



EUROPEAN MASTER  
IN LAW & ECONOMICS



European Master in Law and Economics

***Much ado about nothing? The impact of  
remuneration policies on European financial  
institutions***

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*Keywords:* remuneration, banking corporate governance, risk management

*JEL-codes:* G30, G21, J33

*Word-count:* 12.832 words

## **Authorship declaration**

I hereby declare and confirm that this thesis is entirely the result of my own work except where otherwise indicated. I acknowledge the supervision and guidance I have received from Professor Dr. Antoine Gentier. This thesis is not used as part of any other examination and has not yet been published.

9<sup>th</sup> of August 2022

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## **Abstract**

EU banking regulation has proposed and instituted the use of remuneration to align the interest of directors towards less risk-taking, resulting in a paradigm shift from the traditional corporate governance (i.e., principal-agent problem).

However, even in the years following the financial crisis, there are still uncertainties as to the way remuneration practices of the banks have achieved their role in tempering and limiting the opportunistic and self-serving interests of directors to avoid similar outcomes to the 2007-2008 financial crisis. New regulation coming in from the European Banking Authority (EBA) have strictly regulated the remuneration practices of banks through the EBA Guidelines on

sound remuneration policies (already on its second major review finalised in 2021).

It seems clear that the European legislator favours the remuneration policy as a tool to handle some of the specific moral hazard (agency problems) as well as financial stability in crisis scenarios (seen as a negative externality). However, the questions of the effectiveness of the remuneration policies, unlike other corporate governance problems, remain oddly unanswered.

Our research conducts an in-depth economic analysis of the European Guidelines on remuneration, offering insights into the way the optimal conduct was set, considering potential implication. Following this, the efficiency of the remuneration practices is tested through a multiple regression (panel) model, in which we sought to determine the impact of the remuneration practices on both risk and performance for a sample of banks from all EU countries that apply the Guidelines. The analysis and empirical results form the basis of our conclusion and policy proposals for higher efficiency in banking remuneration practices.

### **Acknowledgments**

I would like to express my highest form of gratitude to those who have aided and advised me in my thesis writing process. Most importantly, I want to sincerely thank my coordinator, Professor Dr. Antoine Gentier, for his continuous guidance and support through this process. I also want to thank all professors from Hamburg University, Erasmus University as well as Aix-Marseille University who have provided their insight and advice throughout my research endeavors. Any mistakes or errors are solely my own.

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## **1. Introduction and framing of research question**

The debate over the efficiency of banking (financial institutions) corporate governance has never been as relevant as it is now, in the post-crisis economy we live in as well as in the current COVID-19 pandemic.

Why is banking corporate governance different from other types of corporations? Financial crises created a serious focus on regulation, in particular to limit the riskiness of banks (Levine, 2004). This has led some to argue for a shift from a particular shareholder value focus, to one that considers the interests of multiple stakeholders (debtholder, account holders etc.). Through such proposals, they are focusing on two particular market failures: financial stability and principal-agent problems.

How does remuneration fit in this framework? Traditionally, remuneration is used to align the interest of shareholders and directors (PAP), mostly linked to higher performance and risk taking.

The collapse of the financial system had brought about a debate regarding the governance structures of banks in various fields, of which the more controversial being the issue of the remuneration packages of the top management, bringing about the advent of the new remuneration guidelines and regulation (Admati, 2013).

Banking regulation thus warped the use of remuneration to align the interest of directors towards less risk-taking, as a post-crisis scenario, resulting in a paradigm shift.

However, even in the years following the financial crisis, there are still uncertainties as to the way remuneration practices of the banks have achieved their role in tempering and limiting the opportunistic and self-serving interests

of directors to avoid similar outcomes to the 2007-2008 financial crisis. New regulation coming in from the European Banking Authority (EBA) have strictly regulated the remuneration practices of banks through the EBA Guidelines on sound remuneration policies (already on its second major review finalised in 2021). It seems clear that the European legislator favours the remuneration policy as a tool to handle some of the specific moral hazard (agency problems) as well as financial stability in crisis scenarios (seen as a negative externality).

The main purpose of my research is to answer the following question: is the remuneration legislation and practices helping in tackling the risk taking-behaviour of the bank? We intend to find an answer to this question through a cross-country empirical analysis. We believe the study can have a relevant impact in the field at least in three ways: firstly, it will provide a new understanding of the law and economics implication of the new remuneration regulation, aiding in the enactment of efficient reform; secondly, it considers the remuneration practices of not only top management but the middle management of the bank, previously undiscussed and; thirdly, it would provide an answer to the queries raised regarding the robustness of remuneration policies in the banking sector in tackling the risk paradigm, an issues made the more relevant by the recent COVID-19 pandemic, with the objectives of improving the regulation framework and practices in the banking industry.

The thesis is structured as follows: chapter 2 and 3 focuses on the corporate governance paradigm within the law and economics discussion, focusing on banks and the role of remuneration. Chapter 4 introduces the European framework on banking remuneration while chapter 5 will be an in-depth law and economics analysis of the relevant elements. Chapter 6 and 7

include the empirical research conducted and its results while chapter 8 offers overall conclusions and policy proposals based on our findings.

## **2. Corporate governance, informational asymmetry, and the agency problem**

We must begin by framing the question of banking remuneration within the wider context of corporate governance. In the traditional governance paradigm, managers work in the interest of their shareholders, which, as residual claimants, receive what is left after fixed claimants have been paid (Armour, 2016). As such, the residual surplus must be large enough, thus also increasing the value of the firm. Shareholders are the most homogenously interested in the welfare of the firms, among the stakeholders. This is reflected in an increase in the value of the claim, thus the share price. But they also face high coordination cost in dispersed shareholdings (Ellul, 2013). As such, directors are seen as performing the function of monitoring the business of behalf of shareholders.

But, due to informational asymmetry, issues of adverse selection and moral hazard arise. In most agency relationships, positive monitoring, and bonding (agency) costs are present, but there is also divergence between the agent's actions and the decisions that can maximize the utility for the principal (Jensen & Meckling, 1976). The shareholders (principal) cannot monitor the director (agent) although the value of the former is linked to the activity of the latter. The agent's self-interested behaviour leads to agency costs and suboptimal total welfare (Jensen & Meckling, 1976). This is essentially the principal-agent problem (PAP). The agency theory was developed by Coase (1937), and then expanded upon by Jensen and Meckling (1976), followed by Fama (1983).

PAP is tackled by using different governance mechanism like independent directors (aiding in monitoring), remuneration as a means to align the effort and risk level to long-term and riskier pursuits in line with shareholder interest



(Armour, 2009), while duty of care and business judgement rules help in calibrating the optimal behaviour (labelled by us as  $Y^*$ ).

### **3. The peculiarities of banking corporate governance and remuneration**

#### *3.1. Why are banks different from other firms?*

Following what we have discussed in the previous section, we must now consider how banks deviate from the traditional corporate governance paradigm. Banks differ in three essential elements (Van der Elst, 2015).

Firstly, they are highly leveraged, as they transform short-term deposits into long-term loans. As such, shareholders stand to gain from risky endeavours at the expense of the creditors, since they bear the risk of the failure. Perversely, traditional corporate governance shareholder-centric may exacerbate this PAP as shareholder, in general, prefer more risk (Hopt, 2013). Debtholders might try to account for these issues by pricing it into the contractual framework, but, considering the problems of incomplete contracts, the framework will never cover all possible scenarios (particularly long term), and so there is a need for a regulatory framework which ensure gap-filling (Martino, 2018).

This is further exacerbated for deposit-holders who hold very little to no negotiation powers and face the highest coordination costs and collective action problems, due to the dispersed structure (Martino, 2018).

Secondly, bank failure has a wider impact than simply affecting shareholder value. It can trigger systemic failure, contaminate other institutions and result in financial instability. This results in a negative externality which is not internalized by the bank and its shareholders (Ferrarini, 2010; Andreson, 2000). The state has thus an incentive to protect the bank to avoid these systemic shocks resulting in bailouts (too big to fail). This results in a market failure which

has been subject to ample debate. The issue is also closely linked to the deposit guarantee schemes. While trying to reduce bank runs, deposit insurance created its own moral hazard problem, as it further incentivized shareholders and directors to take risk (Ferrarini, 2015). Moreover, deposit insurance reduces the incentives of debtholders to properly monitor banks, as decreased market signals from depositors due to reliance on insurance causes risk discoordination (Bedard and Gentier, 2021).

Thirdly, financial assets are hard to monitor and observe, since banks collect information on borrowers which is not available to others. So, shareholders and creditors alike cannot reduce the informational asymmetry thus hampering market discipline, as banks are indeed opaque, so incentive setting is that much more complicated. Thus, these sectors are monitored by regulators or national competent authorities. Moreover, asset substitution is easier for banks, allowing for fast risk-shifting, which again increases agency costs and moral hazard (Ferrarini, 2015; Barth, 2004).

### *3.2. The evolution and current framing of banking internal governance*

The evolution of the banking paradigm has been subject to shifts. Initially, banks were seen as utility subjects of entry and profits were restricted. Thus, shareholder received returns but did not encourage risk. Starting in the 1980s, there was a wave of de-regulation, allowing for more freedom in the financial market, which allowed for more pressure towards risk-taking coming from shareholders (Ferrarini, 2011; Adams, 2012). The assumption was that corporate governance and other banking regulation would tackle any emerging issues.

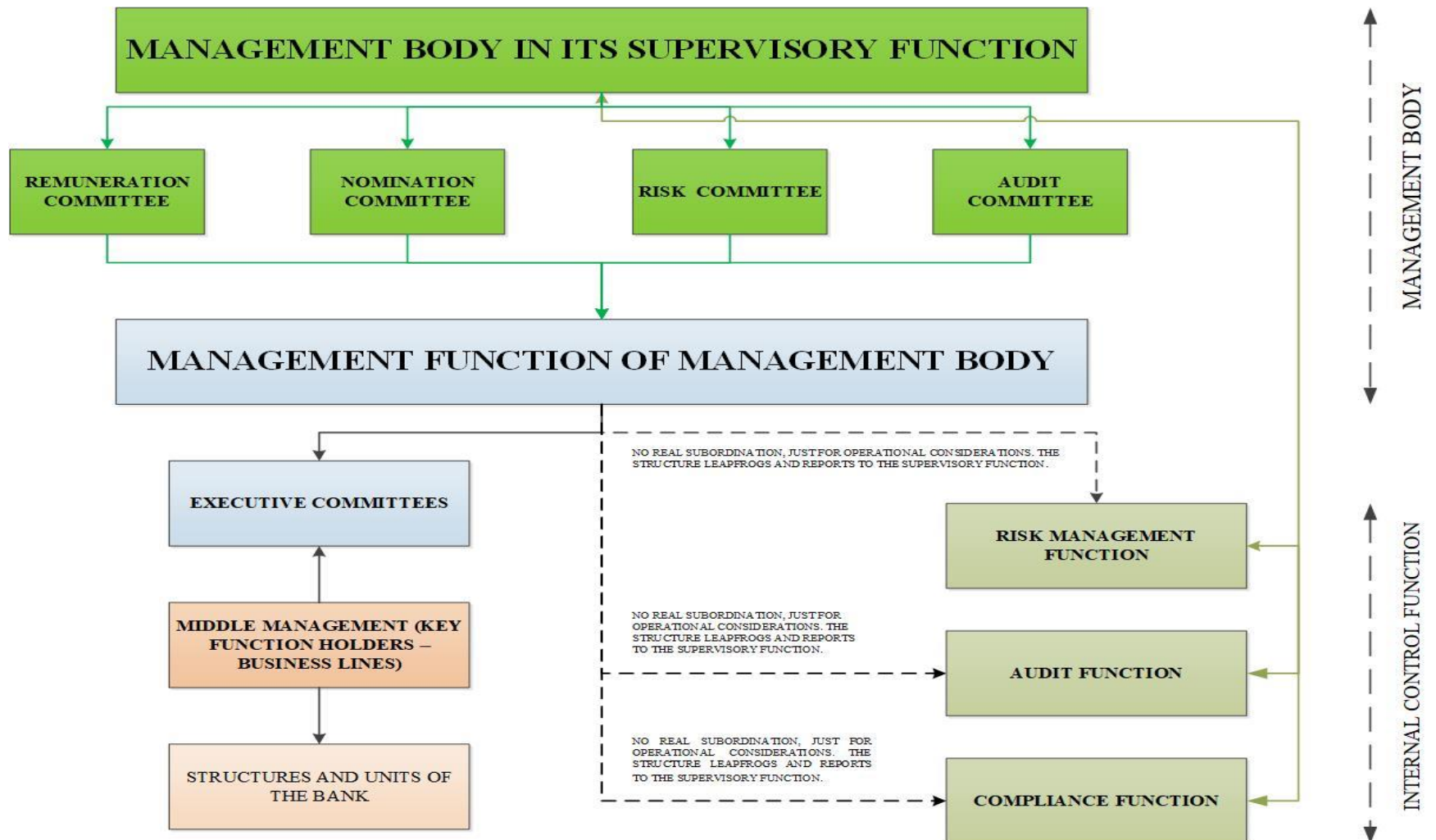
Following the financial crisis, the issue of bank regulation re-emerged with the result of the current framework we face now (Ferrarini, 2013).

