the definition). All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 20. Results of the Estimation with System GMM

| | (1) | (2) |
|---|---|---|
| FCF | -2.551** | -5.307*** |
| | (1.020) | (1.997) |
| IND | | -0.007 |
| | | (0.005) |
| IND*FCF | | 0.153*** |
| | | (0.054) |
| ZSCORE | -0.021** | -0.049* |
| | (0.009) | (0.028) |
| ROA | -2.552 | -3.663 |
| | (2.568) | (2.339) |
| MB | 0.117*** | 0.040 |
| | (0.037) | (0.060) |
| SIZE | 0.229*** | 0.205*** |
| | (0.045) | (0.044) |
| LEV | -3.712** | -5.125* |
| | (1.485) | (2.899) |
| Observations | 375 | 329 |
| Sargan test | 0.362 | 0.235 |
| AR(2) test | 0.166 | 0.127 |

Estimated coefficients (standard errors) from the Generalized Method of Moments estimation. The dependent variable is LP, the legal provision divided by total assets, scaled by 1000. FCF is the free operating cash flow divided by total assets. IND is the percentage of independent board members. ROA is the return on assets calculated as EBITDA divided by total assets. MB is the ratio between market capitalization and total equity. SIZE is the logarithm of total assets. LEV is the leverage ratio as total liabilities over total assets. ZSCORE is a measure of risk (see Appendix for the definition). The m2 is a test to check the absence of second order correlation, and the Sargan test is the test for the over-identification of restrictions. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

### 6.3. Disclosure of risk through loan loss provisions

#### 6.3.1. Descriptive Analysis

Table 21 reports the mean value, the standard deviation, and quartiles (Q25, Q50 and Q75) of the main variables of our whole sample during the period 2000-2019. Descriptive statistics are homogeneous and similar to those found in the literature (Bouvatier *et al.* 2014).

Table 21. Descriptive statistics

| Variable | Obs | Mean | Std. Dev. | Min | Q25 | Q50 | Q75 | Max |
|---|---|---|---|---|---|---|---|---|
| DISC | 9365 | 27.2762 | 24.2038 | 0.0000 | 8.1455 | 19.4737 | 40.0000 | 96.6667 |
| LLP | 16839 | 0.5354 | 0.7836 | 0.0000 | 0.1082 | 0.2554 | 0.6210 | 4.8444 |
| ROA | 18887 | 0.0185 | 0.0170 | -0.0303 | 0.0099 | 0.0162 | 0.0235 | 0.0940 |
| CAPSTR | 19543 | 0.1025 | 0.0621 | 0.0011 | 0.0680 | 0.0917 | 0.1179 | 0.4716 |
| TIER1 | 13892 | 0.1384 | 0.0644 | 0.0100 | 0.1100 | 0.1300 | 0.1500 | 0.9900 |
| LOANS | 18838 | 0.6185 | 0.1620 | 0.0000 | 0.5356 | 0.6422 | 0.7311 | 0.8935 |
| D_LOANS | 17596 | 0.0023 | 0.0467 | -0.1466 | -0.0201 | 0.0023 | 0.0250 | 0.1614 |
| NPL | 11261 | 0.0371 | 0.0697 | 0.0000 | 0.0077 | 0.0183 | 0.0398 | 0.9865 |
| COM | 17286 | 0.0075 | 0.0084 | 0.0000 | 0.0025 | 0.0048 | 0.0091 | 0.0499 |
| SIZE | 19656 | 21.9928 | 2.3104 | 6.3839 | 20.2453 | 21.7965 | 23.5421 | 29.1307 |
| RISK | 16132 | 0.0521 | 0.0896 | 0.0001 | 0.0116 | 0.0239 | 0.0521 | 0.6361 |
| ZSCORE | 16010 | -0.0897 | 0.1047 | -0.5334 | -0.1083 | -0.0546 | -0.0255 | 0.0000 |
| IND | 3361 | 0.5715 | 0.2831 | 0.0000 | 0.3529 | 0.6250 | 0.8182 | 1.0000 |
| BDSIZE | 3550 | 12.7561 | 4.1249 | 1.0000 | 10.0000 | 12.0000 | 15.0000 | 26.0000 |
| BDTEN | 3257 | 7.5125 | 3.9573 | 0.2500 | 4.5100 | 6.7700 | 9.8800 | 31.3300 |
| BDGEN | 3505 | 0.1509 | 0.1198 | 0.0000 | 0.0625 | 0.1364 | 0.2222 | 0.6194 |
| COMP | 2500 | 0.0037 | 0.0057 | 0.0000 | 0.0003 | 0.0012 | 0.0045 | 0.0278 |
| DPCOMP | 1516 | 0.4202 | 0.4938 | 0.0000 | 0.0000 | 0.0000 | 1.0000 | 1.0000 |

This table presents the mean, standard deviation, minimum, maximum and quartiles (Q25, Q50 and Q75) of all the variables used. LLP is loan loss provision divided by total assets and scaled by 100. DISC is loan loss provision divided by non-performing loans and scaled by 100. ROA is the return on assets calculated as EBTDA divided by total assets. CAPSTR is the ratio between equity and assets. TIER1 represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. NPL is non-performing loans over net loans. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of risk of insolvency (see Appendix for definition). IND is the percentage of independent board members. BDSIZE is the total number of board members. BDTEN is the average number of years each board member has been on the board. BDGEN is the percentage of female members on the board. DPCOMP is a dummy that equals 1 if a deferred component exists in the payment of compensation to board members, and zero otherwise. COMP is total board member compensation divided by EBTDA.

The results for the test of equality of means reported in Table 22 show significant differences in the levels of risk and provisioning between country areas. Banks from the USA show less risk and, on average, have more provisions than banks from the rest of the world. European entities are characterized by the highest levels of risk and less provisioning. These differences reflect two different environments: on the one hand, there is the USA setting with less risk and, paradoxically, more provisions; on the other hand, the European environment is characterized by more risk-taking whereas less provisioning.

Table 22. Test of equality of means

| | | Obs | Mean | p-value |
|---|---|---|---|---|
| RISK | USA | 6,823 | 0.0388 | 0.0000 |
| | Non USA | 9,309 | 0.0617 | |
| | EU | 2,313 | 0.0693 | 0.0000 |
| | Non EU | 13,819 | 0.0492 | |
| ZSCORE | USA | 6,804 | -0.1034 | 0.0000 |
| | No USA | 9,206 | -0.0796 | |
| | EU | 2,295 | -0.0667 | 0.0000 |
| | Non EU | 13,715 | -0.0936 | |
| DISC | USA | 3,901 | 30.1429 | 0.0000 |
| | Non USA | 5,464 | 25.2296 | |
| | EU | 916 | 21.2800 | 0.0000 |
| | Non EU | 8,449 | 29.9263 | |

The p-value is the maximum level of significance to reject the null hypothesis of equality of means between both sub-samples. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of risk of insolvency (see Appendix for definition). DISC is loan loss provision divided by non-performing loans and scaled by 100.

Table 23 shows the correlation matrix. As expected, CAPSTR and TIER1 are positively correlated. We can also consider the positive correlation between RISK and NPL that logically suggests that the greater care a bank exercises when granting loans, the lower the default rate observed. It is interesting to consider that banks with more independent board members have higher levels of compensation and longer terms, as shown by the positive correlation between IND and COMP and DPCOMP. In addition, the positive correlation between IND and BDTEN points to a longer stay by independent directors on the board. In the same line, larger banks have higher levels of compensation but define compensation structures with shorter time horizons, as

shown by the positive correlation between SIZE and COMP, which is negative with DPCOMP.

Table 23. Correlation matrix

| | DISC | LLP | ROA | CAPSTR | TIER1 | LOANS | D_LOANS | NPL | COM | SIZE | RISK | ZSCORE | IND | BDSIZE | BDTEN | BDGEN | COMP |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LLP | 0.3072 | | | | | | | | | | | | | | | | |
| | 0.0000 | | | | | | | | | | | | | | | | |
| ROA | 0.1750 | -0.0749 | | | | | | | | | | | | | | | |
| | 0.0000 | 0.0000 | | | | | | | | | | | | | | | |
| CAPSTR | 0.0880 | 0.1201 | 0.3230 | | | | | | | | | | | | | | |
| | 0.0000 | 0.0000 | 0.0000 | | | | | | | | | | | | | | |
| TIER1 | -0.1177 | -0.0175 | 0.1150 | 0.6966 | | | | | | | | | | | | | |
| | 0.0000 | 0.0517 | 0.0000 | 0.0000 | | | | | | | | | | | | | |
| LOANS | -0.0924 | -0.1037 | -0.1117 | -0.0717 | -0.2216 | | | | | | | | | | | | |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | | | | | | | | |
| D_LOANS | -0.0220 | -0.1246 | 0.0707 | 0.0652 | 0.0104 | 0.1205 | | | | | | | | | | | |
| | 0.0371 | 0.0000 | 0.0000 | 0.0000 | 0.2345 | 0.0000 | | | | | | | | | | | |
| NPL | -0.1726 | 0.4406 | -0.1039 | 0.0032 | 0.0268 | -0.1958 | -0.0971 | | | | | | | | | | |
| | 0.0000 | 0.0000 | 0.0000 | 0.7339 | 0.0101 | 0.0000 | 0.0000 | | | | | | | | | | |
| COM | 0.1419 | 0.3148 | 0.4012 | 0.2418 | 0.0984 | -0.2494 | 0.0124 | 0.1727 | | | | | | | | | |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.1152 | 0.0000 | | | | | | | | | |
| SIZE | 0.0057 | -0.0280 | -0.0316 | -0.3918 | -0.2855 | -0.2141 | -0.0150 | 0.0380 | -0.0406 | | | | | | | | |
| | 0.5822 | 0.0003 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0468 | 0.0001 | 0.0000 | | | | | | | | |
| RISK | 0.0538 | 0.4709 | -0.0541 | -0.0932 | -0.0781 | -0.1351 | -0.0655 | 0.3845 | 0.1401 | -0.0038 | | | | | | | |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.6310 | | | | | | | |
| ZSCORE | 0.0886 | 0.2246 | 0.0432 | -0.0892 | -0.0915 | -0.0846 | -0.0409 | 0.1532 | 0.1386 | -0.0060 | 0.3098 | | | | | | |
| | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.4507 | 0.0000 | | | | | | |
| IND | 0.0496 | -0.2108 | -0.0353 | 0.0890 | 0.0437 | 0.1965 | 0.0774 | -0.1634 | -0.1433 | -0.1175 | -0.0823 | -0.0998 | | | | | |
| | 0.0159 | 0.0000 | 0.0414 | 0.0000 | 0.0203 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | | | | | |
| BDSIZE | 0.0751 | -0.0001 | -0.0798 | -0.1866 | -0.2589 | -0.2102 | -0.0722 | 0.0474 | 0.0264 | 0.3395 | 0.1349 | 0.1175 | -0.0538 | | | | |
| | 0.0002 | 0.9936 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0103 | 0.1332 | 0.0000 | 0.0000 | 0.0000 | 0.0018 | | | | |
| BDTEN | 0.0292 | -0.1550 | 0.0740 | 0.2891 | 0.0558 | 0.2129 | 0.0347 | -0.2267 | -0.0883 | -0.3939 | -0.1681 | -0.1897 | 0.2839 | -0.0386 | | | |
| | 0.1591 | 0.0000 | 0.0000 | 0.0000 | 0.0033 | 0.0000 | 0.0523 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0275 | | | |
| BDGEN | -0.0753 | -0.1037 | -0.0051 | -0.0799 | 0.1382 | 0.0244 | -0.0012 | 0.0015 | -0.1106 | 0.1696 | -0.0537 | -0.0653 | 0.3346 | 0.0527 | -0.0128 | | |
| | 0.0002 | 0.0000 | 0.7640 | 0.0000 | 0.0000 | 0.1575 | 0.9469 | 0.9367 | 0.0000 | 0.0000 | 0.0016 | 0.0001 | 0.0000 | 0.0018 | 0.4658 | | |
| COMP | -0.0531 | -0.0919 | -0.1475 | 0.3229 | 0.1361 | 0.3386 | 0.0698 | -0.1274 | -0.1674 | -0.5895 | -0.1018 | -0.1322 | 0.2187 | -0.1892 | 0.2637 | -0.1411 | |
| | 0.0230 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0006 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | |
| DPCOMP | 0.1504 | -0.1305 | 0.0489 | 0.1454 | -0.1171 | 0.0522 | 0.0080 | -0.1952 | -0.0948 | -0.2037 | 0.0034 | -0.0802 | 0.2624 | -0.0308 | 0.2273 | -0.1023 | 0.2388 |
| | 0.0000 | 0.0000 | 0.0578 | 0.0000 | 0.0000 | 0.0451 | 0.7585 | 0.0000 | 0.0004 | 0.0000 | 0.8948 | 0.0020 | 0.0000 | 0.2304 | 0.0000 | 0.0001 | 0.0000 |

This table shows correlation ratios and corresponding p-values. LLP is loan loss provision divided by total assets and scaled by 100. DISC is loan loss provision divided by non-performing loans and scaled by 100. ROA is the return on assets calculated as EBTDA divided by total assets. CAPSTR is the ratio between equity and assets. TIER1 represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. NPL is non-performing loans over net loans. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). IND is the percentage of independent board members. BDSIZE is the total number of board members. BDTEN is the average number of years each board member has been on the board. BDGEN is the percentage of female members on the board. DPCOMP is a dummy that equals 1 if a deferred component exists in the payment of compensation to board members, and zero otherwise. COMP is total board member compensation divided by EBTDA.

Differences found in Table 22 between the US and EU environments lead us to a deeper analysis. Whereas in the USA we observe less risk but higher provisions, in Europe there is greater risk but fewer provisions. This surprising result suggests that it would be interesting to consider environmental differences when conduct the analyses. For the whole sample, we show the evolution of DISC, RISK and ZSCORE in Figures 4 and 5, respectively. The 2007-08 financial crisis can clearly be seen through the maximum levels reached in 2009. The dot-com bubble can also be intuited through the increase in provisions until 2002.

Figure 4. Evolution of DISC

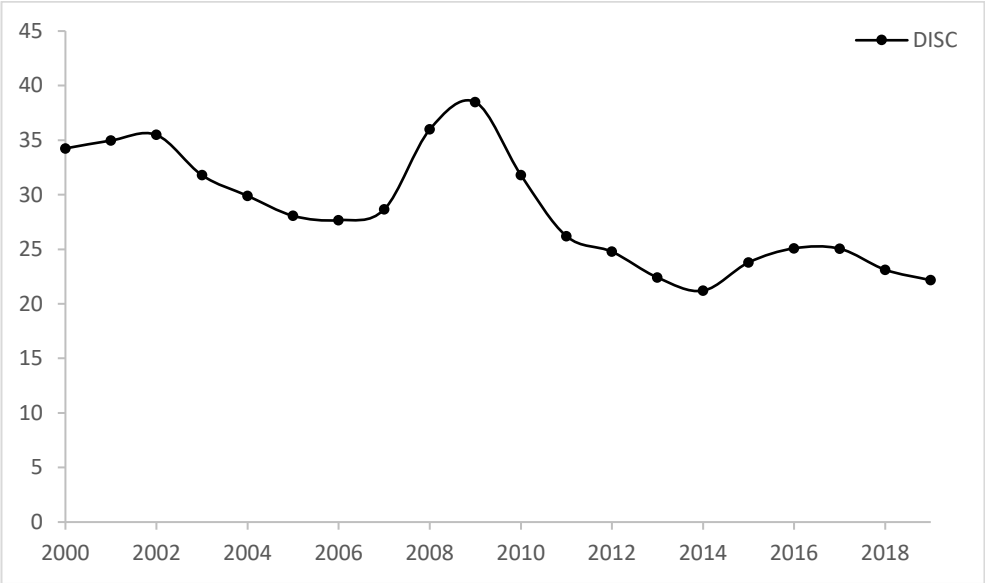
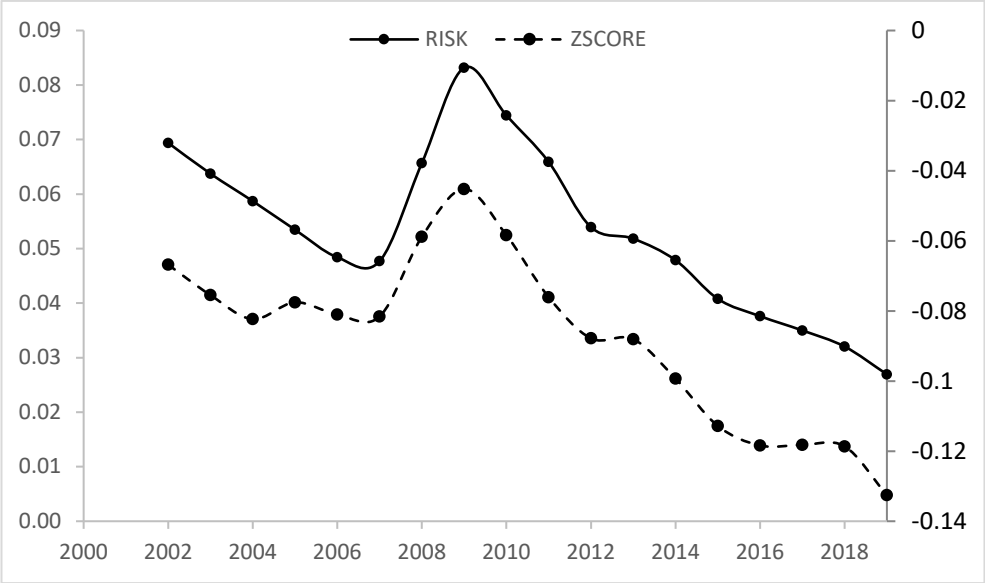



Figure 5. Evolution of risk



In Figures 6 to 8, we show the evolution of DISC, RISK and ZSCORE in the USA and the rest of the world. In these figures, we see the earliest onset of the 2007-08 crisis in the United States of America and its greatest impact, as the increases in the variables are much higher than those recorded in other countries. As observed earlier in the test of equality of means, while US values for RISK and ZSCORE are under those for *no USA* (Figures 7 and 8), with DISC evolution we have the opposite until 2011 (Figure 6).

Figure 6. Evolution of DISC in the USA and rest of the world

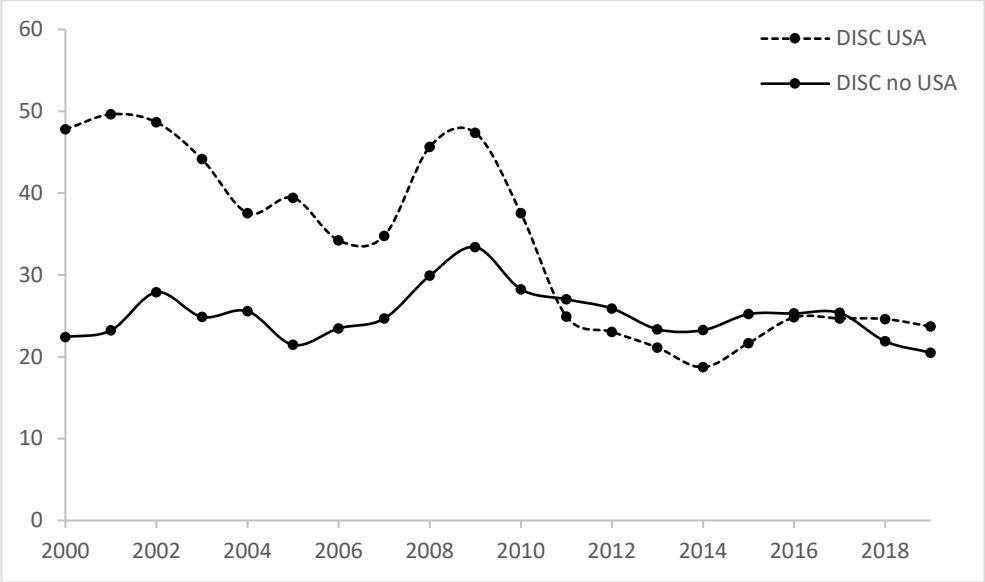



Figure 7. Evolution of RISK in the USA and rest of the world

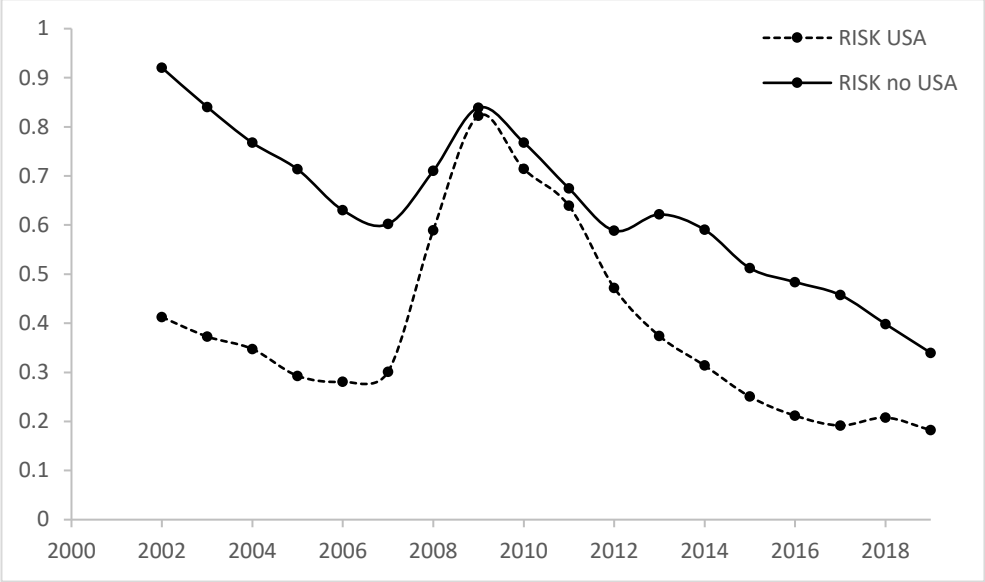
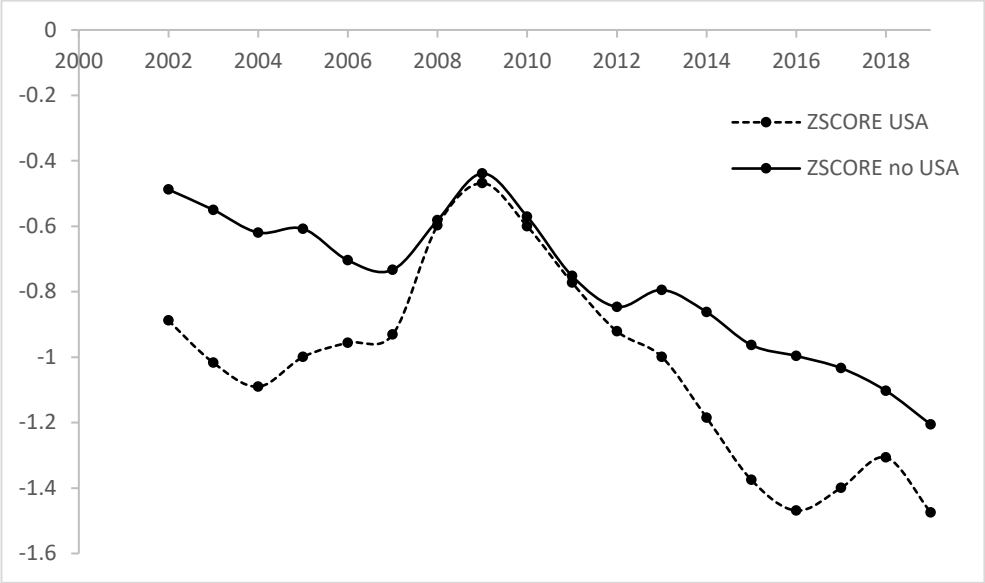


Figure 8. Evolution of ZSCORE in the USA and rest of the world




Figures 9 to 11 show the evolution of DISC, RISK and ZSCORE in Europe and the rest of the world. As regards the test of equality of means, these results are less evident than the previous (USA-no USA graphs). These figures report two very noticeable patterns. The first is located in the period 2010-13. RISK increases rather than decreasing in European banks while, surprisingly, DISC decreases. These years coincide with the crisis of the euro and concerns over Greece. At the same time, normative and stress tests for financial institutions arrived in these years in response to the 2007-08 crisis. All of these new rules force banks to face more legal requirements and would seem to negatively affect financial entities, as they see their risk increase. The second point is related to the years 2003-08. In this period, as well as in the surrounding years, risk for European banks is greater than for non-European banks. Nevertheless, provisions of European banks are lower than for non-European banks.