Currently, corporate governance in general has been subject to extensive reconsideration, including new Guidelines (EBA/GL/2021/05) drafted by the European Banking Authority, applying the Capital Requirements Directive IV.

The internal governance rules enhanced the role of the internal control functions, allowed for independence, and created mandatory Risk, Audit, Remuneration and Nomination Committees, all task to ensure that both PAP consideration as well as internalization of the negative externality of financial instability would be incorporated into the corporate governance framework.

While not subject to our analysis, Figure 1 below presents the overall internal structure of a bank under CRD IV.

Figure 1 – Internal governance structure of a bank under CRD IV. (Source: author's own, based on CRD IV regulation)



We do want to highlight a particularity of the trusteeship strategy existing in the current governance framework. Trusteeship is a governance strategy which tries to mitigate PAP, relying on conscience and reputation (low-powered incentives), allocating power to an independent monitor, situated between public enforcement and internal enforcement (Armour, 2009). Apart from the traditional examples of auditors and independent directors, in banking internal governance we find new roles allocated to the supervisory function (Board of Directors which holds mostly monitoring duties) as well as to the internal control function which are middle management or above, independent staff (Enriques, 2015). The function (comprised of risk management, compliance, and audit) reports only to the supervisory function, operating as risk monitors from within, reducing information costs for the Board. All the above is then linked to the creation of a Risk Committee which oversees the risk management process.

### *3.3. Banking Remuneration – an oddity between risk and performance*

Compensation holds an important role in the corporate governance paradigm, as it allows for the mitigation of the PAP by encouraging the risk-adverse, short-term thinking director to align to the interest of the shareholders, by adjusting the effort level as well as the risk assumed. Within the PAP paradigm, remuneration has been seen to differ in two ways (Bebchuk, 2003). Firstly, we have the *optimal contracting approach* (Jensen & Meckling, 1976), where, because the parties (principal and agent) hold equal bargaining power, remuneration is negotiated as an arm's length transaction and results in optimal incentives (operating as a solution to PAP).

Conversely, under the *managerial power approach*, remuneration becomes an agency problem in itself, as self-interested agents can influence the decision-making process for remuneration (no longer arm's length bargaining), skewing the incentive structure. For example, managers who can affect the independence of the Board (as representatives of the shareholders), to increase or create inefficient remuneration (Bebchuk, 2003; Bohren, 2010; Bruno, 2010). We will consider this duality further on in our analysis.

Prior to the financial crisis, the common belief was that remuneration would aid in tackling some problems in the structure of the banks, as we discussed. This proved not to be the case, as remuneration linked to performance and shares would only result in shareholder-centric risky behaviour, thus a misunderstanding of how banking corporate governance is different (Hopt, 2020).

Following the financial crisis of 2007-2008, the regulation of remuneration was subject to debate. From a public interest view, we can consider both arguments for and against regulation. Against regulation, we have found studies (Diamond, 2009; Enriques, 2015) that show that remuneration itself was not directly linked to the market failure, that risk taking results from improper governance. Secondly, remuneration might not be the best risk reducing mechanism for creditor protection and perhaps resolution and recovery regulation or other prudential regulation would be more effective (Ferrarini, 2011). Thirdly, in general, regulation might hamper the discovery process which might generate better regulation.

The arguments in favour are indeed greater. Remuneration can be used to incentives for the internalization of the negative externality of banking failure (Bebchuk, 2003) and, as we have seen, the specificity of bank governance makes

creditor involvement difficult and hampers the market mechanism (Buck, 2015; Baker 2010).

Our analysis starts from the premise that remuneration is indeed needed. But the level of intervention as well as the type of standards or rules used are of paramount importance in determine what the right remuneration setting looks like. This is what we will attempt to do in the following chapters, including in the empirical analysis which will look in-depth if the remuneration rules used by the EBA are indeed reducing risk exposure.



## **4. The European Guidelines on banking remuneration**

### *4.1. The evolution of the banking remuneration paradigm*

This chapter deals with the particularities of the regulatory framework for remuneration as stated by the new remuneration standards at the level of the European Union, through the guidelines provided by the European Supervisory Authority. The remuneration regulatory framework addresses multiple objectives but our analysis seeks to identify sound remuneration practices targeting the managing of the risk profile of the credit institution. Consequently, only these elements will be considered in this chapter.

As previously discussed, weak and poor remuneration practices are widely recognised as one of the underlying causes of the financial crisis (although subject to some debate) (Ferrarini, 2011; Bebchuk, 2010b), exacerbated by inadequate oversight by the governing body in several systemic banks which in turn contributed to excessive and imprudent risk-taking in the financial sector (Underhill, 2014).

The EBA follows the results of systemic change in the approach of banking remuneration practices following the financial crisis. While the underlining reasoning and the role of remuneration as a risk mitigating methods has been discussed in chapter 3, the need for regulation also emerged due to the need for a convergence of practices (Barotini, 2016).

In theory, where there is high criticism of the bail-out of banks from taxpayer money correlated with criticism of the high levels of pay the top management were receiving, there is less possibility of regulatory capture and possibility of stricter requirements for remuneration practices (Harnay, 2016).

However, not all European (and non-EU countries for that matter), implemented the same level of supervision of compensation. So, some form of international cooperation was needed in order to ensure that the optimal behaviour was indeed reached (Murphy, 2013).

#### *4.2. Banking remuneration and the economics of federalism*

A preliminary question that emerges is who is best placed to handle the problem of remuneration in the banking industry?

We refer to the framework of the economics of federalism (Van den Bergh, 2016) to discuss this problem.

In our case, there is a homogeneity of preference (global nature of the financial markets and the correlated market failure of financial stability) but also a heterogeneity of preference. We should not forget that a one-size-fits-all approach is not seen as optimal for banks with very different sizes, risk-profile and activity. This is also linked to the assumption that there is a central level information advantage to tackle the risk considering that a central body (/authority) has a better view on the impact of remuneration on integrated markets which are not restricted to one EU state. While this may be indeed true, we should not exclude the comparative advantage that the national competent authority may hold in understanding the particularities of the remuneration structure of a monitored bank.

We can link our argument to the knowledge problem, as the Austrian approach highlights that knowledge is dispersed as everyone holds unique and concrete knowledge, thus no central authority can gather all the relevant

information to set the standard (Hayek, 1945, 1973). This is also linked to the entrepreneurial discovery process, as entrepreneurs, working in a market without perfect knowledge, find new profitable ventures, and by the dynamics of this competitive process, contribute to efficient resource allocation but also discovery of optimal knowledge (Kirzner, 2006). Thus, banks operating in a market (either financial or a market for qualified staff) can better integrate the remuneration practices that emerge organically, allowing for a more robust system adopted to the regional specificity. This, of course, fosters innovation and allows for a more supply compensation structure.

However, considering the concerns regarding financial stability that we have discussed, indeed lack of coherent and adequate remuneration practices can lead to significant negative externalities. The issue of negative externality also leads to substantial inter-jurisdictional externalities (existing conflicts between different regional markets, with different regulations which create uncertainty and high transaction costs) and so, if we consider an international or European approach, indeed scale economies and decrease of transaction costs would result as joint efforts are made.

The last two criteria relate to the risk of a race to the bottom as well as the possibility of political distortions at lower levels of government. A possibility of a race to the bottom would seem less likely, as other regulatory restrictions put in place as well as the substantial regulatory framework, would make the emergence of a particular jurisdiction as more attractive is highly unlikely. More so, passporting is strictly regulated and monitored in the banking sector, which would discourage a cherry-picking approach.

The final argument on political distortions may be indeed relevant to the extent that lower levels of government seem to be indeed privier to lobbying and interest of re-election. Private interest theory does imply that not general welfare, but private interest may drive decisions at the local level. But again, there are caveats to these assumptions, as EU institutions can also be affected by lobbying. Although we must agree that interest groups are indeed weaker at the international and European level, due to the coordination costs. Perhaps more interestingly, remuneration concerns have always been a focal point of interest in the post crisis era, so there is less concern that local government would not be inclined to enforce stricter requirements.

To conclude on this topic, it is indeed difficult to determine if a more centralized approach should have won out. We would argue for a more nuanced approach in which there is a setting of European remuneration standards which are binding to banks, but there are sufficiently general that they allow for flexibility in the incentive structure of the bank to consider also regional specificity.

#### *4.3. Emergence and preliminary description of the remuneration guidelines*

The first important attempt to codify the rules on remuneration practices was done by the Financial Supervisory Forum (now the Financial Supervisory Board - FSB). The regulation was a result on negotiation and debate at the international level. To a certain extent, the proposal of the Financial Supervisory Board named Principles for Sound Compensation Practices did indeed satisfy the approach we have underlined above as the standards were formulated with a

sufficient level of abstractions that which can smooth over any potential conflicts of approaches and allows for regional flexibility. The Financial Supervisory Board Principles (herein FSB Principles) were structured to function as commonly agreed upon framework at an international setting (Hopt, 2013) which incorporated general standards which allowed for an appropriate adaptability and flexibility by the banks, which, through the process of discovery, could decide on the proper allocation of remuneration.

Due to an inconsistent implementation framework of corporate governance standards, building on the practices of the Financial Supervisory Board, noting the imperative to clarify these notions, the European Banking Authority - EBA issued the Guidance on sound remuneration policies under Articles 74(3) and 75(2) of Directive 2013/36/EU and the disclosures under Article 450 of Regulation (EU) No 575/2013, the first integration of the guidelines, pursuant to Articles 74 and 75 of Directive 2013/36/EU. Following some backlash and considering some discontent from different members states, a new version of the guidelines was drafted and came into force on 31.12.2021, hereinafter called the *Guidelines*.

The analysis in the current study is conducted in accordance with the final version of the Guidelines. For the empirical study, we will focus on disclosure realized for 2020 and 2019, in which remuneration practices were realized in accordance with initial guidelines. While, in itself, this may seem counterintuitive, we consider to be the best approach considering that: a) there is no disclosure available on remuneration paid under the new guidelines, as there have come into force in 2021, pending decision from NCAs and, b) more importantly, the two versions of the guidelines are almost identical, except for consideration on gender neutrality in remuneration practices as well as the easing

of some requirements on remuneration of small banks together with some exception to the restrictions on equity-linked instruments and cap of variable remuneration. While these elements will be further discussed, the underlining structures and issues we are discussing in our analysis remain unchanged. We are using the reference to the newest guidelines to maintain an up-to-date frame of reference.

Distinguishing themselves from the FSB Principles, the guidelines sought the set express rules on the optimal behaviour to be set on remuneration practices, drawing on international consensus. The Guidelines, applying CRD IV general standards which, to a certain extent mirrored the FSB Principles, went further to expressly set sector specific regulation. The underlying problem which this approach, as we shall further see and briefly discussed above, is that it created strict one size-fits-all rules that limited the ability of banks to allow for discovery within the bank, in setting custom made remuneration. While European banks and national authorities could apply higher restrictions than those set in the guidelines, the minim rules set a very specific conduct ( $Y^*$ ) which might not necessarily be the optimal level. At the core of this paper, we will look if indeed the optimal level has been reached, primarily through our empirical study, i.e., has the European Banking Authority really managed to determine the proper remuneration setting to mitigate risk taking in banks.

Given that the remuneration requirements were introduced with the purpose of influencing the level of risk and risk appetite of these entities, it becomes imperative to analyse these concepts in order to determine the final result sought by the European authorities from the point of view of remuneration practices, with a view to offering some consideration from a L&E perspective, as well as provide a foundation for our empirical study.

Thus, the Guidelines sets out the requirements on remuneration policies applicable to all staff of institutions and specific requirements that credit institutions must apply to remuneration policies and variable elements of remuneration of identified staff. Credit institutions may also apply these specific requirements to additional categories of staff or to all staff (Ferrarini, 2011).

The remuneration policy should specify all components of remuneration and include the pension policy. A distinction between fixed and variable (performance-linked) remuneration is made. Fixed remuneration is predetermined, maintained over of period, non-revocable, cannot be adjusted or reduced and not performance-linked (art. 131 Guidelines) while any remuneration that is not fixed is considered variable (art. 11 Guidelines).

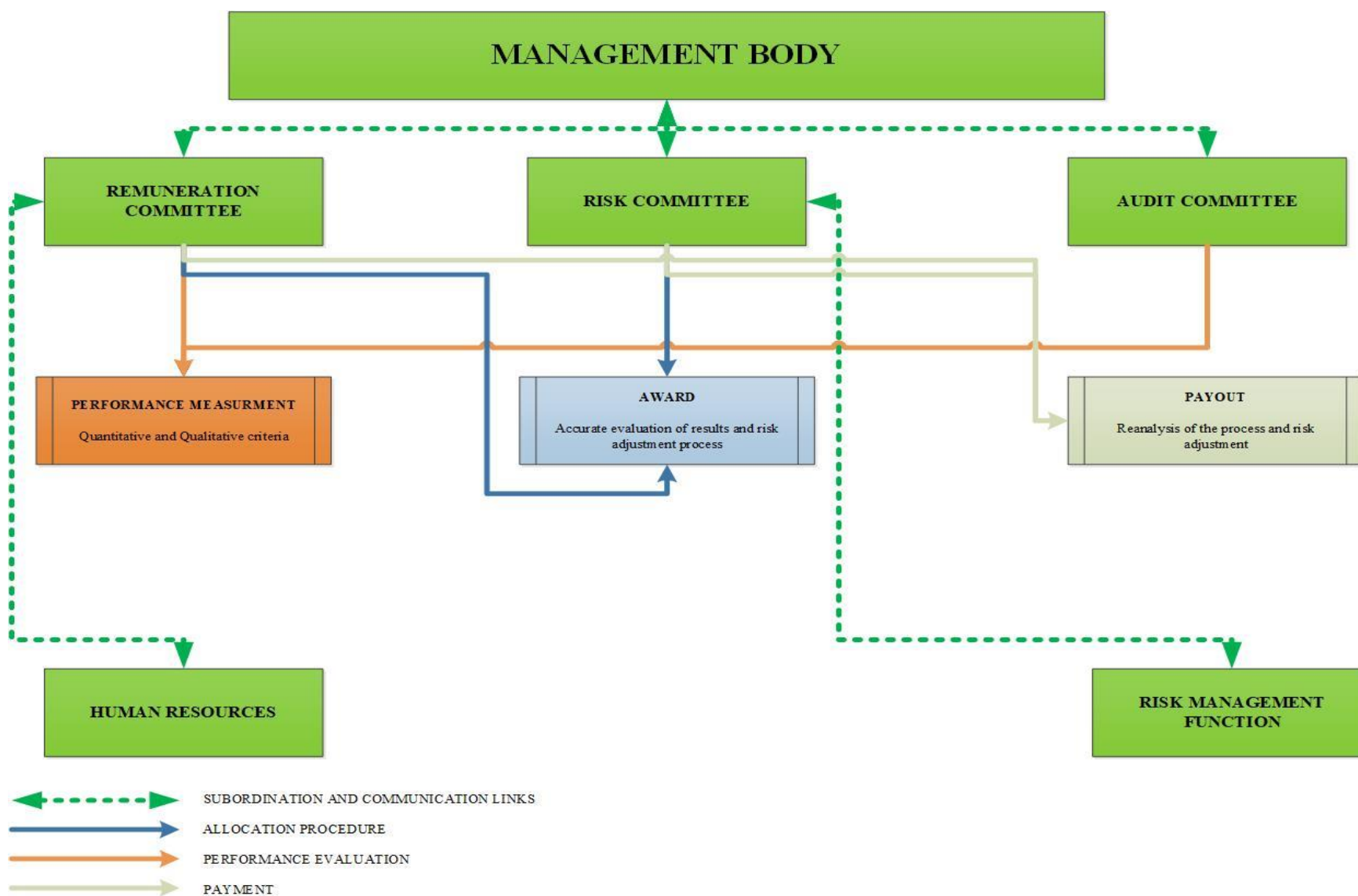
Banks should ensure that remuneration practices are aligned with overall risk appetite, taking into account all risks, including reputational risks and risks arising from product mis-selling, taking into account the long-term interests of shareholders (Ferrarini, 2011; Berger 2012; Bliss, 2001). The majority of the remuneration restrictions and caps are rule-based, setting a conduct which the banks must follow.

Figure 2 shows the interplay of the trusteeship strategy within the remuneration allocation process, also highlighting that risk management function is present in every stage of the remuneration process, aiding the Remuneration and Risk Committees in their analysis, while final power of decision is given to the supervisory function. However, this also added another layer to the agency problem, considering the managerial power approach discussed above. Internal control must decide on a process which also influences their own remuneration as well as the welfare of the top management, further complicating the incentive structure. The principles that underpin the duties of

the supervisory and internal control function are primarily standard-based, allowing for some flexibility in the management of the process. Arguably, it would be highly unlikely to be able to actually set rule as the dynamics of the remuneration process are too complex and entity specific.



Figure 2 - Governance of remuneration allocation process. (Source: author's own, based on EBA Guidelines)



In Table 1, we have realised a comparison of the rules set in the FSB Principles as compared to the newer EBA Guidelines. At a simple glance, we can ascertain that the guidelines used the standard based approach of the FSB and reasoning for applying restriction as a starting point for setting specific rules on remuneration, extend and amplifying the restriction which were applicable to banks. More so, the Guidelines extended the scope of the regulations in that all significant (Globally and Other Significantly Important Banks) would fall under its scope, with the possibility of national competent authorities to extend the scope of to the smaller banks, if considered relevant, effectively creating a European banking remuneration rulebook.

*Table 1 – Comparison and analysis of the main banking remuneration frameworks in the EU. (Source: author's own, based on regulation referenced)*

Elements of remuneration structure and regulation	FSB Principles for Sound Compensation Practices and FSB Implementation Standards	EBA Guidelines on sound remuneration (revisited), applying CRD IV and CRD V	Comments and consideration from a Law and Economics perspective
<b>Applicability</b>	Applicability to the systemic banks	All banks, but considering proportionality (pct. 85 – 93 of EBA G)	Extension of the scope, as a reaction to the little level of convergence resulted after the FSB application.
<b>Types of staff and bank personnel subject to regulation</b>	Distinguishes between different types of staff according to risk, no clear definition	All applies to Material Risk Takers (clear definition), with special requirements for Supervisory Board, management function etc. Some rules apply to all staff.	The Guidelines acknowledged that the PAP is wider in the banking framework, not limited only to the top management but also middle management. Linking scope with risk impact was indeed an efficient way to allow for flexibility, in order to capture a wider scope of staff, under different shapes and nomenclatures (standards-based approach).
<b>Governance and Approval of remuneration</b>	Competence lies with Board, with the aid of the Remuneration Committee (art. 1), Shareholder approval (Principle 8 and 9)	Competence lies with Board, with the aid of the Remuneration Committee (Sec. 2.4.), Shareholder approval (Sec. 2.2., pct. 44), involvement of internal control	Similar approach to traditional corporate governance, but the introduction of internal control adds a new trusteeship strategy, while also expanding PAP. In both approaches, debtholder input is excluded, raising concerns about an alignment only with shareholder interests (Bolton, 2010).

<b>Identification process of personnel</b>	No clear procedure, mostly principles relating to risk (art. 4.5.)	A detailed procedure regarding the identification of Material Risk Takers (MRTs)	A standards-based approach, but the Guidelines adds more complexity to the framework, trying to achieve better convergence while also reducing the uncertainty and associated compliance costs. Inefficiencies on this topic are discussed in-depth below.
<b>Role of internal control</b>	Standards for involvement at every level of approval process, no extensive guidelines (Principle 2 and 3)	Internal control is part of the identification, setting, adjustment and supervision of the remuneration process	Trusteeship strategy, by the introduction of an independent middle management which reports to the supervisory function, trying to align remuneration to risk profile, although agency problem consideration might emerge (discussed further in thesis).
<b>Typology of remuneration</b>	No real differentiation of types of remuneration, although restriction on variable guaranteed remuneration (art. 11 of the Implementation Standards - IS)	Clear distinction between fixed and variable remuneration, explanation of types of variable remuneration as well as rules for each system (including exit bonus, variable guaranteed remuneration, performance based long vs. short term remuneration)	Rules-based approach which indeed is more efficient as it reduces the costs of compliance and restricts circumvention techniques (hiding variable as fixed remuneration).
<b>Circumvention restriction</b>	No express restrictions	Rules on personal hedging (sec. 10.1), rules on manipulation of remuneration (e.g., treating variable remuneration as fixed, no real risk adjustment etc.)	Circumvention restriction ensures that incentive structures cannot be skewed unilaterally by agents. E.g., If hedging is allowed, the <i>ex-ante</i> risk alignment will be left inefficiently as the agent will not bear any loss (no interest alignment).

<b>Remuneration of supervisory board</b>	No express restrictions, just alignment with risk	Primarily paid only fixed remuneration (sec. 11)	An important principle of the EBA Guidelines is that fixed remuneration is golden as it removes incentives for risk and maintains independence (trusteeship strategy). We argue that it is a problematic approach as incentives for effort levels are still needed and fixed remuneration might promote apathy. FSB principle might be optimal in this case.
<b>Remuneration of internal control</b>	Compensation must be set in such a way to allow for risk consideration (Principle 3; art. 2 IS)	Mostly fixed remuneration, if variable remuneration is paid, structured to not affect objectivity (sec. 12)	The same consideration from the remuneration of supervisory board apply here, see above.
<b>Cap on variable remuneration</b>	No express cap	Capped at 100% of fixed remuneration, derogation of up to 200% (sec. 13.2.)	One of the most debated restrictions of the guidelines, this rule can yield strong inefficiencies. The topic is discussed in subsection 5.2.
<b>Years of deferral</b>	3 years (Art. 7 of IS)	Minim 3 (revised to 4 years), 5 years for management body, maximum determined by bank (sec. 15.2)	The topic is discussed in depth in subsection 5.4.
<b>Amount deferred</b>	40% to 60% of variable remuneration at least (art. 6 IS)	at least 40% for identified staff/MRTs, 60% for management body; of variable remuneration (sec. 15. 1)	The topic is discussed in depth in subsection 5.4.
<b>Retention period</b>	No express guidelines	6 months to 1 year after deferral (sec. 15.6)	While a novel approach, we argue that the retention period adds little new incentives which are not already captured by malus/clawback. Further discussed in subsection 5.6.
<b>Payment in instruments</b>	Payment must contain a mix of cash and instruments (Principle	At least 50% of variable remuneration is paid in	The topic is discussed in-depth in subsection 5.5.