Figure 9. Evolution of DISC in Europe and rest of the world

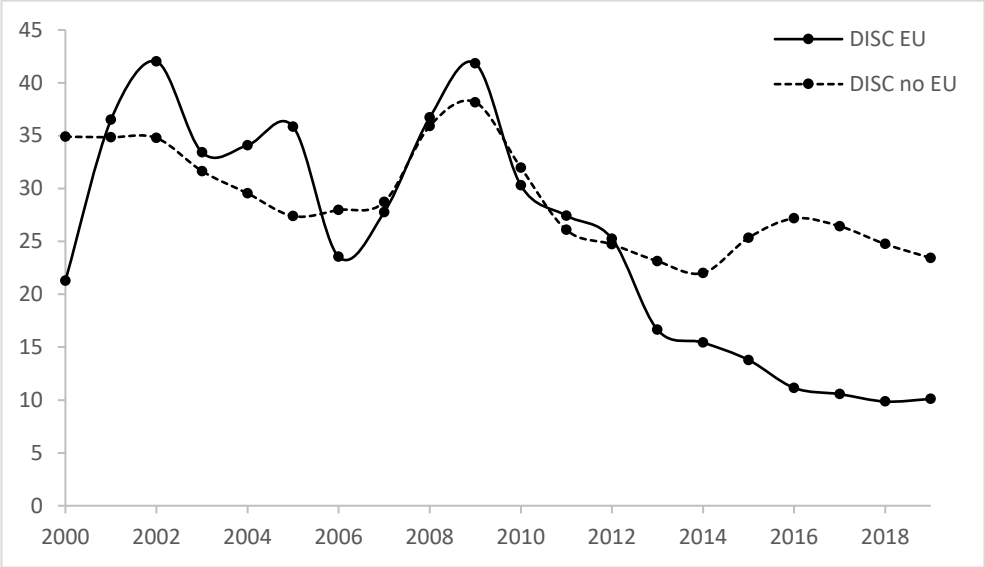



Figure 10. Evolution of RISK in Europe and rest of the world

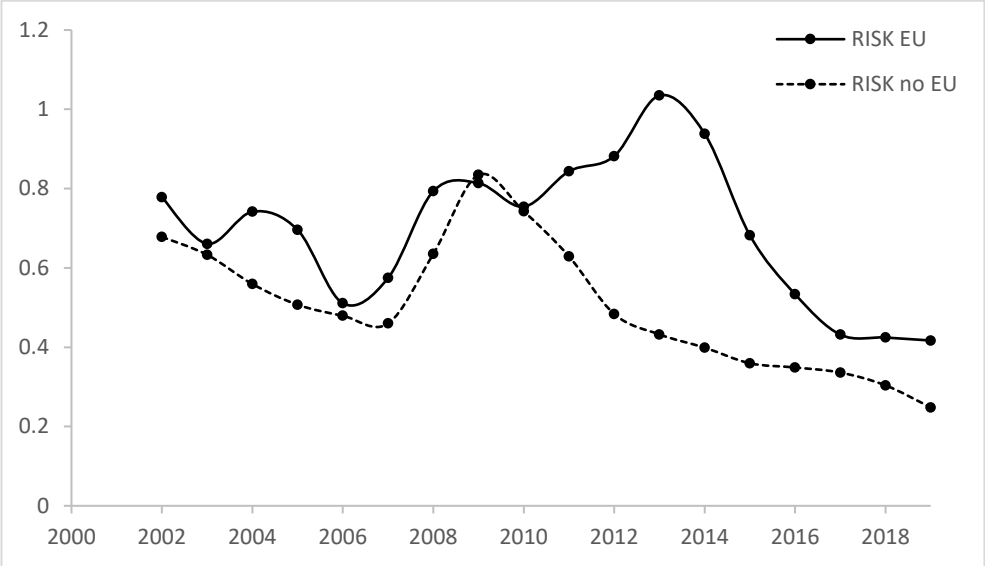
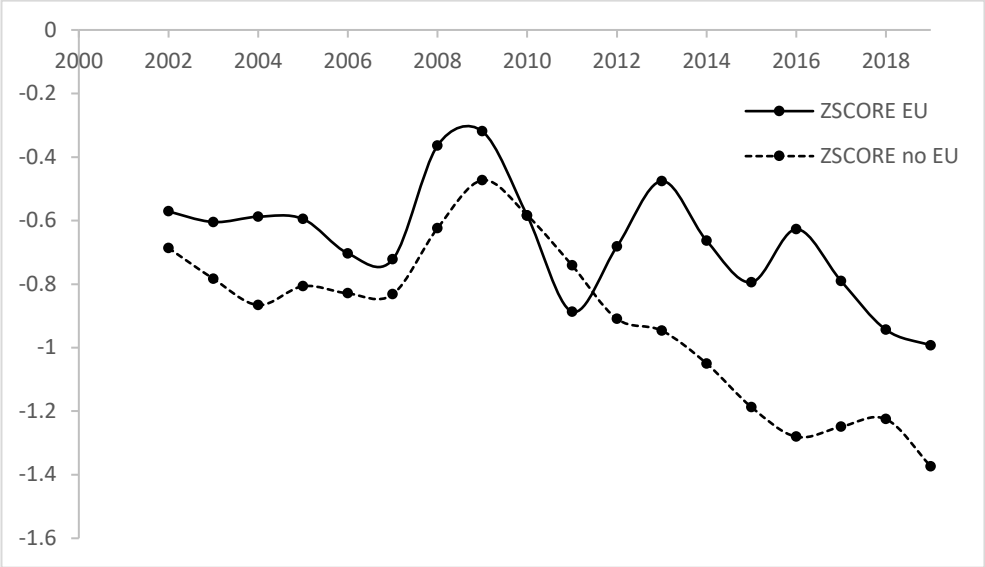


Figure 11. Evolution of ZSCORE in Europe and rest of the world




### 6.3.2. Explanatory Analysis

Based on the Hausman test (not tabulated), we ran the fixed effects model with year and country dummies. In Table 24, we show the results of the regression with the model of equation 4, which considers the ratio between loan loss provisions and non-performing loans (DISC) as the dependent variable. The explanatory variables are RISK (or ZSCORE when it is changed) and the variables most commonly used in the literature to determine the discretional and non-discretional components of loan loss provisions (Anandarajan *et al.* 2007; Bouvatier & Lepetit 2012; Bouvatier *et al.* 2014; Aristei & Gallo 2019). The coefficients are consistent with those of previous literature, as the negative coefficient of loans growth shows the delay and less prudent provisioning when lending activity accelerates (Laeven & Majnoni 2003); loans, commissions and bank size are positively related to LLP, in line with previous research (Bouvatier *et al.* 2014; Aristei & Gallo 2019). The results fail to show any relationship for RISK, and evidence a negative relationship for ZSCORE. This is similar toBouvatier *et al.* (2014), who find no significant impact of risk, and suggest entrenchment behavior on the part of controlling shareholders, given their results for ownership concentration. Thus, in Tables 25 to 32, we next consider the efficacy of board of director control including

several variables to test the effect of governance on the level of risk disclosure by managers.

Table 24. Results of the model estimation

| VARIABLES | (1) DISC | (2) DISC |
|---|---|---|
| L_LLP | 0.800 | 0.690 |
| | (0.495) | (0.477) |
| ROA | -235.846*** | -229.388*** |
| | (29.602) | (29.800) |
| L_CAPSTR | -3.178 | -1.899 |
| | (10.948) | (10.859) |
| LOANS | 13.811*** | 13.737*** |
| | (3.649) | (3.655) |
| D_LOANS | -22.560*** | -22.256*** |
| | (5.630) | (5.643) |
| COM | 786.866*** | 788.045*** |
| | (85.648) | (85.741) |
| SIZE | 6.922*** | 6.958*** |
| | (0.781) | (0.780) |
| RISK | -2.890 | |
| | (4.255) | |
| ZSCORE | | -4.128* |
| | | (2.290) |
| Constant | -149.288*** | -150.933*** |
| | (18.355) | (18.365) |
| Observations | 7,421 | 7,407 |
| R-squared | 0.131 | 0.131 |
| F-test | 39.18*** | 39.25*** |

This table shows the estimated coefficients (standard errors) from the fixed effect model. The dependent variable is DISC, the loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between loan loss provisions and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of risk of insolvency risk (see Appendix for definition). All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

The results in Table 25 show the inverse U-shaped relationship between loan loss provisions and board size, with the inflexion point of the number of directors being around 16 and suggesting the existence of an optimal number from the standpoint of

ensuring a maximum disclosure of credit risks. This inflection point might seem to be higher than the board size recommended by codes of good governance, although it should be borne in mind that banks have larger boards than non-financial firms (Adams & Mehran 2003). Our results are consistent with hypothesis 7 and with the idea of the positive influence of the number of board members, as they contribute with their knowledge and experience. Moreover, boards display a greater capacity to monitor disclosure policies, albeit only up to a critical point, beyond which the excessive number of directors makes coordination and monitoring more difficult.

Table 25. Results of the model estimation with board size

| | (1) | (2) |
|---|---|---|
| VARIABLES | DISC | DISC |
| | | |
| L_LLP | 1.521* | 1.732* |
| | (0.922) | (0.893) |
| ROA | -346.418*** | -349.853*** |
| | (58.004) | (58.289) |
| L_CAPSTR | 22.628 | 14.751 |
| | (26.963) | (26.389) |
| LOANS | 16.662** | 16.862** |
| | (7.121) | (7.125) |
| D_LOANS | -24.670** | -23.996** |
| | (11.275) | (11.264) |
| COM | 968.928*** | 959.753*** |
| | (163.982) | (163.775) |
| SIZE | 9.824*** | 9.975*** |
| | (1.775) | (1.774) |
| RISK | 9.098 | |
| | (8.065) | |
| ZSCORE | | -1.841 |
| | | (4.030) |
| BDSIZE | 1.173* | 1.427** |
| | (0.636) | (0.649) |
| $BDSIZE^2$ | -0.036* | -0.043** |
| | (0.021) | (0.021) |
| Constant | -246.208*** | -251.324*** |
| | (45.398) | (45.426) |
| | | |
| Observations | 2,167 | 2,165 |
| R-squared | 0.238 | 0.238 |
| F-test | 20.40*** | 20.38*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, the loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of risk of insolvency (see Appendix for definition). BDSIZE is the number of board members. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

In Table 26, we report the results concerning the effect of board independence (IND). In both columns we show a negative and significant relationship between DISC and our measures of risk (RISK and ZSCORE). One apparently unexpected result is that board independence is either positively related or unrelated with loan loss provi-

sions. In an effort to understand this result better, we interact board independence with our measures of risk (IND*RISK and IND*ZSCORE). As shown in Table 26, there is a positive and significant relation between these interacted variables and DISC. This is in line with hypothesis 8 and suggests that independent board members play an important role in risk disclosure through loan loss provisions.

Nevertheless, in order to gain a deeper insight into the effect of board independence, we run an analysis in Table 27, splitting the sample into two groups of banks. Since board of director independence is a feature that might require a critical level in order to prove effective, we use the mean of our sample (57% of independent directors) to study different situations. On the one hand, there are banks with highly independent boards (columns 1 and 3); on the other hand, there are those with lower levels of independence, below the mean value. Results in Table 27 support those already explained. Coefficients for RISK and ZSCORE in columns 1 and 3 are negative, while the interaction variables (IND*RISK and IND*ZSCORE) are positive. In this vein, in columns 2 and 4, for banks with less independent directors, we find no significant influence. In addition to the role of board independence in risk disclosure, it can also be concluded that independent directors need a critical percentage on the board if they are to have the expected influence.