	7), at least 50% in instruments (art. 8 IS)	instruments depending on type of bank (sec. 15.4)	
<b>Risk alignment</b>	Requirement of adjustment to all types of risk, without guidance on the process (Principle 4 and 5)	Risk alignment in three stages: measurement, award and payout process, using risk sensitive criteria, monitored by internal control (sec. 14.1)	The risk alignment strategy is of paramount importance for efficient risk-mitigation remuneration. Primarily standard-based, as discussed, it relies heavily <i>ex-ante</i> on trusteeship strategies (internal control function and supervisory function), with <i>ex-post</i> verification is done by the national competent authorities, via public enforcement.
<b>Malus and clawback requirements</b>	Not express, just an ability to restructure compensation (art. 10 IS)	Applicable to 100% of variable remuneration, linked to risk sensitive and compliance criteria	The topic is discussed in-depth in subsection 5.6.
<b>Dividend payout restrictions</b>	No express guidelines	Forbidden to receive right over dividend accumulated for deferred amount	We argue that there are unclear reasoning for the restriction to dividend payments although they may warp the incentives of the agents, resulting in under-performance. The topic is discussed in depth in subsection 5.6.
<b>Supervisory authority (National Competent Authority - NCA)</b>	Express allocation of general duties and power to supervise remuneration process (Chapter 3 of Principles)	Detailed powers to gather information, monitor and enforce remuneration guidelines (Title VII)	As the Guidelines are primarily rules-based (with some standard-based provisions), enforcement becomes essential to avoid under-deterrence, primarily as some principals (debtholder) cannot rely on their own bargaining powers to influence the remuneration structure. Also, in order to ensure the internalization of the

			negative externality, proper monitoring but the NCA is an essential component.
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## **5. Particularities of the European banking remuneration framework – a Law and Economics analysis**

Moving forward, we will now analyse the most significant parts of the regulation, going more in-depth incentive and, potentially, distortions, that could emerge from the EBA rules.

### *5.1. Economic analysis of material risk taker regulation*

Before discussing the underlining issue of the remuneration requirements, it is relevant to understand how the bank staff members which fall under the remuneration regime (generically referred to as identified staff) are to be selected. The EBA Guidelines reference the European Commission rules on the identification of so-called *material risk takers*, which automatically are to be considered identified staff. The regulation that tackles this issue is the Commission Delegated Regulation (EU) 2021/923 (herein *CD Regulation*).

The CD Regulation is the updated version of the standards for the identification of materials risk takers, the first version being the Commission Delegated Regulation (EU) 2014/604. The material risk takers are staff members that have a significant impact on the relevant material business unit's (i.e., the bank) risk profile as referred to in Article 94(2), point (b), of Directive 2013/36/EU (CRD IV). The duty to identify the relevant staff lies with the bank, but the competent national authority holds powers to monitor the implementation.

Summarizing the extensive regulation, the Commission has set general principles for determining the relevant activities which are particularly risky (art.



3 – 4 of the CD Regulation) as well as two sets of criteria for the identification of the material risk takers (herein *MRTs*), namely qualitative (art. 5) and quantitative criteria (art. 6).

The qualitative criteria expressly states that staff that hold managerial responsibilities for, among others, legal affairs; the soundness of accounting policies and procedures; finance, including taxation and budgeting; performing economic analysis; the prevention of money laundering and terrorist financing; human resources; *the development or implementation of the remuneration policy*; information technology; information security etc., must be considered identified staff within the remuneration framework.

The MRTs can be management body members, middle management or, sometimes, lower management. By setting express rules on this topic, the regulation is susceptible to any new risky activities in banking sector, lacking futureproofing. It is not difficult to imagine that the regulation will not keep up with the evolution of financial markets and will inadvertently create loopholes for risk-taking staff to fall outside of the scope of remuneration restrictions. This could be addressed by allowing the bank itself flexibility to determine the relevant staff, as it has better knowledge and is subject to the process of discovery, while adjusting for incentives by allowing NCAs to monitor the implementation. Indeed, this was the framework under the first version of the CD Regulation but, under the revised version, the European Commission has decided that express rules are better suited to ensure convergence, although arguably ignoring the added value of local knowledge.

The regulation also holds a contamination provision, in that if a staff member leads a group of MRTs, under certain situations, it will also be considered on MRT (art. 5 pct. e). Such provisions are grounded in the desire to

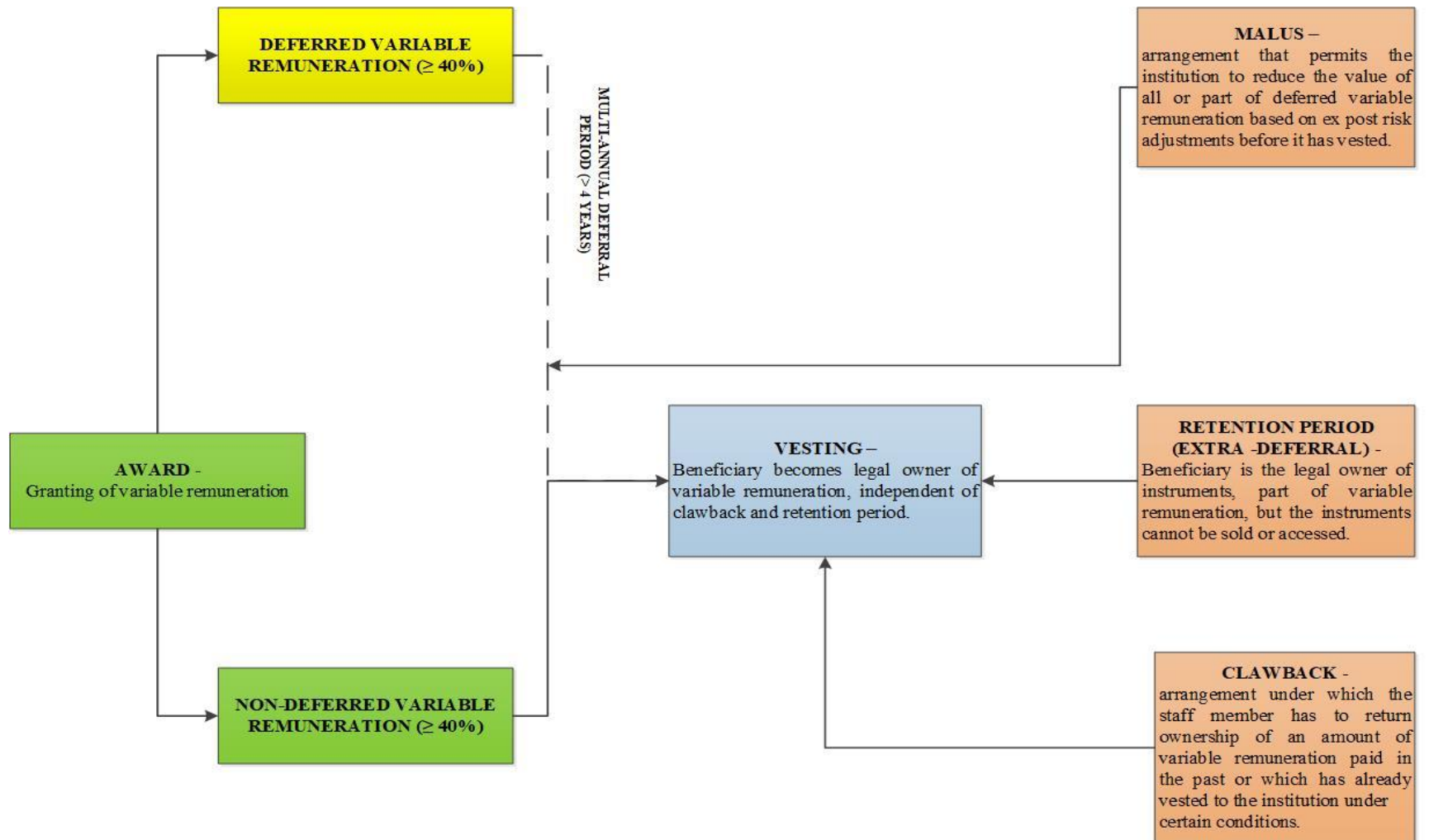
ensure that no perverse incentives lie with the manager of an identified staff whose remuneration is not properly adjusted (*ex-post*). But, *ex-ante*, what can occur is that banks, in an effort to reduce compliance costs of determining remuneration structures for a large number of staff, can actually attempt to centralise the risk-taking activities higher up in the hierarchy, essentially centralising riskiness as the top. This indeed can result in a loss of specific knowledge at the lower levels, as specialisation allows for better information to be used (ear on the ground).

Perhaps a more interesting issue is the quantitative criteria which initially stated that staff that matched the remuneration of the identified staff on qualitative criteria would also be considered MRTs. This was revised and, under the current version, only staff members with annual remuneration above EUR 750.000 or which hold remuneration levels in the 0.3% of staff are to be considered identified staff. While an improvement on the previous version, the underlining assumption can be problematic. In the preamble (pct. 7), the regulator states that remuneration relies on responsibilities, so higher remuneration reflects higher responsibility and thus higher risk taking.

But the level of remuneration itself should not be a marker of risk-taking. This is assuming the traditional paradigm that remuneration is a tool for alignment of directors with interests of shareholders, which tend to skew towards higher risk (but not always). But, as discussed in chapter 3, banking corporate governance is different and, if we are to believe that remuneration has been overall adjusted to tackle risk mitigation and not performance (requirement applicable to all staff), then why should we assume then that higher remuneration implies higher risk? Unfortunately, this mismatch between traditional and banking governance is prevalent in this regulation as well.

Before moving to particular elements of remuneration, it is necessary to briefly explain the general stages of allocation of award. Figure 3 below explain the process of award (right but no ownership over remuneration) to vesting (consolidation of ownership of remuneration). Between award and vesting we may have deferral (postponement of payment), which can be afterwards subjected to malus, clawback and retention. All the above stages will be considered in the following in-depth analysis.

Figure 3 - The evolution of award to vesting in variable remuneration. (Source: author's own, based on EBA Guidelines)



## *5.2. The cap on variable remuneration – efficiency implications*

Following the debate on MRTs, we must then consider one of the main new elements of the CRD IV, as well as the Guidelines, namely the cap on variable remuneration. In accordance with art. 94 (1) (g), variable remuneration cannot exceed 100% of the fixed component, while overall variable remuneration must be appropriately balanced (art. 94 (1) (f)). The restriction has also been introduced in the Guidelines, the official justification being the avoidance of excessive risk taking, although a derogation to up to 200% has been introduced, subject to approval.

The proposal can indeed be considered controversial. In the relevant literature, two issues of remuneration have been raised in regard to the financial crisis, namely the level of remuneration and the structure of remuneration. For the public and politics in general, the former was also seen (maybe justly so) as the more relevant one. However, riskiness can be better linked to an inadequate structure which can seriously alter the incentives (Laroisiere Report, 2011). As such, capping variable remuneration may do very little to stop riskiness, without adequate structure. Moreover, it creates further perverse incentive, as it can lead to an increase of fixed remuneration which makes banks more vulnerable to business cycle and failure (French, 2010).

On the other hand, it can lead to a reduction of variable remuneration, which, in traditional wisdom, can lead to avoidance of “bad risks”, if variable remuneration is higher than fixed (Murphy, 2013). Under the Guidelines, if bad risks emerge, it is irrelevant for the agent, as the remuneration is fixed and bonuses will be capped.

Most importantly, remuneration set by the market, which allows for discovery of information, allows for a better alignment of incentives, as banks are matched with the adequate agents, considering asymmetric information. By tampering with the mechanism through the introduction of the cap, you are removing market mechanism and may result in “bad lemons” emerging (Akerlof, 1970), as executives which wish to higher remuneration will leave. Finally, this could incentives banks to circumvent the provision by labelling variable remuneration as fixed (such a debate emerging regarding allowances which, although subject to change, had previously been labelled as fixed remuneration). The Guidelines prohibit such attempts, but enforcement of the restrictions is very difficult. This could push banks to remove normal triggers for variable remuneration to avoid detection which might lead to more inadequately structures remuneration. Overall, the restrictions lead again to an inflexible, one-size-fits-all approach, for banks with different levels of risk exposure and different incentive structures, which result in prolonged inefficiency.

### *5.3. The cap on variable remuneration for the supervisory function and its missed opportunity*

We wish to give some consideration to a specific version of a cap on variable remuneration, namely the restriction of payment of variable remuneration for the supervisory function (Board of Directors in the one tier system, Supervisory Board in the two-tier system).

The supervisory function is restricted to receive only fixed remuneration. If variable remuneration is to be paid (exceptionally), there should be a proper explanation as to how this was done to ensure risk alignment and linked to control

tasks. While this is motivated by the desire to ensure that the supervisory function assumes just a monitoring and control role (underlining the trusteeship strategy, as discussed previously), this also seems to be a missed opportunity. Instead of setting a default of fixed remuneration, a better approach would have been to allow for some variable remuneration which would be primarily linked to the performance in supervisory activity and not banking performance, of course.

Fixed remuneration will lead to low effort level for the supervisory function, as fixed remuneration is guaranteed and cannot be altered without consent of both parties. So regardless of the effort in monitoring activity, the members will still receive their remuneration. While this could be adjusted in case riskiness of the bank increases, most of the mechanism of risk adjustment, including clawback and malus, are linked to variable remuneration, so any incentives for the supervisory function are stripped of most content.

This is indeed a puzzling decision on behalf of the regulator, since the internal functions (which operate as the middle management independent supervisors) are allowed to receive variable remuneration (although primarily fixed remuneration is again recommended), using criteria concerning control activity performance (sect. 12 Guidelines) as discussed above, even though they are also a relevant part of the trusteeship strategy.

The banks could opt to set a variable remuneration structure but considering that the default (optimal conduct) is set at fixed remuneration only, there is little to suggest that bank will incur the opportunity costs of structuring and explaining such a framework to the competent authority. Also, there is little incentive for the Board of Directors to actually do so, as they are promised guaranteed remuneration, regardless of effort level, which further exacerbates the traditional principle – agent problem.

#### *5.4. The Law and Economics of deferral in remuneration*

The Guidelines, in line with CRD IV, impose a deferral (sect. 15 Guidelines) of 40% of variable remuneration (60% for management body). The period of deferral was initially set at a minimum of 3 years for identified staff and a minimum 5 years for the management body (sect. 15 Guidelines). The revised guidelines extended the general restriction to minimum 4 years.

From a law and economics perspective, the provision does indeed mitigate the PAP, and is seen as an essential element of risk alignment, by forcing the directors to consider long-term versus short-term goals, through deferral and restrictions on vesting (ownership of shares) until the termination of the principal-agent relationship (Ferrarini, 2015). Consensus on this measure might be the reason why deferral period has been extended now to 4 years.

However, some issues should be considered. Firstly, deferral itself is not enough to reduce risk, proper process and structuring is needed, and the role of malus and clawback is essential. While deferral does align interest of directors with shareholders, they must also be incentivized to consider debtholders and other stakeholders in the company, so the way deferral and vesting is designed (based on what triggers) becomes of paramount importance. Secondly, linking to the problem of the variable cap, we can imagine a scenario in which, because of deferral, agents are paid more variable remuneration (to adjust for market demand), which in turn increases fixed remuneration (due to the 100% cap), which means higher remuneration overall. This shows how a lack of alignment between different remuneration measures can yield counterintuitive results.



Thirdly, the issue of deferral is also linked to dividend restrictions. In accordance with the Guidelines, dividends and other interest payments are not allowed in regard to deferred and not vested parts of variable remuneration.

EBA has explained<sup>1</sup> that the pay out of dividends on awarded instruments that have not yet vested would limit the possibility to adjust the variable remuneration awarded down to zero. Such payments would also limit the effect that implicit risk adjustments via the change of share or instrument prices have.

We would however argue that this is a misleading argument. Variable remuneration can be adjusted down to zero including dividend payments if payments of dividend is set *pro rata* to the value of vested remuneration (so if no variable remuneration is vested, neither will dividend payments). Moreover, the lack of dividend payment can also warp the incentives to the identified staff. If they cannot take part in the dividend disbursement, it may cause a lowering of performance due to lowered incentives (resulting in lower profit and dividends).

Perhaps concerns could be raised that there is a counter-incentive to distribute dividends for their benefit when recapitalization is more adequate. But dividend policies are separately monitored by NCAs and an increase of riskiness of the bank due to inadequate dividend policies would simply result in an *ex-ante/ex-post* adjustment of remuneration (and dividends) for the agent. So, there seems to be no efficiency concern here, simply a misalignment of understanding of the interplay of the different mechanisms.

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<sup>1</sup> EBA Analysis and Q&A, part of Guidelines.

### *5.5. Instrument-based remuneration – efficiency or misalignment?*

A requirement which found its way in both FSB Principles, CRD IV and EBA guidelines was the obligation for 50% of variable remuneration to be paid in instruments (Sec. 15.2. Guidelines). The type of instruments that could be used are referenced in art. 94 of CRD IV, but primarily, for stock companies, it was represented by shares (for listed companies) or share-linked instruments – synthetic shares (for non-listed companies). The underlining economic purpose was to avoid cash payment which incentivize directors to disregard long term goals and risk for shareholders in favour of short-term gains (Chen, 2006; Chesney, 2010).

The duty to allocate share was criticised by many countries (Germany, France, Denmark, Luxemburg etc.<sup>2</sup>), being one of the most opted out provision of the regulation. This was primarily due to the difficulty of creating share allocation plans for listed companies, with wildly different ownership structures while most countries wanted to opt primarily for share-linked instruments for listed companies as well. This led to a revision of the provision, which now allows for share-linked instruments regardless of the type of companies.

However, such instruments are not without fault. Synthetic shares are simply instruments that tie their value to the price of the share, at the moment of vesting. But, at vesting, the payment is made in cash and not in instruments. This indeed allows for a similar loss absorption as a share, but the lack of other rights which are associated with shares (ownership and stake in the company, dividend etc.), some of the incentives of an instrument payment are indeed lost, with

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<sup>2</sup> EBA Guidelines Compliance Table, 2015.

agents not reaching the same level of care as they would as potential owners of the company.

Another criticism to this problem is the discussed issue of the shareholder-centric approaches. Shares indeed align interest of agents to the shareholder-principal. What about debtholders? Some have argued that remuneration should be paid in debt-linked instruments primarily (Bhagat, 2014), allowing for a stronger alignment with depositors (an example of such an approach is linking remuneration to credit default swaps) (Bolton, 2010).

Depositors, as discussed, are less aware of risk exposure of the banks and should receive better protection. More so they face collective action problems as they cannot properly coordinate, and regulatory intervention is always possible.

The counterargument to such an approach is that equity is still needed to ensure performance of the bank while depositors free ride on the monitoring powers of shareholders in order to ensure viability of banks. This is true only to a certain extent, as it is equally correct to assume that shareholders will want higher risk and bigger gain as the costs of a bank failure will be borne by the depositors and, ultimately, the state. So, perhaps a hybrid model in which remuneration is linked partially to debt and equity would be more optimal (Bhagat, 2014), to tackle the above issues. While the EBA does reference payment in *other instruments* including bail-in linked instruments, most rules are still aimed at an equity-based approach.

#### *5.6. Malus and clawback – on the economics of ex-post adjustment regulation*

One of the main novelties of the Guidelines is the provision of malus and clawback requirements. In accordance with the Guidelines definitions (art. 11),

*malus means an arrangement that permits the institution to reduce the value of all or part of deferred variable remuneration based on ex-post risk adjustments before it has vested while clawback is referenced to be an arrangement under which the staff member has to return ownership of an amount of variable remuneration paid in the past or which has already vested to the institution under certain conditions.*

Clawback and malus provisions are mirror images of the same mechanism, with the latter operating before a deferred part of remuneration is vested, while clawback activates post vesting. Malus and clawback come into play in the principle-agent problem as a means of tackling the bargaining problem and to incentivize and align with long-term interests. However, the mechanisms are not actually caps on remuneration, they simply condition (attach strings) to the remuneration itself. So, they work best in tandem with other mechanism such as deferral and caps on variable remuneration (Stark, 2020).

Within the PAP paradigm, malus and clawback hold a two-fold function:

1. they prevent excessive remuneration when *ex-post* it has been shown that performance was inadequate, or risk was excessive as well as
2. incentivize agents to act in the interest of the company due to the threat of the provisions. Both methods operate *ex-post* (after award and deferral has occurred) but tackle different issues. Malus blocks a new vesting to occur (essentially diminishing the overall variable remuneration) while clawback goes further to remove ownership over remuneration which has already vested.

Clawback and malus thus tackles horizon problems, the time lag between a decision or performance (Stark, 2020) and the observable consequences that is a central element of the PAP (Holstrom, 1979; Grossman, 1983), allowing for recoupment (Chen, 2014). Thus, while these provisions may offer a therapeutic

benefit for the public (as paid remuneration can be recovered), primarily it has purpose in its preventive and deterrent goals, as it forces agents to act in such a way that the *ex-post* correction is never triggered (Stark, 2020).

Thus, according to the guidelines, these mechanisms apply to 100% of the variable remuneration, so there is little incentive to circumvent by increasing overall variable remuneration by pricing in the clawback, the only way to bypass the requirement would be to increase fixed remuneration which leads to similar problems as discussed in the variable cap.

The rules set by the Guidelines divide the clawback and malus into two primary types. The first one is a performance based one (Freid, 2010), which include criteria for activation of the adjustments for increased risk, or other markers that indicate an increase in the risk exposure of the bank, essentially allowing for recoupment based on risk. The rules also allow for triggers linked to the individual conduct of the agent, relating to objectional behaviour, commonly referred to as compliance clawback/malus.

We would argue that the strength of the clawback will come from the fine tuning of the bank itself, as the triggers must be determined by the institutions. These requirements could likely be prone to tampering by the management body, so any discretionary features which may give way to interpretation must be counterbalanced by strong internal governance, which is why both internal control functions and the supervisory body are called to monitor the adjustment (trusteeship strategy).

The principal-agency problem however becomes more complicated when we consider that *ex-post* adjustment is applicable to the internal control functions as identified staff, essentially having to act as judge and executioner for their own compensation, which could lead to perverse incentives. The problem of

enforcement is indeed the main concern as incentives should be set in such a way that the supervisory body can bypass subjectivity in deciding the triggering of clauses that are wealth decreasing and affect reputation.

Final consideration can be given to the issue of interaction between the adjustment and the retention framework. Under the Guidelines, we have a retention period in which, after vesting, staff can still not make use of the remuneration, for a period between 6-12 months. Considering that clawback is still applicable after vesting, we cannot find efficiency-related reasoning for the retention period, outside of an extra deferral which has been accommodated by the revised Guidelines (increased to 4 years deferral), again showing a mismatch of different understanding of the provisions and incentives they provide, while generating costs of compliance and monitoring for the banks.

## **6. Empirical analysis**

### *6.1. Research scope and state of the art*

In the previous chapters, we have discussed the placement of banking remuneration within the larger debate about corporate governance and shown the need for as well as limitation of the regulatory framework. There is little debate to the fact that the European legislator considers remuneration to be of paramount importance in mitigation the risk exposure of the bank. It seems clear that the European legislator favours the remuneration policy as a tool to handle some of the specific moral hazard (agency problems) in crisis scenarios. The Guidelines, in its second major revision, are still seen as a relevant mechanism in the toolbox of the regulator, to such an extent that the methodology is being adjusted and extended to other investment firms (new regulations should enter into force in 2023).

However, the questions of the effectiveness of the remuneration policies, as with other corporate governance problems, remains oddly unresolved. Most of the empirical studies focused on the situation up to the financial crisis (e.g., Fahlenbrach, 2011; Bebchuk 2010; de Haan, 2013) while the most recent academic offering focus on the normative framework (e.g., Stulz, 2012). Moreover, most of the empirical research focuses on executive (primarily CEO) pay as well as executive directors, tackling the accuracy of the incentive structure (e.g., Cerasi, 2017; Bebchuk 2010).