Table 26. Results of the model estimation with board independence

| | (1) | (2) |
|---|---|---|
| VARIABLES | DISC | DISC |
| | | |
| L_LLP | 1.188 | 1.742* |
| | (0.940) | (0.907) |
| ROA | -326.580*** | -338.913*** |
| | (58.272) | (58.757) |
| L_CAPSTR | 30.581 | 23.735 |
| | (27.576) | (26.994) |
| LOANS | 20.225*** | 20.303*** |
| | (7.307) | (7.334) |
| D_LOANS | -20.063* | -20.671* |
| | (11.536) | (11.547) |
| COM | 913.089*** | 890.583*** |
| | (166.934) | (167.125) |
| SIZE | 9.314*** | 9.773*** |
| | (1.799) | (1.801) |
| RISK | -44.064** | |
| | (17.937) | |
| ZSCORE | | -21.926** |
| | | (9.365) |
| IND | -9.655** | -2.167 |
| | (4.142) | (3.947) |
| IND*RISK | 102.057*** | |
| | (29.433) | |
| IND*ZSCORE | | 0.033** |
| | | (0.014) |
| Constant | -221.034*** | -236.392*** |
| | (46.386) | (46.401) |
| | | |
| Observations | 2,072 | 2,070 |
| R-squared | 0.243 | 0.239 |
| F-test | 19.88*** | 19.45*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, the loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of risk of insolvency (see Appendix for definition). IND is the percentage of independent board members. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 27. Results of the estimation with high and low levels of board independence

| | high IND | low IND | high IND | low IND |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| VARIABLES | DISC | DISC | DISC | DISC |
| L_LLP | 1.331 | -0.307 | 1.975 | -0.047 |
| | (1.322) | (1.361) | (1.271) | (1.351) |
| ROA | -498.127*** | -317.776*** | -493.777*** | -324.105*** |
| | (89.491) | (73.966) | (88.923) | (74.639) |
| L_CAPSTR | -31.047 | 102.605*** | -37.395 | 95.414*** |
| | (39.080) | (37.477) | (38.861) | (36.237) |
| LOANS | 20.567 | 4.836 | 16.517 | 4.003 |
| | (13.433) | (8.648) | (13.357) | (8.730) |
| D_LOANS | -16.875 | 2.211 | -15.813 | 3.390 |
| | (16.949) | (15.104) | (16.970) | (15.145) |
| COM | 1,535.804*** | 421.235* | 1,487.476*** | 427.128* |
| | (273.945) | (224.945) | (275.272) | (225.108) |
| SIZE | 5.257** | 11.765*** | 4.814* | 11.627*** |
| | (2.596) | (2.564) | (2.581) | (2.569) |
| IND | -16.512* | -12.308* | 4.373 | -17.272** |
| | (9.591) | (7.094) | (9.309) | (6.897) |
| RISK | -194.446*** | 21.157 | | |
| | (74.290) | (21.948) | | |
| ZSCORE | | | -74.342** | 3.469 |
| | | | (37.314) | (10.853) |
| IND*RISK | 266.662*** | -52.159 | | |
| | (97.067) | (60.906) | | |
| IND*ZSCORE | | | 0.090* | -0.032 |
| | | | (0.046) | (0.033) |
| Constant | -109.339 | -275.998*** | -112.315* | -270.389*** |
| | (66.944) | (66.480) | (67.026) | (66.625) |
| Observations | 1,219 | 853 | 1,219 | 851 |
| R-squared | 0.390 | 0.114 | 0.387 | 0.114 |
| F-test | 21.69*** | 3.125*** | 21.46*** | 3.107*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The sample is divided using the mean of IND. The dependent variable is DISC, the loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of risk of insolvency (see Appendix for definition). IND is the percentage of independent board members. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

In Table 28, we report the results concerning the relationship between board tenure and the disclosure of risk through loan loss provisions. We do not obtain any significant relationship. This would refute our hypothesis H9 and, in order to find an explanation for this result, we interact our measure of tenure with our risk metrics (BDTEN*RISK and BDTEN*ZSCORE), as reported in Table 29. We find a negative and significant relationship between board tenure and risk (columns 1 and 2). More interestingly, in Columns 3 and 4 we report a positive and significant relationship between the interacted variables and loan loss provisions. These results are in line with the negative relationship between tenure and risk-taking that we find in the literature (Farag & Mallin 2018) and support hypothesis 9, suggesting the dominance of the expertise hypothesis over management friendliness. High average tenure would thus be more effective in disclosing risk due to the board's better knowledge, which would also be consistent with their risk aversion and the overconfident behavior of younger directors.

Table 28. Results of the model estimation with board tenure

| | (1) | (2) |
|---|---|---|
| VARIABLES | DISC | DISC |
| | | |
| L_LLP | 2.586*** | 2.835*** |
| | (0.949) | (0.923) |
| ROA | -364.161*** | -366.136*** |
| | (62.040) | (61.823) |
| L_CAPSTR | 37.965 | 29.918 |
| | (27.791) | (27.203) |
| LOANS | 17.800** | 17.941** |
| | (7.260) | (7.264) |
| D_LOANS | -20.053* | -19.099* |
| | (11.615) | (11.603) |
| COM | 978.301*** | 971.259*** |
| | (168.656) | (168.513) |
| SIZE | 11.182*** | 11.394*** |
| | (1.826) | (1.823) |
| RISK | 11.082 | |
| | (8.657) | |
| ZSCORE | | -1.424 |
| | | (4.207) |
| BDTEN | 0.274 | 0.287 |
| | (0.264) | (0.265) |
| Constant | -276.080*** | -280.789*** |
| | (46.657) | (46.636) |
| | | |
| Observations | 2,040 | 2,039 |
| R-squared | 0.260 | 0.259 |
| F-test | 22.19*** | 22.12*** |

This table shows the estimated coefficients (standard errors) from the fixed effect estimation. The variables are: RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). DISC is loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. BDTEN is the average number of years each board member has been on the board. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 29. Results of the estimations with board tenure

| VARIABLES | (1) RISK | (2) ZSCORE | (3) DISC | (4) DISC |
|---|---|---|---|---|
| L_LLP | | | 2.392** | 2.850*** |
| | | | (0.949) | (0.922) |
| ROA | -1.255*** | -0.517* | -348.253*** | -370.305*** |
| | (0.144) | (0.266) | (62.155) | (61.813) |
| L_CAPSTR | -0.501*** | -0.175 | 37.702 | 28.246 |
| | (0.068) | (0.125) | (27.730) | (27.195) |
| LOANS | 0.025 | -0.014 | 18.585** | 18.770*** |
| | (0.018) | (0.033) | (7.249) | (7.271) |
| D_LOANS | -0.043 | 0.002 | -20.174* | -19.675* |
| | (0.028) | (0.052) | (11.590) | (11.597) |
| COM | -0.164 | 0.109 | 1,022.749*** | 980.149*** |
| | (0.372) | (0.682) | (169.008) | (168.444) |
| SIZE | 0.003 | -0.007 | 11.223*** | 11.464*** |
| | (0.004) | (0.008) | (1.822) | (1.822) |
| BDTEN | -0.002*** | -0.004*** | -0.046 | 0.469* |
| | (0.001) | (0.001) | (0.286) | (0.282) |
| RISK | | | -18.241 | |
| | | | (13.417) | |
| ZSCORE | | | | -17.131* |
| | | | | (9.267) |
| BDTEN*RISK | | | 5.877*** | |
| | | | (2.058) | |
| BDTEN*ZSCORE | | | | 1.801* |
| | | | | (0.947) |
| Constant | 0.014 | 0.118 | -275.854*** | -284.523*** |
| | (0.115) | (0.211) | (46.556) | (46.641) |
| Observations | 2,908 | 2,906 | 2,040 | 2,039 |
| R-squared | 0.149 | 0.097 | 0.263 | 0.261 |
| F-test | 17.96*** | 11.01*** | 21.76*** | 21.47*** |

This table shows the estimated coefficients (standard errors) from the fixed effect estimation. The variables are: RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). DISC is loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. BDTEN is the average number of years each board member has been on the board. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

In Table 30, we show the results related to the relationship between the percentage of female directors on the board and risk disclosure through loan loss provisions. We obtain a negative and significant coefficient for gender diversity (BDGEN) that would reject hypothesis H10. Looking for an explanation, this negative relationship could be due to the negative influence of female directors on risk-taking policies, such that, by reducing the risk, its disclosure would be proportional. Results for this explanation are shown in Table 31. We find negative and significant coefficients in columns 1 and 2 for the relation between BDGEN and RISK and ZSCORE, respectively. Thus, the negative relationship between BDGEN and DISC may be caused by the risk-aversion that characterizes female directors, leading banks to avoid risk-taking and, therefore, reduce the need for provisioning. This result, in line with hypothesis 10, is also supported by the results shown in columns 3 and 4 of Table 31 where the interacted variables between board diversity and risk display a positive coefficient. This positive relationship between the presence of female directors and risk disclosure through loan loss provisions is consistent with previous results in the literature, such as the negative relation between board diversity and corporate opacity shown by Upadhyay and Zeng (2014) or the positive impact of women directors on risk disclosure found by Khandelwal *et al.* (2020).

Table 30. Results of the model estimation with female directors

| | (1) | (2) |
|---|---|---|
| VARIABLES | DISC | DISC |
| | | |
| L_LLP | 1.663* | 1.891** |
| | (0.934) | (0.907) |
| ROA | -334.230*** | -339.195*** |
| | (58.081) | (58.467) |
| L_CAPSTR | 24.014 | 16.099 |
| | (27.179) | (26.571) |
| LOANS | 16.866** | 16.874** |
| | (7.176) | (7.181) |
| D_LOANS | -23.798** | -22.968** |
| | (11.345) | (11.334) |
| COM | 1,000.977*** | 994.007*** |
| | (164.983) | (164.844) |
| SIZE | 9.387*** | 9.603*** |
| | (1.798) | (1.799) |
| RISK | 9.307 | |
| | (8.307) | |
| ZSCORE | | -2.134 |
| | | (4.059) |
| BDGEN | -13.971** | -13.621** |
| | (5.984) | (5.994) |
| Constant | -223.581*** | -228.369*** |
| | (46.326) | (46.376) |
| | | |
| Observations | 2,140 | 2,138 |
| R-squared | 0.241 | 0.240 |
| F-test | 21.21*** | 21.11*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). BDGEN is the percentage of female members on the board. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 31. Results of the estimations with female directors

| VARIABLES | (1) RISK | (2) ZSCORE | (3) DISC | (4) DISC |
|---|---|---|---|---|
| L_LLP | | | 1.503 | 1.826** |
| | | | (0.937) | (0.905) |
| ROA | -1.326*** | -0.475* | -336.733*** | -339.838*** |
| | (0.149) | (0.250) | (58.052) | (58.370) |
| L_CAPSTR | -0.541*** | -0.127 | 21.510 | 15.115 |
| | (0.071) | (0.118) | (27.190) | (26.530) |
| LOANS | 0.032* | -0.017 | 17.006** | 16.966** |
| | (0.019) | (0.031) | (7.170) | (7.169) |
| D_LOANS | -0.067** | -0.012 | -23.531** | -22.536** |
| | (0.029) | (0.048) | (11.337) | (11.317) |
| COM | -0.307 | -0.109 | 982.229*** | 981.112*** |
| | (0.398) | (0.657) | (165.151) | (164.642) |
| SIZE | 0.002 | -0.001 | 9.370*** | 9.836*** |
| | (0.005) | (0.008) | (1.797) | (1.798) |
| BDGEN | -0.033** | 0.011 | -19.617*** | -6.637 |
| | (0.017) | (0.027) | (6.672) | (6.554) |
| RISK | | | -2.368 | |
| | | | (10.313) | |
| ZSCORE | | | | -14.499** |
| | | | | (6.231) |
| BDGEN*RISK | | | 102.830* | |
| | | | (53.896) | |
| BDGEN*ZSCORE | | | | 74.423*** |
| | | | | (28.492) |
| Constant | 0.039 | -0.068 | -221.725*** | -235.075*** |
| | (0.122) | (0.201) | (46.301) | (46.370) |
| Observations | 3,113 | 3,108 | 2,140 | 2,138 |
| R-squared | 0.121 | 0.091 | 0.242 | 0.243 |
| F-test | 15.33*** | 11.15*** | 20.59*** | 20.65*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The variables are the following: RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). DISC is the loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. BDGEN is the percentage of female members on the board. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

We also consider the compensation policy (total board member compensation over returns and the existence of deferred payments). As regards Table 32, we find no significant results for the relationship between compensation and risk disclosure through loan loss provisions, for total compensation or for deferred payments. We look for its possible influence through the interacted variables DPCOMP*RISK and DPCOMP*ZSCORE, but also failed to find any significant result either. Therefore, we should reject hypothesis 11 concerning the positive relationship between COMP and LLP, and hypothesis 12, which predicted a positive relationship between DPCOMP and LLP. Findings in the literature suggest that executive compensation contracts need to be adjusted when managers are close to retirement (Gibbons & Murphy 1992; Kabir *et al.* 2018). Specifically for banks, Bhagat and Bolton (2014) state the convenience of deferred availability of executive compensation after the last day in the office. Compensation policies might be seen to be relevant regarding managers but not directors and, with regard to disclosure matters, the structure of the board of directors might be seen to exert the influence that compensation does not.