In our scope of research, we will focus on the primary purpose of remuneration, as presented by the EBA, namely risk mitigation. We will also look at the impact of the European rulebook on remuneration, looking at a recent

sample (2019 and 2020), to determine an up-to-date overview. Moreover, we will look at remuneration at every level of regulated structure within the bank, namely supervisory body, management function, internal control and investment banking (identified staff). We will also look at different typologies of remuneration structures, to determine their efficiency in tackling the discussed market failures. To our knowledge, this is the only analysis that goes in depth to the issue of remuneration under the current Guidelines, looking at all levels of material risk takers.

## *6.2. Methodology*

The main purpose of my research proposal is to answer the following question: **is the remuneration legislation and practices helping in tackling the risk exposures of banks?**

We intend to find an answer to this question through a cross-country empirical analysis. We have extracted the information for the banks from the list of other systemically important institution published by the European Banking Authority. The list of OSII changes every year, the one from 2020 holds 173 institutions. We chose O-SII banks as they are sufficiently similar in scope and riskiness and so comparable but also representative of the specific behaviour and regional and cultural differences. As these are the most significant regional banks (and not globally significant) which comply the Guidelines, we believe they are an accurate marker of our population (European banks).

We have extracted information on a sample of 51 banks, for 2020 and 2019, leading to 102 observations. The years chosen were also important as, The European Systemic Risk Board, at the advent of the COVID-19 pandemic,



responded with recommendations<sup>3</sup> on the tightening of the remuneration packages of the CEOs. The recommendations simply stated that remuneration must not be paid if it might affect the quality of own funds. This allowed scope for banks to adjust the remuneration of 2020 in such a way to reduce riskiness, which should be reflected in shifts in the remuneration values between 2019 and 2020.

We have selected banks from every country which complies with CRD IV disclosure requirements. We have ensured randomization by randomly selecting the banks from each country to be part of the sample, to ensure that an unbiased sample. Because the banks in the sample are not all publicly-traded companies, the remuneration data was manually collected from the Pillar 3 (CRD IV) annual transparency reporting, but, where information was incomplete, cross-referenced and recalculated information from annual financial reports and other banking disclosure. All sums in foreign currency were converted to Euro at rate of the date of reporting. For financial and ownership information, we extracted data from the BankFocus (Orbis) database as well as the annual Board reports.

The remuneration information for each type was disclosed per group, so for each series in the sample, we calculated the average value of remuneration. This is done because, for example, supervisory function is comprised of 7 to over 20 MRTs so the average was used in order to make the values comparable.

The model will be a multiple regression panel model. We will include both firm-specific and time-specific fixed effects, defined as unobservable effects on risk and performance that are either time-invariant but differ across banks (specific risk profiles) or times-specific that are the same across banks (European specific regulation, banking shocks etc.). This will aid in avoiding omitted variable bias.

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<sup>3</sup> ERSB Recommendations on restriction of distributions during the COVID-19 pandemic (ESRB/2020/7).

The dependent variables as well as the variables we are controlling for are explained in Table 2 and are the same across for all types of personnel.

*Table 2 – Presentation of dependent variables used in empirical research. (Source: author's own)*

DEPENDENT VARIABLES		
Name	Variable	Considerations and assumptions
LDR	Loan-to-deposits ratio	LDR is used as a proxy for risk, showing the level of riskiness (lending) engaged it, also working as a proxy for the leveraging paradigm (Voinea, 2016).
ROA	Return-on-Assets	ROA is used a performance measurement (de Andres, 2008; Pi. 1993; Yeh, 2011; Hardwick, 2011; Aebi, 2012). A performance indicator is used in order to show the counterfactual, is remuneration indeed linked to risk mitigation or, as traditionally occurring, to performance?
ELEMENTS CONTROLLED FOR		
Name	Variable	Considerations and assumptions
NPL	Non-performing loan ratio	NPL is used as a proxy for the riskiness of the sector itself, controlling for any unobservable effects that might increase or decrease risk which are unrelated to the remuneration structure (Grove, 2011).
assts	Total Assets	Total assets are being used as a proxy for the size of the bank, to control for any additional risk that might emerge do to the scope of the activity of the banks.
own	Ownership	Ownership (Dupire, 2017; Bebcuk, 1999; Barry 2011) can impact risk-taking so we will be controlling for the impact of ownership on the risk level of banks by using the Herfindahl-Hirschman Index (HHI) to determine ownership concentration (Bednarek, 2014).

The fixed effect multiple regression model can be translated as follows:

A. For the Supervisory function model

$$1) LDR_{it} = \alpha_i + \beta_1 \text{supfixed}_{it} + \beta_2 \text{supvar}_{it} + \beta_3 \text{supinst}_{it} + \mu_{it}$$

$$2) ROA_{it} = \alpha_i + \beta_1 \text{supfixed}_{it} + \beta_2 \text{supvar}_{it} + \beta_3 \text{supinst}_{it} + \mu_{it}$$

B. For the Management, investment, and internal control functions,  
respectively:

$$1) LDR_{it} = \alpha_i + \beta_1 VtF_{it} + \beta_2 \text{fix}_{it} + \beta_3 \text{inst}_{it} + \beta_4 VtF_{it} + \beta_5 \text{vldef}_{it} + \beta_6 \text{yrdef}_{it} + \beta_7 \text{clawm}_{it} + \mu_{it}$$

$$2) ROA_{it} = \alpha_i + \beta_1 VtF_{it} + \beta_2 \text{fix}_{it} + \beta_3 \text{inst}_{it} + \beta_4 VtF_{it} + \beta_5 \text{vldef}_{it} + \beta_6 \text{yrdef}_{it} + \beta_7 \text{clawm}_{it} + \mu_{it}$$

where LDR and ROA are the dependent variables used for risk and performance (Table 2), while each independent variables are indicated in Table 3 and 4, per type of staff of category, for a certain bank  $i$  at time  $t$ , while in each case  $\mu_{it}$  is the residual error term by bank and year.

Sub-research question 1 for empirical purpose: *Is the remuneration paid to the supervisory function adequate in mediating the riskiness of the bank?*

The first set of multiple regression will focus on the impact of the remuneration of the supervisory function on riskiness and performance. The main independent variables are presented in the below Table 3.

*Table 3 – Presentation of independent variables used for remuneration of supervisory function. (Source: author's own)*

Name	Independent Variable	Considerations and assumptions
supfixed	Fixed remuneration	Fixed remuneration in general will be used to determine the way in which the structured remuneration overall impact the riskiness of banks. Also, it will help determine if excessive remuneration is still impacting the risk profile as well identifying the possibility of circumvention as a consequence of labelling variable remuneration as fixed, to bypass the cap on variable for the supervisory function.
supvar	Variable remuneration	Variable remuneration is used to determine if banks can bypass the default set by the EBA and allow for variable remuneration which is correlated with the supervisory activity of the bank. It also aids to determine the impact of risk in cases in which banks have opted to allocated variable, deviating from the default rule.
supinst	Remuneration paid in instruments	Remuneration in instruments is used to determine the possible interplay and counterintuitive incentives of allowing primarily fixed remuneration to be paid in instruments, primarily shares, which might promote more riskiness, as discussed in previous chapters.

Sub-research question 2: *Is the remuneration paid to the management function adequate in mediating the riskiness of the bank?*

The second set of multiple regression will focus on the impact of the remuneration of the management on riskiness and performance. The main independent variables are presented in the below Table 4.

Sub-research question 3: *Is the remuneration paid to the internal control function and investment line adequate in mediating the riskiness of the bank?*

We have included the internal control function MRTs as there are a new form of independent *internal gatekeepers*, that should monitor the behaviour of the management and report to the supervisory function. On the other hand, they present their own PAP in regard to the Board as a principal as well as to the shareholders. Moreover, they are present in the remuneration evaluation and adjustment process, further complicating the paradigm. Their remuneration thus should be set to reflect this. On the other hand, the investment line is included as scholars (Armour, 2016) have argued that the presence of investment banking affected bank's riskiness in the financial crisis. So, their remuneration structures are also important.

The third set of multiple regression will focus on the impact of the remuneration of the above on riskiness and performance. The main independent variables are presented in the below Table 4.

*Table 4 – Presentation of independent variables used for remuneration of management, investment and internal control function. (Source: author's own)*

Name	Independent Variable	Considerations and assumptions
fix	Fixed remuneration	Fixed remuneration in general will be used to determine the way in which the structured remuneration overall impact the riskiness of banks. As the EBA is enforcing restriction primarily on variable remuneration and incentivizing banks to primarily pay fixed remuneration, the purpose is to determine if indeed such remuneration has this assumed goal.
VtF	Variable to fixed ratio	The variable to fix remuneration ration will aid in determining how the variable cap itself is limiting variable remuneration and, accordingly, riskiness. We shall also determine the impact on performance that this approach has, to see if the cap is indeed limiting efficiency and/or attracting less efficient managers (bad lemons). Also, it will help determine if excessive remuneration is still impacting the risk profile.
inst	Remuneration paid in instruments	The ratio of remuneration paid in instruments will help determine if this strategy ensures risk reduction, or, as under the traditional corporate governance paradigm, it aligns the interests of the agent to the (risk-loving) shareholder
vldef	Deferred amount	The amount of deferred variable remuneration shows how the newly introduced postponement of payments can impact the risk exposure of the bank.
yrdef	Years of deferral	Similarly, to the value postponed, years of deferral shows how if the time horizon problem is solved by using different length periods, considering also its impact on the risk profile.
clawm	Amount adjusted through clawback/malus	The more novel element of banking remuneration, we wish to determine is ex post adjustments are actually taking place and what is the end result in regard to risk and performance.
mng	Management	Identifier before independent variable, marking that it refers to the remuneration of the management function
inv	Investment staff	Identifier before independent variable, marking that it refers to the remuneration of the investment branch
ctrl	Internal Control Function	Identifier before independent variable, marking that it refers to the remuneration of the internal control function

## 7. Empirical findings and preliminary Law and Economics implications

Following my analysis, I provide below a summary of the main descriptive statistics of the sample presented. As it can be seen in Table 5, for some observations in the sample, information on either control functions or investment banking were not presented in the sample, but in an insignificant amount. For all models, p-value for goodness-of-fit test (Prob>F) was below .05, validating the models, confirming that all coefficients are different than 0.

*Table 5 – Descriptive statistics. (Source: author's own)*

	Variable	Obs	Mean	Std. dev.	Min	Max
<b>SUPERVISORY FUNCTION</b>	<b>supfixed</b>	102	621527.1	2497327	0	1.95e+07
	<b>supvar</b>	102	78721.42	469580	0	3825000
	<b>supinst</b>	102	14685.11	98066.17	0	857666.7
<b>MANAGEMENT FUNCTION</b>	<b>mngVtF</b>	102	7.924467	52.65749	0	399.8885
	<b>mngfix</b>	102	621813.8	631431.4	0	2620000
	<b>mnginst</b>	102	244045.4	476735.5	0	2677000
	<b>mngvldef</b>	102	354614	973630	0	7692000
	<b>mngyrdef</b>	102	5	.8205287	3	7
	<b>mngclawm</b>	102	34269.4	269736.8	0	2631000
<b>INVESTMENT STAFF</b>	<b>invVtF</b>	98	.3876068	.5866826	0	5.020235
	<b>invfix</b>	98	473105.8	2355052	0	2.34e+07
	<b>invinst</b>	100	48511.43	106254.4	0	798917.3
	<b>invvldef</b>	100	73557.11	165227.4	0	1153414
	<b>invyrdef</b>	100	3.9	1.35214	0	7
	<b>invclawm</b>	100	7437.24	44262.99	0	351066.7
<b>INTERNAL CONTROL FUNCTION</b>	<b>ctrlVtF</b>	99	.5142022	1.272087	0	8.196721
	<b>ctrlfix</b>	99	2033925	1.79e+07	8052	1.78e+08
	<b>ctrlinst</b>	99	45051.96	168932.2	0	1585185
	<b>ctrlvldef</b>	99	31989.2	63286.84	0	461691.5
	<b>ctrlyrdef</b>	100	3.8	1.3484	0	7
	<b>ctrlclawm</b>	99	381.017	3091.493	0	30567.69
<b>DEPENDENT VARIABLES</b>						
<b>LDR</b>		102	78.35618	32.6628	26.75	262.49
<b>ROA</b>		102	.5408824	.7536999	-2.27	2.77



### 7.1. Empirical results for supervisory function remuneration

The main results of the multiple (panel) regression concerning the remuneration of the supervisory function can be found below, in Table 6.

*Table 6 – Empirical results for supervisory function remuneration. (Source: author's own)*

VARIABLES	LOAN-TO-DEPOSITS RATIO	RETURN-ON-ASSETS
<b>supfixed</b>	-5.94e-07 (1.56e-06)	-3.25e-08 (1.20e-07)
<b>supvar</b>	7.58e-07 (7.04e-06)	-3.02e-07 (5.39e-07)
<b>supinst</b>	-.0000123 (.0000346)	2.83e-06 (2.65e-06)
<b>assts</b>	-1.26e-08 (1.15e-08)	-1.82e-10 (8.78e-10)
<b>own</b>	0 (omitted)	0 (omitted)
<b>npl</b>	.4808991 (.5915558)	-.0710625 (.0453063)
<b>Prob&gt;F</b>	0.0004	0.0027
<b>Legend: * p&lt;.05; ** p&lt;.01; *** p&lt;.001. Standard error in parenthesis.</b>		

As we can see from the results of the empirical study, an overall conclusion is that none of the independent variables are found to the statistically significantly effect on the LDR ratio or on our performance indicator. As such, the compensation structure for the supervisory function has no influence on the risk profile or the performance of the bank. On the issue of performance, this is in line with the reasoning of the legislation by which the compensation structure for the supervisory function should encourage a monitoring and not performance linked role. However, more worrisome is that the compensation structure does not have an impact on the risk profile of the bank, showing that structuring remuneration to be reliant only on fixed (guaranteed) remuneration does not reach the efficiency goal it was designed for.

Is the underlining assumption that fixed remuneration reduces risk taking incorrect? If we consider the regression coefficient for fixed remuneration, we can see that there is a negative relationship, but because of uncertainty consideration, we cannot conclude that the relationship is accurately stated, although it could hint that the underlining principle is present in that fixed remuneration has an inverse relationship with risk taking. But this also shows that we cannot overly rely on fixed remuneration as a solution to the risk-taking problem, as it might promote a more passive behaviour from the supervisory function (apathy), as fixed remuneration is not linked to any type of incentive to act in monitoring and cannot be linked to any monitoring activity performance indicators.

On the question of variable remuneration, we have found that only 6 banks in our sample have actually attempted to derogate from the default set by the regulation and create a variable non-performance linked remuneration, while 2 of the 6 banks have done so only for 2020, considering perhaps that, in line with the European recommendations discussed, variable remuneration can indeed be used as a risk mitigator.

But the results are underwhelming from a policy perspective, proving that by setting the default on fixed remuneration, the European regulators has removed incentives for banks to consider better risk-mitigation mechanism like properly structured variable remuneration which is linked to monitoring activity. Overall, our results show that, opposed to common belief, fixed remuneration for the supervisory function does not actually impact the risk taking of banks, at least as it is structured in the current framework.

## 7.2. Empirical results for management function remuneration

As in the previous section, the main results of the multiple (panel) regression concerning the remuneration of the management function can be found below, in Table 7.

*Table 7 – Empirical results for management function remuneration. (Source: author's own)*

VARIABLES	LOAN-TO-DEPOSITS RATIO	RETURN-ON-ASSETS
<b>mngVtF</b>	-.03357 (.1931596)	-.0005576 (.014866)
<b>mngfix</b>	-4.98e-07 (3.37e-06)	4.88e-08 (2.60e-07)
<b>mnginst</b>	5.94e-06 (6.11e-06)	-4.74e-07 (4.70e-07)
<b>mngvldef</b>	-1.26e-06 (1.82e-06)	1.67e-07 (1.40e-07)
<b>mngyrdef</b>	0 (omitted)	0 (omitted)
<b>mngclawm</b>	1.73e-06 (5.39e-06)	-2.68e-07 (4.15e-07)
<b>assts</b>	1.06e-08 (1.22e-08)	-2.29e-10 (9.37e-10)
<b>own</b>	0 (omitted)	0 (omitted)
<b>npl</b>	5272642 (.6044101)	-.0761692 (.0465168)
<b>Prob&gt;F</b>	0.0014	0.0096
<b>Legend: * P&lt;.05; ** P&lt;.01; *** P&lt;.001. Standard error in parenthesis.</b>		

The management function remuneration structure is also plagued by similar structural problems, as none of the remuneration variables analysed had significant effects on LDR. So, we can conclude that the goal of risk mitigation set by the European legislator is not met through the management remuneration guidelines. This is particularly worrisome, as management remuneration is and

has been at the core of the debate on banking remuneration regulation, as we have discussed in previous chapters.

However, we should also consider the coefficient to get a better understanding if the underlining assumption about the principals of remuneration are indeed incorrect. Looking at table 7, we find that indeed the regression coefficient for variable-to-fix ratio and deferred remuneration have a negative relationship with LDR, signalling that the principle is valid, as there is an increase in the variable ratio or differed remuneration, the risk level decreases. Similarly, when there is an increase in clawback/malus, we find an increase in LDR, hinting that the adjustment is triggered based on risk.

But because none of the above are statistically significant results and due to uncertainty, none of the above result can be confidently considered to be overly accurate, we can conclude that the calibration of the remuneration package is not accurately set (not properly linked to risk factors) in order to have a proper impact.

Of note is also the fact that there is no relationship between remuneration paid in shares and LDR or ROA, signalling that payment of shares or share-linked instruments (the most common practice observed in the sample, other instruments were rarely used) have no real impact on riskiness or performance, as opposed to common-held assumptions that shares promote long-term incentives.

As we can see, the variable years of deferral was omitted from the regression, this is because there is little variability in the sample, the mean of the variable values in the sample is 5 years, the minimum level set by the EBA. This shows the stickiness of the rule, with banks setting deferral at the minimum

imposed by the legislator, with little considerations for their particular risk level, assuring simply surface compliance.

If we consider the performance indicator, again none of the remuneration variables analysed had significant effects. This is perhaps a more problematic result, showing that not only is management remuneration not tied to less risk, but the regulatory framework seems to have stripped the incentives need for improving effort level in mitigating agency problems. Interestingly, if we check correlation with LDR, conducting a Pairwise correlation (Appendix), we find a positive relationship at significance level 10. So, this might signal that increases in fixed remuneration are correlated with increases in riskiness. These are the characteristics of variable remuneration and not fixed, which means that by encouraging banks to pay more fixed remuneration (through the cap on variable remuneration), fixed remuneration has become more linked to performance. Indeed, in the sample, the mean of the variable-to-fix ratio was 45%, well below the 100% threshold, with banks favouring overall more fixed remuneration. This might be due to circumvention (more variable remuneration is disguised as fix) or, more likely, that fix remuneration has been increased also based on better performance year to year, as variable remuneration becomes less encouraged. The result is problematic, at it challenges the assumption that any fixed remuneration reduces risk. We wish to stress that none of the results are statistically significant, only showing some existing correlation and not causation between the variables describe.

Concluding on our results, we can similarly summarize that, because there is no statistically significant effect, while there are signals of correlation, the structuring of management compensation packages is not done in such a fashion

to reduce risk, most banks reducing the compliance costs by simply maintaining remuneration at the default set by the legislator.

### 7.3. Empirical results for the remuneration of investment banking and internal control remuneration

The main results of the multiple (panel) regression concerning both the remuneration of the investment personnel and the internal control function can be found below, in Table 8.

*Table 8 – Empirical results for investment and internal control function remuneration. (Source: author's own)*

VARIABLES	INVESTMENT STAFF		INTERNAL CONTROL	
	Loan-to-Deposits Ratio	Return-on-Assets	Loan-to-Deposits Ratio	Return-on-Assets
<b>VtF</b>	.976325 (2.038505)	-.0808031 (.1658954)	.5801724 (1.056237)	-.0250693 (.0738777)
<b>fix</b>	6.76e-07 (3.77e-07)	2.13e-08 (3.07e-08)	-6.27e-08 (9.31e-08)	1.56e-08* 6.51e-09
<b>inst</b>	.0000173 (.0000154)	-2.83e-07 (1.25e-06)	.0000129 (.0000118)	-6.63e-07 (8.27e-07)
<b>vldef</b>	-4.75e-06 (7.92e-06)	-1.75e-07 (6.44e-07)	6.30e-06 (.000034)	-5.99e-06* (2.38e-06)
<b>yrdef</b>	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)
<b>clawm</b>	.0000109 (.0000185)	1.40e-06 (1.51e-06)	.00021 (.0002819)	.0000287 (.0000197)
<b>assts</b>	-1.61e-08 (1.16e-08)	1.37e-11 (9.47e-10)	-3.25e-08 (2.15e-08)	1.22e-09 (1.50e-09)
<b>own</b>	0 (omitted)	0 (omitted)	0 (omitted)	0 (omitted)
<b>npl</b>	.5707312 (.7396539)	-.0872856 (.0601937)	.4790408 (.5983977)	-.0752537 (.0418545)
<b>Prob&gt;F</b>	0.0003	0.0098	0.0010	0.0002
<b>Legend: * P&lt;.05; ** P&lt;.01; *** P&lt;.001. Standard error in parenthesis.</b>				

Overall, for the investment personnel remuneration was not identified to have statistically significant effects on either LDR or ROA, regarding any of the

underling variables. As discussed in previous chapters, the investment branch was presented as a source of riskiness in the behaviour of banks, with a need for regulation to tackle the issue of remuneration to address the negative externality caused by excessive risk.

Fitting in to the overall conclusions, we find that the remuneration of the investment branch doesn't really influence risk in anyway while the restrictions on regulation have diminished incentives for linking remuneration to performance. This is indeed unfortunate as there needs to be a trade-off between the performance of the bank and riskiness (with the need to reach a balance). The riskier side of the bank should still serve its purpose as risk does lead to performance and welfare increase. Severing any ties to performance may lead to over-deterrence and underperformance of the bank.

We conducted a Pairwise correlation on these set of variables which showed a negative relationship at significance level 10 between years of deferral and LDR. So as the duration of deferral increases, LDR decreases, again hinting that there is some ground that the principals of remuneration implemented are valid, however without having any impact of statistical significance.

The overall mean deferral period is 3.9 years, above the 3 years minimum, showing that, in this case, banks has adjusted the deferral period to suit the specificity of the bank, resulting in (somewhat) better efficiency in risk mitigation.

The issue of the remuneration of the internal control function yields even more relevant results. While there were no effects of the variables on LDR which were of significant importance, we found that the deferred variable remuneration has a statistically significant negative effect on ROA (at .05 level, holding all other variables constant), thus increases in deferred remuneration diminishes the

performance of the bank. This may be a signal of a reduction of risk that is indeed yielding less performance, although the same variable did not have a statistically significant effect on LDR. But it is the first result in our analysis which hints at some efficiency of the regulatory framework.

However, the fixed remuneration of the internal function was found to have a statistically significant positive effect (at .05 level, holding all other variables constant) on performance (ROA). This is a more alarming result, as it implies that as more fixed remuneration is paid, there is an increase in performance, but the same cannot be found in the reduction of risk. As such, these may highlight that the incentive schemes of internal function are not set to mitigate risk, but to ensure any achievement of its performance goals. It is possible then that the remuneration of the internal control was set in such a way to compromise its independence, undermining the trusteeship strategy put in place, by aligning the interest of the internal control with the management and not with the risk reduction goals set.