Table 32. Results of estimating the moderation of compensation policy

| VARIABLES | (1) DISC | (2) DISC | (3) DISC | (4) DISC | (5) DISC | (6) DISC |
|---|---|---|---|---|---|---|
| L_LLP | 2.248* | -0.180 | -1.766 | 2.720** | -0.102 | -1.555 |
| | (1.275) | (1.511) | (1.882) | (1.258) | (1.488) | (1.847) |
| ROA | -282.001*** | -361.717*** | -434.820*** | -276.868*** | -354.965*** | -423.612*** |
| | (86.134) | (87.031) | (110.674) | (86.225) | (86.567) | (109.440) |
| L_CAPSTR | 25.823 | -0.873 | 3.506 | 19.972 | -1.357 | 0.946 |
| | (34.118) | (35.405) | (39.514) | (34.045) | (34.917) | (39.458) |
| LOANS | 34.424*** | 31.810** | 34.132** | 33.175*** | 29.958** | 33.410** |
| | (9.559) | (14.735) | (16.368) | (9.562) | (14.727) | (16.374) |
| D_LOANS | -26.055* | -8.265 | -15.142 | -23.408* | -9.250 | -15.198 |
| | (13.538) | (16.993) | (18.142) | (13.492) | (16.950) | (17.895) |
| COM | 853.584*** | 477.841 | 551.646 | 830.569*** | 437.229 | 536.925 |
| | (231.652) | (347.769) | (405.253) | (231.794) | (346.263) | (404.848) |
| SIZE | 9.552*** | 9.138*** | 9.005*** | 10.002*** | 8.923*** | 9.059*** |
| | (2.140) | (3.015) | (3.238) | (2.132) | (3.012) | (3.223) |
| RISK | 25.082* | -5.082 | 7.526 | | | |
| | (12.929) | (12.773) | (21.110) | | | |
| ZSCORE | | | | -0.347 | 5.539 | 5.876 |
| | | | | (4.872) | (6.746) | (6.875) |
| COMP | 182.605 | | 89.513 | 193.185 | | 82.117 |
| | (147.477) | | (174.254) | (147.636) | | (174.226) |
| DPCOMP | | 0.937 | 2.371 | | 0.499 | 1.345 |
| | | (2.428) | (2.519) | | (2.470) | (2.609) |
| DPCOMP*RISK | | 29.612 | 17.719 | | | |
| | | (29.577) | (35.451) | | | |
| DPCOMP*ZSCORE | | | | | -0.013 | -0.013 |
| | | | | | (0.010) | (0.010) |
| Constant | -245.199*** | -220.613*** | -218.687*** | -254.974*** | -213.419*** | -218.590*** |
| | (55.264) | (76.476) | (82.426) | (55.180) | (76.545) | (82.153) |
| Observations | 1,613 | 993 | 905 | 1,613 | 993 | 905 |
| R-squared | 0.237 | 0.146 | 0.121 | 0.235 | 0.146 | 0.122 |
| F-test | 15.10*** | 4.528*** | 3.108*** | 14.91*** | 4.560*** | 3.145*** |

The table shows the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). DPCOMP is a dummy that equals 1 if a deferred component exists in payment of board member compensation, and zero otherwise. COMP is total board member compensation divided by EBTDA. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

### 6.3.3. Additional Analyses

We run a number of additional analyses as possible robustness checks. First, we change our measure of leverage, using the capital ratio Tier 1 instead. We then substitute the size of the board by its logarithm. Finally, we use 50% as a benchmark of board independence.

In Table 33 and Table 34, we perform a robustness test using the lagged value of Tier 1 ratio (L_TIER1) instead of L_CAPSTR with both independent variables and the moderation of the board of directors –board size, independence, tenure, female directors and compensation policies– and obtain similar results. In addition, the negative and significant coefficient for L_TIER1 in columns (3) and (4) supports the presence of capital management.

Table 33. Results of estimating the robustness test with RISK

| VARIABLES | (1) DISC | (2) DISC | (3) DISC | (4) DISC | (5) DISC | (6) DISC |
|---|---|---|---|---|---|---|
| L_LLP | 1.222** | 1.763* | 1.558 | 2.486** | 1.965* | -1.723 |
| | (0.591) | (0.988) | (1.001) | (1.009) | (1.003) | (1.964) |
| ROA | -304.781*** | -403.928*** | -373.400*** | -393.713*** | -407.390*** | -458.606*** |
| | (36.515) | (66.142) | (66.246) | (68.410) | (66.235) | (122.245) |
| L_TIER1 | -1.827 | -34.496* | -40.651* | -40.234* | -38.564* | -3.566 |
| | (9.504) | (20.335) | (20.758) | (20.539) | (20.383) | (30.295) |
| LOANS | 17.888*** | 28.848*** | 33.688*** | 31.477*** | 30.769*** | 50.639*** |
| | (4.501) | (9.051) | (9.277) | (9.199) | (9.133) | (17.955) |
| D_LOANS | -22.972*** | -29.065** | -22.711* | -23.329* | -28.316** | -34.582* |
| | (6.642) | (12.628) | (12.778) | (12.881) | (12.703) | (19.980) |
| COM | 767.563*** | 1,076.730*** | 982.260*** | 1,050.993*** | 1,087.304*** | 416.997 |
| | (110.476) | (198.674) | (201.996) | (200.760) | (200.490) | (429.992) |
| SIZE | 8.810*** | 7.704*** | 6.808*** | 8.285*** | 6.692*** | 4.553 |
| | (0.958) | (2.032) | (2.044) | (2.078) | (2.065) | (3.609) |
| RISK | 0.399 | 11.890 | -49.441** | -22.048 | 2.134 | 4.504 |
| | (5.406) | (8.905) | (19.710) | (14.611) | (11.899) | (21.735) |
| BDSIZE | | -0.251 | | | | |
| | | (0.779) | | | | |
| $BDSIZE^2$ | | 0.005 | | | | |
| | | (0.025) | | | | |
| IND | | | -10.569** | | | |
| | | | (4.480) | | | |
| IND*RISK | | | 119.320*** | | | |
| | | | (32.937) | | | |
| BDTEN | | | | 0.216 | | |
| | | | | (0.307) | | |
| BDTEN*RISK | | | | 6.580*** | | |
| | | | | (2.220) | | |
| BDGEN | | | | | -16.576** | |
| | | | | | (7.282) | |
| BDGEN*RISK | | | | | 59.833 | |
| | | | | | (58.099) | |
| COMP | | | | | | 121.545 |
| | | | | | | (178.717) |
| DPCOMP | | | | | | 1.496 |
| | | | | | | (2.648) |
| DPCOMP*RISK | | | | | | 35.596 |
| | | | | | | (36.096) |
| Constant | -192.842*** | -185.008*** | -160.333*** | -205.210*** | -158.221*** | -118.028 |
| | (22.922) | (53.036) | (53.623) | (54.063) | (54.070) | (91.771) |
| Observations | 5,879 | 1,877 | 1,803 | 1,788 | 1,851 | 831 |
| R-squared | 0.152 | 0.253 | 0.267 | 0.274 | 0.259 | 0.127 |
| F-test | 36.21*** | 18.70*** | 19.15*** | 19.74*** | 18.99*** | 2.952*** |

This table shows the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_TIER1is the lagged value of the ratio of Tier 1 capital as a percentage of total risk-weighted assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. BDSIZE is the number of board members. IND is the percentage of independent board members. BDTEN is the average number of years each board member has been on the board. BDGEN is the percentage of female members on the board. DPCOMP is a dummy that equals 1 if a deferred component exists in the payment of compensation to board members, and zero otherwise. COMP is total board member compensation divided by EBTDA. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

Table 34. Results of estimating the robustness test with ZSCORE

| VARIABLES | (1) DISC | (2) DISC | (3) DISC | (4) DISC | (5) DISC | (6) DISC |
|---|---|---|---|---|---|---|
| L_LLP | 1.182** | 2.125** | 2.351** | 2.950*** | 2.324** | -1.374 |
| | (0.566) | (0.953) | (0.961) | (0.975) | (0.965) | (1.915) |
| ROA | -302.123*** | -406.297*** | -400.751*** | -410.999*** | -408.888*** | -447.467*** |
| | (36.442) | (66.220) | (66.242) | (68.427) | (66.303) | (122.021) |
| L_TIER1 | -1.766 | -38.773* | -43.449** | -41.107** | -41.630** | -5.841 |
| | (9.478) | (20.249) | (20.707) | (20.502) | (20.267) | (30.286) |
| LOANS | 17.599*** | 29.699*** | 32.871*** | 31.718*** | 30.723*** | 48.681*** |
| | (4.515) | (9.098) | (9.345) | (9.257) | (9.154) | (17.980) |
| D_LOANS | -22.790*** | -28.489** | -22.977* | -23.923* | -26.941** | -34.927* |
| | (6.641) | (12.632) | (12.792) | (12.909) | (12.687) | (19.880) |
| COM | 768.298*** | 1,072.807*** | 979.476*** | 1,019.655*** | 1,089.833*** | 387.211 |
| | (110.401) | (198.649) | (202.381) | (200.917) | (199.581) | (430.944) |
| SIZE | 8.869*** | 7.920*** | 7.185*** | 8.628*** | 7.211*** | 5.130 |
| | (0.958) | (2.032) | (2.049) | (2.083) | (2.063) | (3.580) |
| ZSCORE | -3.463 | 0.991 | -35.955*** | -8.452 | -15.231** | 0.668 |
| | (2.704) | (4.546) | (12.871) | (10.355) | (7.552) | (7.132) |
| BDSIZE | | -0.005 | | | | |
| | | (0.804) | | | | |
| $BDSIZE^2$ | | -0.001 | | | | |
| | | (0.025) | | | | |
| IND | | | -1.486 | | | |
| | | | (4.285) | | | |
| IND*ZSCORE | | | 0.053*** | | | |
| | | | (0.018) | | | |
| BDTEN | | | | 0.732** | | |
| | | | | (0.302) | | |
| BDTENZ*SCORE | | | | 1.200 | | |
| | | | | (1.039) | | |
| BDGEN | | | | | -5.090 | |
| | | | | | (7.098) | |
| BDGEN*ZSCORE | | | | | 79.740** | |
| | | | | | (32.555) | |
| COMP | | | | | | 117.046 |
| | | | | | | (179.119) |
| DPCOMP | | | | | | 1.964 |
| | | | | | | (2.774) |
| DPCOMP*ZSCORE | | | | | | -0.004 |
| | | | | | | (0.011) |
| Constant | -194.577*** | -192.016*** | -174.278*** | -216.837*** | -172.637*** | -130.837 |
| | (22.929) | (53.149) | (53.773) | (54.260) | (54.084) | (91.249) |
| Observations | 5,874 | 1,875 | 1,801 | 1,786 | 1,849 | 831 |
| R-squared | 0.152 | 0.252 | 0.263 | 0.271 | 0.261 | 0.125 |
| F-test | 36.23*** | 18.62*** | 18.81*** | 19.36*** | 19.17*** | 2.891*** |

This table shows the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_TIER1 is the lagged value of the ratio of Tier 1 capital as a percentage of total risk-weighted assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. ZSCORE is a measure of insolvency risk (see Appendix for definition). BDSIZE is the number of board members. IND is the percentage of independent board members. BDTEN is the average number of years each board member has been on the board. BDGEN is the percentage of female members on the board. DPCOMP is a dummy that equals 1 if a deferred component exists in the payment of compensation to board members, and zero otherwise. COMP is total board member compensation divided by EBTDA. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

We also check the inverse U-shaped relationship between board size and risk recognition through loan loss provisions, replacing board size by its logarithm. Results of Table 35 are consistent with those of Table 25.

Table 35. Results of the model estimation with the logarithm of board size

| | (1) | (2) |
|---|---|---|
| VARIABLES | DISC | DISC |
| L_LLP | 1.620* | 1.854** |
| | (0.922) | (0.892) |
| ROA | -345.587*** | -347.958*** |
| | (57.837) | (58.124) |
| L_CAPSTR | 22.477 | 14.087 |
| | (26.935) | (26.355) |
| LOANS | 16.478** | 16.699** |
| | (7.114) | (7.116) |
| D_LOANS | -24.350** | -23.533** |
| | (11.259) | (11.245) |
| COM | 975.871*** | 968.075*** |
| | (163.637) | (163.386) |
| SIZE | 9.935*** | 10.115*** |
| | (1.774) | (1.773) |
| RISK | 9.488 | |
| | (8.056) | |
| ZSCORE | | -2.135 |
| | | (4.027) |
| LBDSIZE | 16.363** | 19.573*** |
| | (6.868) | (7.021) |
| $LBDSIZE^2$ | -3.147** | -3.714** |
| | (1.584) | (1.604) |
| Constant | -261.246*** | -269.625*** |
| | (46.086) | (46.167) |
| Observations | 2,167 | 2,165 |
| R-squared | 0.239 | 0.240 |
| F-test | 20.56*** | 20.60*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The dependent variable is DISC, loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). LBDSIZE is the logarithm of the number of board members. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

We perform another analysis using 50% as a benchmark for board of directors' independence. A majority of independent directors might wield enough power to decisively influence disclosure. Banks with a majority of independent directors are included in columns 1 and 3; columns 2 and 4 reflect those banks where independents are a minority. Results in Table 36 support those already explained. Coefficients for RISK and ZSCORE in columns 1 and 3 are negative, while the interaction variables are positive. As regards the results in columns 2 and 4, for banks with less independent directors, we find no significant influence. These results support those obtained in Table 27.

Table 36. Results of the estimation with board independence using 50% as a benchmark

| | high IND | low IND | high IND | low IND |
|---|---|---|---|---|
| | (1) | (2) | (3) | (4) |
| VARIABLES | DISC | DISC | DISC | DISC |
| L_LLP | 1.458 | 1.329 | 1.951* | 1.631 |
| | (1.177) | (1.546) | (1.123) | (1.532) |
| ROA | -413.432*** | -298.548*** | -412.007*** | -303.282*** |
| | (80.205) | (77.297) | (80.871) | (77.350) |
| L_CAPSTR | 2.429 | 85.030** | -10.796 | 76.068** |
| | (36.756) | (38.792) | (36.686) | (36.402) |
| LOANS | 31.038*** | -7.467 | 28.724** | -7.791 |
| | (11.285) | (8.759) | (11.288) | (8.859) |
| D_LOANS | -27.243* | 10.898 | -26.989* | 12.140 |
| | (15.048) | (16.403) | (15.042) | (16.414) |
| COM | 1,404.410*** | 327.350 | 1,355.120*** | 328.256 |
| | (246.577) | (243.096) | (246.817) | (242.478) |
| SIZE | 5.803** | 16.451*** | 6.185*** | 16.293*** |
| | (2.329) | (2.839) | (2.330) | (2.841) |
| IND | -22.741*** | -19.659** | -2.748 | -22.988*** |
| | (7.951) | (7.911) | (7.675) | (7.773) |
| RISK | -117.926** | 21.457 | | |
| | (48.660) | (21.865) | | |
| ZSCORE | | | -89.109*** | 1.190 |
| | | | (30.559) | (10.480) |
| IND*RISK | 185.354*** | -39.564 | | |
| | (67.279) | (72.330) | | |
| IND*ZSCORE | | | 0.112*** | -0.020 |
| | | | (0.039) | (0.036) |
| Constant | -130.318** | -380.159*** | -152.862** | -374.476*** |
| | (60.546) | (73.496) | (60.504) | (73.652) |
| Observations | 1,407 | 665 | 1,405 | 665 |
| R-squared | 0.338 | 0.151 | 0.338 | 0.150 |
| F-test | 20.55*** | 3.240*** | 20.49*** | 3.215*** |

This table presents the estimated coefficients (standard errors) from the fixed effect estimation. The sample is divided using 50% of IND. The dependent variable is DISC, loan loss provision divided by non-performing loans and scaled by 100. L_LLP is the lagged value of the ratio between LLP and total assets. ROA is the return on assets calculated as EBTDA divided by total assets. L_CAPSTR is the lagged value of the ratio between equity and assets. LOANS are net loans over total assets. D_LOANS is LOANS yearly change. COM represents fees and commissions earned from commercial operations divided by total assets. SIZE is the logarithm of total assets. RISK is the statistical standard deviation of ROE using three years. ZSCORE is a measure of insolvency risk (see Appendix for definition). IND is the percentage of independent board members. All the estimates include time controls. ***, **, and * indicate significance at the 99%, 95%, and 90% confidence level, respectively.

# 7. CONCLUSIONS

The main motivation of this dissertation relies on the interest of analysing the development of banks in recent times, considering the several difficulties that they need to face, and the relevance of the financial system for the whole economy of a country. From a financial perspective, we have addressed this question by studying banks behaviour in the years around the financial crisis of 2007-08. We have considered the payout policy as it concerns a main deal for banks in these difficult situations. We have also addressed the disclosure role of provisions, that can be helpful for policymakers and investors when assessing.

We identify different levels of action. At a closer one, managers are responsible of banks to be profitable and have to deal with risk issues. Besides, boards of directors are charged with the control and supervision of the managerial team; their characteristics reveal interesting lines for improving their commitment. Flying over financial entities, legal requirements and the institutional environment are expected to promote and safeguard their healthy development and complement internal control mechanisms. Our results suggest the existence of managerial overconfidence and prevalence of managers' self-interests; there is also evidence of the positive influence of internal control mechanisms, such as the board of director. Lastly, the institutional environment can complement the efficiency of internal control mechanisms, but legal requirements may also situate banks in more difficult situations, that could lead to take excessive risk decisions.

The first empirical study consists of an analysis of the challenging bank dividend policies in the crisis years. The fall in profitability, the narrowing of financial margins and financial turmoil have posed a challenge for bank dividend policies. The aim of preserving high dividend payments –since dividend cuts send out negative signals (Acharya *et al.* 2011b; Floyd *et al.* 2015)– and the stricter capital requirements for banks are presented as contradictory. The aftermath of the 2007-08 financial crisis has

become a critical scenario, since European banks have sought to maintain a pre-crisis dividend policy. Moreover, the stricter capital requirements, such as the Basel Agreements and the national regulation of a number of European countries, have made it even more difficult to maintain dividend payout.

In order to address and offset such adverse conditions, banks have sought new ways of compensating shareholders. Scrip dividends, which allow shareholders to choose between cash dividends or new shares, are one such mechanism and play an additional role, since banks issue new shares (increasing equity) in order to compensate shareholders. This is relevant in the current situation in which banks must meet capital adequacy requirements. Moreover, scrip dividends are particularly suited to dividend smoothing. As repeatedly shown by the literature, both banks and nonfinancial firms alike define their payout policy conditional on previous years in order to avoid major fluctuations.

Our results, with a sample of 79 European banks between 2014 and 2018, confirm that, during said period of major financial instability, banks often used scrip dividends as a compensation mechanism and, at the same time, to smooth dividend payout. We also find that the new legal framework has enhanced the use of scrip dividends. Whereas the stricter requirements on banks' capital adequacy have a negative relationship with cash dividends, scrip dividends are positively related to these requirements. We are aware of the controversy surrounding scrip dividends and the doubts concerning their consideration as dividends. Through our research, we seek to explain why this payout policy has been so widely used by European banks.

In the second analysis, we study the policy that European systemic banks have followed to create the legal provisions aimed to cover the liabilities stemming from lawsuits. Since legal provisions may be viewed as a mechanism for disclosing information to capital markets, the creation of legal provisions is determined by two main

factors: the risk taken by the bank, and managerial incentives to disclose the information on the risk taken.

Our results support both views, since we find an initial negative relationship between free cash flow (our measure of managers' discretionary investments) and legal provisions, even when we control for risk taking. This result suggests that managers seem to conceal the risk taken by creating fewer provisions. Nevertheless, we also find that certain internal and external corporate governance mechanisms do play a moderating role. In this vein, we find that board of director independence has a moderating effect, such that independent boards lead to the creation of more provisions as a safeguard against future lawsuits. Similarly, we also find that a better institutional framework (both in terms of quality of the laws and lack of corruption) amplifies the positive influence of the board of directors, such that the two mechanisms may be considered as complementary.

The third empirical research follows the line of the second, diving into the loan loss provisions. Recent crises have resulted in a stressful situation for banks, where corporate governance has become a prominent issue. Authors signal that corporate boards might have done a poor job and that banks' corporate governance was ineffective at preventing certain harmful lending practices, leading to an extremely vulnerable financial system. Accordingly, investors and policymakers have focused particular attention on risk disclosure, as shown by some reports and the concerns of international institutions (Basel Committee on Banking Supervision 2018; International Financial Reporting Standards 2020). Given the key role played by loan loss provisions in risk management and the consequent transparency, we analyze the influence of corporate governance on risk disclosure through such provisions.

Since the board of directors can be considered as one of the top internal control mechanisms, we posit that boards should help us to understand risk disclosure through loan loss provisions. In turn, one of our contributions is to widen the scope of

the explanatory factors of such provisions with corporate governance issues. Whereas previous research has studied the financial factors related to loan loss provisions, we show that board characteristics can also be a key factor. This contribution is even more relevant given the unique features of bank governance.

The international approach allows us to find interesting differences between countries. While banks from the USA have less risk and more provisions, their European counterparts are characterized by the opposite relationship. The results of our explanatory analysis confirm the pertinence of including board characteristics (size, composition, experience and gender diversity) as a factor for recognizing bank risk through loan loss provisions. First, we find an inverse U-shaped relationship between board size and loan loss provisions, which is consistent with the optimality of an intermediate size, as suggested in a number of codes of good governance. Second, we show that board independence has a positive relationship with our measure of risk disclosure. Thus, our research corroborates the need for independent boards as a mechanism of managerial oversight. Results also support a positive effect of board tenure, such that longer tenured directors enhance the informational role of loan loss provisions. According to our findings, board gender diversity also plays a positive moderating role in the policy of provisions. In turn, female directors seem to be more prone to disclose the information on bank risks through loan loss provisions. Finally, we find no significant influence of compensation policies, either in terms of total compensation or as deferred payments. Consequently, the structure of the board seems to be more important than directors' compensation when it comes to enhancing the reliability of financial statements.

Our research provides interesting insights for policymakers. We find significant results in payout policies during crisis periods and give an interesting insight of both legal provisions and loan loss provisions when disclosing banks' risk, that may help the development of legal and institutional frameworks. Our research also underlines the

importance of the board of directors as a mechanism for managerial monitoring, and contribute with the influence that some characteristics of the board have in the disclosure of banks' risk. Moreover, the relevant influence of legal requirements and institutional factors in the development of banks business is also included in this research. At microeconomic level, for banks and investors, results should be useful when trying to better understanding banks' management and issues. Finally, we contribute to the literature with new databases that could also be used in other studies.

Among the limitations, it is important to highlight the lack of more macroeconomic factors potentially affecting banks provisioning and payout policies, such as the GDP and cultural variables. Future studies might analyse the particular nature of scrip dividends, the legal and fiscal consequences of using such a way to remunerate shareholders and the financial implications of scrip dividends, such as the consequences in terms of risk taking or investment profitability. New research should also address the role of central banks and how regulation affects the disclosure of risk and banking transparency policies (Gersl *et al.* 2013), and may consider the subjective assessment of risk. This subjectivity also affects the identification of provisions, since banks have different ways for referring to these accounts, such that gathering information on provisions may be subjectively biased. In fact, another limitation of our second empirical study is being unable to clearly distinguish between the discretionary and non-discretionary components of legal provisions. In this vein, given role of provisions as a mechanism for information disclosure, accounting and legal norms should foster a faster and more accurate recognition of such risks.

Considering the prominent role played by managers, it would be interesting to study bank manager profile –their personal and family relationships, culture, training, professional development, etc. – and how these issues impact risk recognition, as some authors have indeed already begun to explore (Chiang & He 2010; Allini *et al.* 2016).

Other corporate governance mechanisms, both internal and external, such as scrutiny by the media or ownership structure, might also shed further light on this topic.

# 8. APPENDIX A. Variables definition

## 8.1. Banks' payout smoothing and scrip dividends

| Variable | Definition | Source |
|---|---|---|
| DPS | Cash dividend per share. | Eikon |
| TDPS | Total (cash and scrip) dividends per share. | Eikon |
| EPS | Net earnings per share. | Eikon |
| DIV | Cash dividend to total assets. | Eikon |
| TDIV | Total (cash and scrip) dividends to total assets. | Eikon |
| ROA | Return on assets (Gross profit to total assets). | Eikon |
| TIER1 | Represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets. The ratio represents high-quality sources of capital which banks and other financial institutions are required to keep in order to be protected against bankruptcy. | Eikon |
| SIZE | Log of a firm's total assets. | Eikon |
| MB | The market capitalization of the bank divided by the book value of total assets. | Eikon |
| CAPST | Capital Stringency Index. It determines the nature of capital requirements and how capital is assessed and verified by banks and regulators. It ranges from 0 to 11, where 11 represents the highest level of capital stringency (Barth *et al.* 2004). | World Bank |
| SR | Index of shareholders' rights in each country, following La Porta *et al.* (1998) and Djankov *et al.* (2008) | World Bank |

## 8.2. Disclosure of risk through legal provisions

| Variable | Definition | Source |
|---|---|---|
| LP | Legal Provisions reported over total Assets reported, scaled by 1000. | Annual reports |
| FCF | Free Operating Cash Flow over Total Assets reported. Free Operating Cash Flow is calculated as Cash from Operations for the fiscal period minus Capital Expenditures and Dividends paid for the same period. | Eikon |
| IND | Percentage of independent board members as reported by the company. | Eikon |
| CEOCH | Does the CEO simultaneously chair the board or has the chairman of the board been the CEO of the company? Equals 1 if true. | Eikon |
| ROA | EBITDA over Total Assets reported. EBITDA is EBIT for the fiscal year plus the same period's Depreciation, Amortization of Acquisition Costs and Amortization of Intangibles. | Eikon |
| MB | Equity market-to-book ratio | Eikon |
| SIZE | The decimal logarithm of total assets reported. | Eikon |
| LEV | Total liabilities over total assets. | Eikon |
| ZSCORE | $\frac{ROA+\frac{\text{Total Equity}}{\text{Total Assets}}}{ROASD}$; ROASD is the standard deviation of ROA. It is scaled by 100. | Eikon |
| ROASD | The statistical standard deviation of all estimates included in the summary calculation. | Eikon |
| TIER1 | Ratio of Tier 1 capital as a percentage of total risk-weighted assets. | Eikon |
| PROTECT | The strength of minority investor protection to prevent their expropriation in a given country and year, based on (Djankov *et al.* 2008). | World Bank |
| RULELAW | Reflects perceptions of the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence. | World Bank |
| REGQUA | Reflects perceptions of government ability to formulate and implement sound policies and regulations that permit and promote private sector development. | World Bank |
| CORRUPTCONTROL | Reflects perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as state capture by elites and private interests. | World Bank |
| CORRUPTSC | Perceptions of the degree of corruption as seen by businesspeople and country analysts, ranging between 10 (highly clean) and 0 (highly corrupt). | Transparency |

### 8.3. Disclosure of risk through loan loss provisions

| Variable | Definition | Source |
|---|---|---|
| DISC | Loan loss provisions over non-performing loans, scaled by 100.Non-performing loans represent loans that are in default or close to being in default. | Eikon |
| RISK | The statistical standard deviation of ROE using 3 years $\sqrt{\sum(\mathrm{ROE_i} - \overline{\mathrm{ROE}})^2 /3}$. | Eikon |
| ZSCORE | (ROA+ CAPSTR)/SDROA; divided by 1000 and multiplied by -1 for easier interpretation; SDROA is the statistical standard deviation of ROA using 3 years $\sqrt{\sum(\mathrm{ROA_i} - \overline{\mathrm{ROA}})^2 /3}$ | Eikon |
| L_LLP | Loan loss provisions lagged. LLP represent provisions created for possible defaults by customers on loans from a financial institution. It is divided by total assets and scaled by 100. | Eikon |
| ROA | EBTDA over total assets. EBTDA is earnings before taxes, depreciation, and amortization for the fiscal year. | Eikon |
| L_CAPSTR | CAPSTR lagged. CAPSTR is total equity over total assets. Total equity consists of the equity value of preferred shareholders, general and limited partners, and common shareholders, but does not include minority shareholders' interest. | Eikon |
| LOANS | Represent total loans to customers, reduced by possible default losses and unearned interest income. It is divided by total assets. | Eikon |
| D_LOANS | LOANS yearly change. | Eikon |
| COM | Represents fees and commissions earned from commercial banking operations. Although the primary source of income for commercial banks is interest income from loans to customers, they also generate income from money transferring fees, late fees, check clearing fees, and other fees and commissions. It is divided by total assets. | Eikon |
| SIZE | The logarithm of total assets. | Eikon |
| L_TIER1 | TIER1 lagged. Represents the ratio of Tier 1 capital as a percentage of total risk-weighted assets. The ratio represents high-quality sources of capital which banks and other financial institutions are required to keep in order to be protected against bankruptcy. | Eikon |
| BDSIZE | The total number of board members at the end of the fiscal year. | Eikon |
| IND | Percentage of independent board members as reported by the company. | Eikon |
| BDTEN | The average number of years each board member has been on the board. | Eikon |
| BDGEN | The percentage of female members on the board. | Eikon |
| COMP | Total compensation of board members in US dollars divided by EBTDA. | Eikon |
| DPCOMP | Dummy variable equal to one if there are deferred payments to board members; zero otherwise. | Eikon |

# 9. APPENDIX B. Bibliometrics



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RESEARCH ARTICLE

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## Have European banks maintained their payout policy during the crisis? The role of scrip dividends

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**Abstract**

We analyse the trend among 79 banks from 20 European countries towards scrip dividends. Whereas banks do not seem to smooth cash dividends, they do smooth total dividends, which include both cash and scrip dividends. We also find that the new legal requirements (resulting from the Basel III Accord and other country-level laws) have different implications on cash and scrip dividends. Whereas the need for better and more capital imposed by these rules has led banks to cut cash dividends, there is a positive relationship between the legal requirements on capital adequacy and scrip dividends.

**KEYWORDS**

Capital stringency, dividends, European banks, Basel accords, payout, scrip dividends, shareholder protection

### 1 | INTRODUCTION

In the aftermath of the Lehman Brothers collapse in 2007–2008, the Basel Committee on Banking Supervision imposed strict capital requirements on banks in order to avoid decapitalization problems (Bikker & Vervliet, 2018; Peltonen, Rancan, & Sarlin, 2019; Wosnitza, 2019). In line with this legal framework, banks are required to reach a minimum level of capital reserves in order to pass the stress test and, as a result, have been facing major difficulties distributing large dividend payouts (Acharya, Gujral, Kulkarni, & Shin, 2011; Floyd, Li, & Skinner, 2015). Nevertheless, a dramatic decline in dividend payout may have a negative impact on stock price due to the adverse signal effect. Since repurchase programmes are subject to legal restrictions (Wesson, Smit, Kidd, & Hamman, 2018), banks have been forced to come up with new ways of remunerating shareholders. The scrip dividend is one such new way. Through these, the firm's cash reserves are converted into new shares and given to existing shareholders, rather than paying them a cash dividend.

The list of scrip dividend payers in recent times is long, and includes most large European banks: BBVA, Santander, Barclays, HSBC, and Credit Suisse (Colvin, 2017). In fact, one in every eight large European companies used shares instead of cash payments during the 2012–2017 period (Murphy, 2018). One particularly significant case is Banco Santander, which has paid up to 22 scrip dividends since 2009, amounting to the equivalent of 25% of its current shareholding. Another Spanish bank, BBVA, recently reported that two dividends will be paid in cash and two in scrip (Markit, 2016). Furthermore, in July 2020 the ECB recommended the banks under its supervision not to pay dividends and to refrain from share buy-backs during the COVID-19 pandemic, but did allow scrip dividends (European Central Bank, 2020). As a result of this policy, banks have achieved two targets at the same time: on the one hand, they have kept payout policy at pre-crisis levels, maintaining shareholder remuneration and, on the other, they have bolstered their equity.

Parallel to this, so called "dividend smoothing" is one of the most robust findings to emerge from the empirical

  

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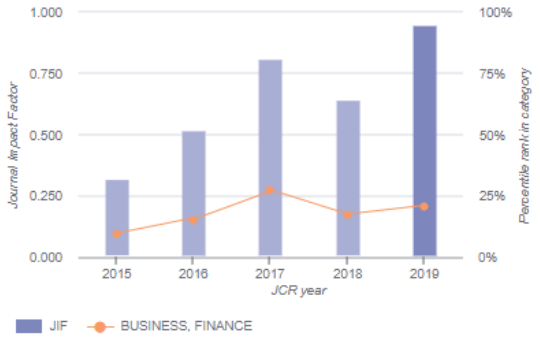


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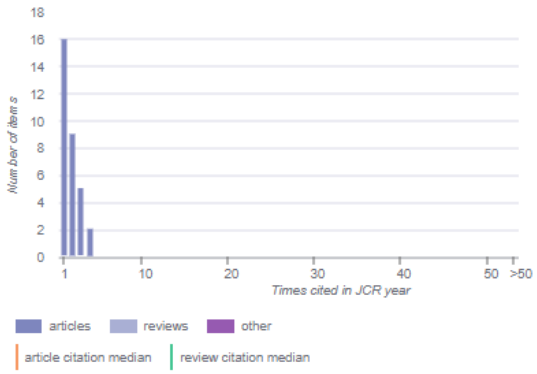


## Journal Impact Factor Calculation

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JEL Classification: G32; G38
Keywords: legal provisions; risk; corporate governance; institutional framework; European banks

# European Banks' Legal Provisions and Financial Crises: The Influence of Corporate Governance and Institutional Environment*

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*Abstract*

*We study the legal provisions of 92 European systemic banks from 18 countries over the years 2008-2017. Since legal provisions may be viewed as a mechanism for disclosing information to capital markets, the creation of legal provisions is determined by the risk taken by the bank and the managerial incentives to disclose information. Our results show an initial negative relationship between managers' discretionary investments and legal provisions, even when we control for risk taking. We also find that board of director independence has a moderating effect in order to guard against future lawsuits. Similarly, a better institutional framework amplifies the positive influence of the board of directors.*

## 1. Introduction

Just over ten years after the onset of the 2007-2009 global financial crisis, banks worldwide have had to face an endless number of lawsuits, whose risk is supposed to have been covered by legal provisions. Whereas in recent years we have witnessed some of the consequences of such lawsuits, we still lack sufficient studies about the drivers of the legal provisions. The aim of this paper is to cover this gap in the literature by exploring legal provisions as a disclosure tool.

In this regard, some anecdotal evidence on recent issues may prove to be illustrative. In 2014, the Banco Espirito Santo was rescued by the Portuguese Government and divided into a good bank, Novo Banco, and another bad bank which was destined to disappear. In December 2015, Novo Banco bonds were transferred to the bad bank, with the corresponding loss of value. As a result, the legal provisions of Novo Banco reached very high values in this period, soaring from EUR 42.7 million in 2014 to EUR 132.9 million in 2015. In 2016, international bond holders, such as BlackRock and Pimco, took legal action against Banco de Portugal. In Spain, in June

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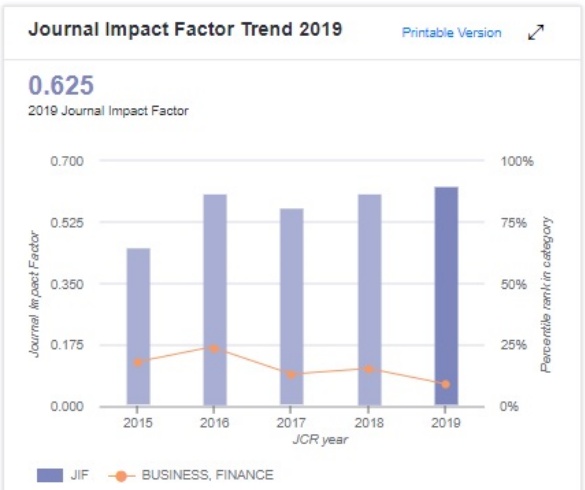


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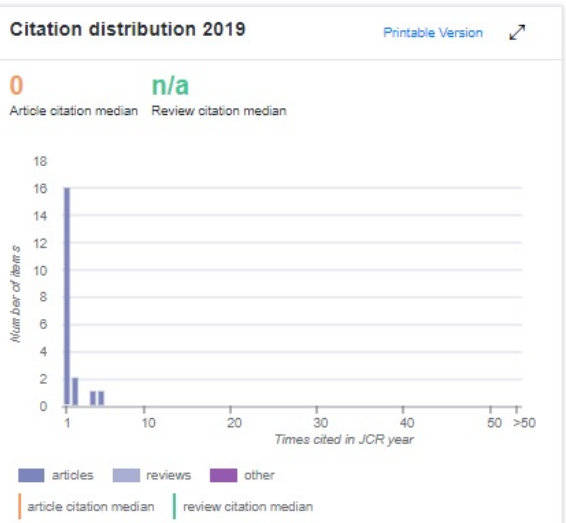


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## 11. SPANISH SUMMARY

Los episodios de crisis económica se suceden con cierta periodicidad. Hoy en día nos enfrentamos a las consecuencias de la pandemia por COVID-19, poco después de superar la crisis financiera de 2007-08. Además, en la década anterior, hemos sufrido la crisis de la burbuja *puntocom*. Durante estos períodos de crisis, se han producido quiebras bancarias y los sistemas financieros se han adaptado, con mayor o menor éxito, para mitigar el impacto negativo sobre la economía e implementar nuevos marcos legales que puedan prevenir futuras crisis.

Según Altman (2009), la crisis surgida en 2007-08 ha sido la peor después de la gran depresión de 1929. Ha tenido enormes consecuencias, incluidas las quiebras bancarias y la caída de los mercados de valores en todo el mundo. Entre las reacciones hemos observado un aumento de los requisitos legales de los bancos, incrementando los requerimientos de capital e implementando una supervisión especial sobre los bancos sistémicos, entre otras cosas.

Los bancos han sido considerados una de las principales causas de la crisis financiera de 2007-08 y aún tienen que enfrentarse a numerosos problemas. Se ha cerrado un elevado número de sucursales y la disminución del tipo de interés de la facilidad de depósito amenaza sus márgenes de rentabilidad. Al mismo tiempo, existen varios retos que deben afrontar para seguir siendo competitivos: las *fintechs* se han convertido en una amenaza para aquellos bancos que no logran adaptarse a los requisitos de los clientes, que cada vez son más sofisticados y tecnológicamente exigentes; la reputación de las instituciones financieras entre la población ha empeorado, situándolos en desventaja al afrontar conflictos. Además, la abundante regulación del sector financiero es una preocupación creciente. Todos estos factores hacen de la rentabilidad del negocio bancario un auténtico reto.

La motivación de esta tesis radica, en primer lugar, en el interés de analizar la evolución de la banca en los últimos tiempos, tras superar la crisis financiera de 2007-08, considerando las diversas dificultades que deben afrontar, y la relevancia del sistema financiero para toda la economía de un país. En segundo lugar, el interés y la importancia de las políticas de transparencia proporciona una perspectiva interesante para el estudio de temas financieros clásicos, como los problemas de agencia, las políticas de riesgos y el comportamiento directivo. La combinación de estas dos circunstancias proporciona un marco notable para contribuir a la literatura y brindar asesoramiento a los responsables políticos y económicos. En concreto, el estudio de las políticas de dividendos y las provisiones puede arrojar luz desde un nuevo punto de vista.

En este sentido, podemos observar cómo el Banco Central Europeo, en una recomendación del 27 de marzo de 2020 sobre la distribución de dividendos durante la pandemia por COVID-19, ha recomendado que, al menos hasta el 1 de octubre de 2020, no se paguen dividendos ni las entidades de crédito se comprometan irrevocablemente a pagar dividendos para los ejercicios 2019 y 2020, y se abstengan de recomprar acciones destinadas a retribuir a los accionistas. En nota a pie de página, especifican que esta recomendación se refiere a dividendos en efectivo. Otra evidencia anecdótica interesante es cómo la política de aprovisionamiento de los bancos se ha visto influenciada por la situación impulsada por la pandemia. Casi todos los bancos han multiplicado sus provisiones para cubrir posibles pérdidas crediticias y otros incumplimientos. Por ejemplo, las provisiones de HSBC se han multiplicado por seis (de los 969 millones de euros del primer semestre de 2019 a los 5.830 millones de euros en el primer semestre de 2020).

En los últimos años, la transparencia de las empresas ha pasado a un primerísimo plano. En una sociedad mundialmente intercomunicada y cada vez más sensibilizada con la corrupción, las cuestiones relativas a la divulgación de información se consideran esenciales, lo que conlleva a un esfuerzo reforzado por ser completamente transpa-

rente. ¿Realmente es eficaz este esfuerzo por la transparencia? ¿Se está desarrollado con veracidad o puede estar al servicio de intereses personales? Este particular punto de vista subyace en esta investigación, que se ha desarrollado a través de tres análisis empíricos. El objetivo es contribuir con un estudio de los años posteriores a la crisis financiera de 2007-08 sobre el comportamiento de los bancos, prestando especial atención a la transparencia a través de su política de dividendos y sus provisiones. La investigación se centra en Europa, donde la regulación es más severa, pero también se analizan bancos de todo el mundo.

Tras la crisis financiera de 2007-08, el Comité de Supervisión Bancaria de Basilea impuso estrictos requisitos de capital a los bancos. La política de pago de dividendos no solo estaba sufriendo la crisis, sino también el incremento de requisitos de capital. Dado el efecto de señalización adverso de una caída dramática en el pago de dividendos y el impacto negativo que puede tener en el precio de las acciones, los bancos se han visto obligados a idear nuevas formas de remunerar a los accionistas. El *scrip dividend* o dividendo en acciones constituye un ejemplo. A través de estos dividendos, las reservas de efectivo de la empresa se convierten en nuevas acciones y se entregan a los accionistas existentes en lugar de pagarles un dividendo en efectivo. Esto permite a los bancos mantener su política de pagos a la vez que aumenta su capital, cumpliendo con los nuevos requisitos. Muchos bancos europeos han adoptado este sistema de pago entre 2012 y 2017 (Murphy 2018), matando dos pájaros de un tiro: han mantenido la retribución de los accionistas en niveles pre-crisis y han aumentado su patrimonio.

En paralelo, de acuerdo con los hallazgos sobre el alisamiento de dividendos (Lintner 1956; Fernau & Hirsch 2019), se espera que los bancos basen su política de pago actual en dividendos anteriores. Esta tendencia podría haberse visto afectada por la crisis financiera directa o indirectamente a través de las modificaciones en los marcos legales. En este sentido, la distinción entre dividendos en efectivo y en acciones adquiere un particular interés al analizar el alisamiento de dividendos en los últimos

años. En esta línea, en el primer análisis empírico, se estudia la tendencia de los bancos europeos hacia los *scrip dividends* tras la crisis financiera de 2007-08. Utilizando una muestra de 79 bancos de 20 países europeos entre 2014 y 2018, encontramos que los *scrip dividends* han modificado drásticamente la política de pago de los bancos europeos. Si bien los bancos no parecen suavizar los dividendos en efectivo, encontramos pruebas claras de que sí suavizan los dividendos totales, que incluyen tanto los dividendos en efectivo como los dividendos en acciones. Los resultados también sostienen que los nuevos requisitos legales (resultantes de los Acuerdos de Basilea y otras leyes de cada país) tienen diferentes implicaciones sobre los dividendos en efectivo y en acciones. Si bien la necesidad de un mejor y mayor capital impuesta por estas normativas ha llevado a los bancos a recortar los dividendos en efectivo, existe una relación positiva entre los requerimientos legales de capital y los dividendos en acciones.

Por tanto, la aportación de este primer análisis es doble. En primer lugar, analizamos los *scrip dividends* de los bancos en un período de tiempo reciente. En segundo lugar, ampliamos estudios previos que exploraron el efecto de la crisis financiera en el pago de los bancos yendo un paso más allá al introducir no solo regulaciones a nivel nacional sino también internacionales y considerar la protección legal de los derechos de los accionistas.

Adaptar su política de pagos no ha sido la única preocupación de los bancos como consecuencia de la crisis financiera y los nuevos requerimientos legales. Los bancos de todo el mundo se han enfrentado a numerosos litigios en los últimos años. El riesgo relativo a los pleitos se contempla al provisionar y no se trata de un nuevo desafío, pero un estudio más profundo a partir del creciente número de demandas puede permitir avances significativos. Alguna anécdota ilustrativa: en España, en junio de 2017, la quiebra del Banco Popular generó multitud de demandas de diferentes *stakeholders*. Cabe destacar la concentración de cargos en Ángel Ron, que fue consejero delegado y presidente del consejo a la vez, y la arriesgada estrategia de inversiones hipotecarias.

Como consecuencia, el banco Santander (el banco adquirente) tuvo que incrementar sus provisiones legales en previsión del aumento esperado de litigios. La Comisión Nacional del Mercado de Valores ha observado la importancia de las provisiones en los últimos años de este banco, y afirmó que, si las provisiones hubieran sido adecuadas (de acuerdo con los criterios de morosidad) entre 2010 y 2015, habría reflejado pérdidas en su balance, como sucedió en 2012.

Otro ejemplo: en 2014, el Banco Espirito Santo fue rescatado por el gobierno portugués y dividido en un banco bueno, Novo Banco, y otro malo que estaba destinado a desaparecer. En diciembre de 2015, los bonos de Novo Banco fueron transferidos al banco malo, con la correspondiente pérdida de valor. Como resultado, las provisiones legales de Novo Banco alcanzaron valores muy altos en este período, pasando de 42,7 millones de euros en 2014 a 132,9 millones de euros en 2015. En 2016, tenedores de bonos internacionales, como BlackRock y Pimco, iniciaron acciones legales contra el Banco. de Portugal. Un último caso es el de Lloyds Bank. Una simple búsqueda en Google muestra algunas fuentes potenciales de riesgo para el banco: deslizamientos personales del CEO en 2016 que afectaron a la entidad y un ataque informático en 2017. En los últimos años, Lloyds Bank ha incrementado considerablemente sus provisiones legales, pasando de 1.339 millones de euros en 2016 a 2.778 millones de euros en 2017.

De esta manera, el segundo estudio se centra en las provisiones legales de los bancos, teniendo en cuenta la influencia del gobierno corporativo y el entorno institucional. El objetivo de este análisis es contribuir a la literatura mediante el estudio de las provisiones legales como herramienta de transparencia. Para ello analizamos las provisiones legales de 92 bancos sistémicos europeos de 18 países durante los años 2008-2017. La normativa considera que la subjetividad de los directivos es un componente importante a la hora de dotar estas provisiones. Ello se debe a la incertidumbre propia de anticipar el impacto y la probabilidad de los posibles riesgos. Por lo tanto, la estima-

ción de la cantidad correspondiente se basa principalmente en la experiencia de los directivos. La motivación de la gerencia para reconocer los riesgos y, en consecuencia, para dotar provisiones puede verse influida por intereses personales, en perjuicio del banco. Por lo que los incentivos para informar de forma transparente juegan un papel importante. De hecho, los resultados del análisis empírico muestran una relación negativa inicial entre las inversiones discrecionales de los directivos y la transparencia de dicho riesgo a través de las provisiones legales, lo que respalda que el exceso de confianza o los intereses personales de los directivos prevalecen frente a la perspectiva corporativa que llevaría a crear más provisiones cuando existe una situación de sobreinversión.

El control de los directivos es una de las principales funciones del consejo de administración. Su eficacia para moderar estos conflictos de agencia clásicos ha sido ampliamente estudiada. La influencia del entorno institucional también tiene un papel relevante. Se han abordado los mecanismos de control tanto internos como externos, encontrando efectos moderadores positivos que favorecen la información transparente. La principal contribución de esta investigación es ofrecer un estudio pionero del análisis cuantitativo de las provisiones legales. Aunque las Normas Internacionales de Información Financiera establecen la obligatoriedad de recoger esta información, no existen parámetros lo suficientemente explícitos sobre el formato a seguir en los informes anuales. Hasta donde sabemos, nuestra investigación es pionera al cuantificar las provisiones legales de los bancos en el ámbito internacional. Por último, se analiza el condicionamiento del reconocimiento del riesgo a los mecanismos de control de gobierno corporativo, tanto internos como externos.

Sucediendo al estudio de las provisiones legales como herramienta de transparencia, en nuestro tercer análisis empírico abordamos las provisiones para préstamos incobrables, considerando la influencia de la estructura del consejo de administración. Teniendo en cuenta la situación a la que se enfrentan las entidades financieras y el pa-

pel del riesgo y la transparencia, estudiamos estas provisiones de manera análoga al segundo análisis empírico. El atractivo de esta investigación es doble: por un lado, surge del amplio reconocimiento en la literatura del uso de estas provisiones para suministrar información financiera que no se ajusta a la imagen fiel de la empresa (Curcio *et al.* 2017; Olszak *et al.* 2017; Nicoletti 2018; Bratten *et al.* 2020; Ng *et al.* 2020). Por otro lado, está motivada por la crucial relevancia que tiene el consejo de administración en la transparencia del riesgo, particularmente en periodos de crisis.

Abordamos esta cuestión de investigación con una muestra de bancos de todo el mundo, poniendo el foco en el papel que desempeñan estas provisiones en la transparencia del riesgo de los bancos y la eficacia del consejo de administración a la hora de revelar el riesgo adquirido. Para ello se cuenta con una muestra de 1.351 bancos de 52 países durante el período 2000-2019. La contribución de este análisis se puede resumir en los siguientes tres puntos. En primer lugar, el análisis del papel desempeñado por el consejo de administración como factor relevante en la política de provisión de las entidades financieras. Mientras que numerosos autores han explorado los factores financieros que explican las provisiones por préstamos incobrables, en este análisis se complementa la literatura previa mediante el estudio de la estructura del consejo de administración como un factor relevante para la dotación de estas provisiones. Esta contribución resulta de mayor interés al considerar las características particulares del gobierno de los bancos. En segundo lugar, otra contribución de este análisis reside en la amplitud de la muestra: se ha recopilado información para bancos de todo el mundo que permite realizar futuros estudios entre distintos países. Por último, cabe destacar la utilidad de la variable propuesta para medir la transparencia del riesgo en los bancos; el cociente entre las provisiones para préstamos incobrables y dichos préstamos sería otra forma de poner de manifiesto hasta qué punto la banca es consciente y reconoce el nivel de riesgo adquirido por las entidades. Le conjunto de resultados podrá arroja luz

acerca de indicadores y sugerencias para la mejora del gobierno corporativo de las entidades financieras que permitan ayudar a prevenir futuras crisis.