#### *7.4. Limitations and further pathways of research*

Concluding on the chapter of our empirical analysis, we wish to highlight some limitations of the study. Our research has focused primarily on the information disclosed in Pillar 3, annual reports, financial statements etc., looking at quantitative data in connection to the two dependent variables we have selected, ROA and LDR. Other performance or risk markers could be used in similar analysis but our decision to use these variables is based on their widespread use in reporting in the EU. The indicator ROA was also referenced in disclosure reports as a widely used performance measure in determining award



of remuneration. In further exploring this topic, qualitative or quantitative analysis can be conducted to determine if the description of the performance evaluation and award/vesting process existing in the reports can offer insights into the remuneration structure (although at a summary glance, the disclosure levels vary strongly across the sample). As this fall outside of our scope, we have focuses only on the quantitative data available.

## **8. Conclusions and policy proposals**

In this study, our main research question was whether banking compensation can indeed influence and reduce the riskiness of the credit institutions. We have initially focused on the corporate governance structure, highlighting the agency-problem (moral hazard) issues that lie at the core of this framework. We have then shown how banking governance is different because of its leveraged position as well as the market failure of financial instability seen as a negative externality. Thus, regulation was indeed considered necessary as a way to adjust the traditional framework of corporate governance to the reality of the banking industry as well as to ensure internalization of the externality.

The issue of remuneration was then considered within this setting. Once a tool to increase riskiness and effort level in order to align with the interest of shareholders, banking remuneration has been turned into a risk reducing mechanism, through new rules concerning deferral, caps on variable remuneration, malus/clawback, payment in instruments etc. Compensation has been subject to much public debate and censorship following the 2007-2008 financial crisis, in both academic and political rhetoric. While remuneration is not conclusively proven to have been a cause of the financial crisis, we consider public interest consideration in regulating, as well as the economics of federalism to determine the accurate level of intervention.

We conclude that, while regulation is needed, more flexibility in determine the structure of remuneration would allow for a discovery process and the emergence of an optimized compensation scheme, favouring *ex-post* correction (primarily standards). The EBA guidelines, the EU rulebook on remuneration, offers a primarily rules-based approach, allowing for standards in the evaluation

and allocation process, but not the remuneration structure. The main rules set in the Guidelines are considered from an L&E perspective and then, in the final part, are used as independent variables to determine in what way do the rules actually alter riskiness and performance.

As we have seen in our empirical results, all of our remuneration variables had no significant impact over riskiness while the majority had no impact over performance either. The answer to overarching research question (and sub-research questions) is that the remuneration framework has little impact overall on riskiness, regardless if we are considering the supervisory, management, internal control function or the investment branch.

This offers us an overall interesting insight about how the incentive of banks has changed following the shift in the regulatory framework. As we have previously discussed, the Guidelines rely heavily on rules, more so than standards. At a cursory glance, this may seem apt we consider Kaplow (1992) which states in his seminal work on the economic analysis of standards and rules, that if a certain conduct is frequent, rules are better suited as the cost of designing them are outweighed by savings when the rule is applied. As the remuneration practices is frequent and can create negative externalities, rules allow certainty and cohesion, by setting an accurate behaviour. However, in our case, a significant element is missing, namely the accuracy and optimization that can emerge from the discovery process, especially using the local knowledge available.

Competition pressure is thus also key (Bedard and Gentier, 2021), as banks with remuneration that encourages inadequate risk-taking will be pressured from deposit-holders to adjust their practices accordingly or face withdrawal of the deposits (bank runs). Thus, sound remuneration and finely

tuned remuneration practices emerge from the competition itself, through the pressure of the market. We wish to indicate that the result of case study (Bedard and Gentier, 2021) relate to the 1837 financial crisis and to American banks (not to current banking regulation). The study also shows that such practices will not always reach their desired effect if, however, the incentives to monitor of the deposit-holders are warped by over-reliance on deposit insurance (lender of last resort) or if the debt structure of the bank is mismatched (over-reliance on Government debt subscription as financial stability, which negatively impacted New York banks).

The Guidelines have been drafted based on the assumption that the rules on remuneration can universally yield efficient result, regardless of the specificity of the bank. Based on this assumption, rule-based approaches have emerged, which reflect the optimal structure of banking remuneration (caps on variable remuneration, set deferral periods and ratios etc.). They operate as mandatory rules although they do barrow something from a default as they allow for banks to derogate (usually by increasing the imposed default).

This in turn has created an incentive for banks to simply comply with the set rules, without derogating from the default, proven by the results of our empirical research. For example, in the case of deferral, the mean of the management function was the standard of 5 years, as banks has chosen to avoid the costs associated with explaining a deviation from the rules to the national authority (adjudicator). This box ticking, superficial compliance, by banks has yielded odd results as investment staff which tend to engage in more risk have a deferral period on average of 3.9 years, almost identical to the control function (3.8 years mean) although internal control are risk mitigators, revealing the stickiness of the rule setting.

This rule-based approach might not be problematic if the structure of remuneration was optimally set by the regulator. Unfortunately, this is not the case as we have seen in our empirical findings that none of the independent variables have a significant impact on the risk of banks. As we have already stated before, we should not conclude that the remuneration principles are not efficient per se, as some correlation is found. We consider that this is more so an issue of optimizing the existing remuneration structures to the specificity of the bank.

Therefore standards, not rules, might be better equipped in setting the right incentive structure. This is because standards leave determination of compliance to an adjudicator (usually the national authority) to determine the right behaviour. We concede that this will generate more uncertainty and higher costs for banks in finetuning the remuneration standards. This system also creates a higher burden on the adjudicator which be the less informed party, lacking the specific knowledge of the bank but also being mandated to enforce the standard. But this also allows for flexibility to ensure that banks consider their specific risk profile and adjust accordingly.

This can be correlated with better default settings, which incentivizes banks to adapt the remuneration to their needs but also, through this process, encourage the revelation of information. If we consider a default of 4 years deferral with the possibility to derogate with longer or shorter periods of deferral, if a bank would opt for a shorter period, it should reveal to the authority why this approach is in line with its risk exposure. It would also fulfil a gap-filling role as the flexibility of the default would make it easier to be adapted to changes in the functioning of a bank which are not addressed by the regulation, which might not be sufficiently forward-looking, especially in issues of remuneration.

This would ensure that the adjudicator also receive better knowledge to enforce the optimal conduct *ex-post*, if needed. The adjudicator is paramount in the enforcement process which ensure the efficiency of both rules and standards to ensure that under-deterrence does not occur. But they may be inefficient due to lack of knowledge of the way remuneration can affect a particular risk profile. Therefore, the revelation function of the default can help national authority gain better and up-to-date information on the existing correlations.

As we have set our general conclusions and policy considerations, we wish to conclude on some particular topics, which have raised interesting research insights.

On the topic of the cap on variable remuneration, we would recommend that the variable cap rule be removed and replaced with standard. While other research has highlighted the undesired consequence of an increase in variable and overall remuneration, we have found that that is not the case, as the mean of the variable-to-fix ratio for the management function was 45%, well below the 100% threshold, with 38% and 51% for investment staff and internal control respectfully. However, we have found that overall fixed remuneration has increased.

Our empirical research shows that this has generated a counterintuitive result. As we have mentioned, for management remuneration we have found a positive relationship (Pairwise correlation) with LDR at significance level 10. So, this might signal that increases in fixed remuneration are correlated with increases in riskiness. These are the characteristics of variable remuneration and not fixed, which means that by encouraging banks to pay more fixed remuneration (through the cap on variable remuneration), fixed remuneration has become more linked to performance. This might be due to circumvention

(more variable remuneration is disguised as fix) or, more likely, that fix remuneration has been increased also based on better performance year to year, as variable remuneration becomes less encouraged.

The result is problematic, as it challenges the belief that any fixed remuneration reduces risk, an underling assumption in the entire Guidelines. This becomes more problematic as deferral, restrictions on allocation, clawback and malus provisions cannot be enforced against such types of remuneration, circumventing any risk restricting behaviour.

The malus/clawback analysis also offered research insights. As we have mentioned, we found no significant effect of the adjustments on riskiness, in any of the models. If we consider the descriptive statistics, we find that the mechanisms were triggered in only 6 banks for the management function and in 4 banks for the investment/control function. This is insightful as some banks had disclosed that variable remuneration was not paid due to breach of risk levels, but still this was not sensitive enough to trigger the adjustments. This hints at the fact that malus/clawback setting is again done deficiently, or it is not enforced by the relevant bodies within the bank. This may be due to failures of the trusteeship strategy but also highlights that enforcement by the national authorities is not occurring, leading to under-deterrence. So, better standards on malus/clawback are needed to incentivize the banks to finetune the provisions, correlated with better monitoring by the competent authorities to avoid simple box checking.

The final issues we wish to discuss is the impact of the Guidelines on the trusteeship strategies. As we had previously discussed, both the duties of the supervisory function and the internal control are designed to reduce agency problems and riskiness, as they must operate as independent players in the interest of shareholders but also creditors and other debtholders.

The empirical research shows that there is a statistically significant positive effect of the fixed remuneration of the internal control function on performance (ROA). This is a more alarming result, as it implies that as more fixed remuneration is paid, there is an increase in performance, but the same cannot be found in the reduction of risk. As such, these may highlight that the incentive schemes of internal function are not set to mitigate risk, but to ensure any achievement of its performance goals.

It is possible then that the remuneration of the internal control was set in such a way to compromise its independence, undermining the trusteeship strategy put in place, by aligning the interest of the internal control with the management and not with the risk reduction goals set (managerial power approach). Regarding the supervisory function, we find that there is no correlation with performance or risk reduction, essentially promoting an apathy of the internal supervisory, further compromising the trusteeship strategy. This again underscores the dangers of over-reliance on fixed remuneration. In this scenario, we refer back to our initial conclusion that variable remuneration should be allowed and encouraged for the two functions, as long as it is correlated with criteria concerning control activity performance as discussed above.

We do acknowledge that the solution we are proposing will increase higher monitoring costs for the national authority (fixed remuneration, presumed, requires no monitoring as it is not linked to any other element of performance, while variable requires careful understanding of the incentive structure), but it is equally true that setting the adequate structure with accurate incentives is the main efficiency goal concerning remuneration in general and the only way in which it will become an adequate tool for risk-mitigation, as it has been initially proposed to be.



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## Appendix

*Table A1 – Pairwise correlation for all variables (includes correlation only for significance level 10, star for significance level 5). (Source: author's own)*

	No	id	year	supfixed	supvar	supinst	mngVtF
No	1.0000						
id	0.9999*	1.0000					
year			1.0000				
supfixed				1.0000			
supvar				0.2103*	1.0000		
supinst				0.1979*	0.9603*	1.0000	
mngVtF	-0.2188*	-0.2187*					1.0000
mngfix					0.2586*	0.2800*	
mnginst							
mngvldef							
mngyrdef							
mngclawm							
invVtF							
invfix							
invinst	-0.1961	-0.1967*		0.1727	0.5034*	0.5031*	
invvldef	-0.2127*	-0.2146*			0.2987*	0.3056*	
invyrdef	-0.1941	-0.1941		0.1953	0.1706		
invclawm					0.3534*	0.3948*	
ctrlVtF							
ctrlfix							
ctrlinst							
ctrlvldef	-0.1763	-0.1772			0.3063*	0.3077*	
ctrlyrdef				0.2119*	0.1837		
ctrlclawm							
LDR							
ROA			-0.2720*				
assts	-0.2264*	-0.2266*			0.3260*	0.3566*	
own	0.2591*	0.2591*				-0.1883	
NPL							
	mngfix	mnginst	mngvldef	mngyrdef	mngclawm	invVtF	invfix
mngfix	1.0000						
mnginst	0.7165*	1.0000					
mngvldef	0.5188*	0.7746*	1.0000				
mngyrdef		0.1769	0.2667*	1.0000			
mngclawm	0.2982*				1.0000		
invVtF	0.2760*	0.2904*	0.2466*		0.1725	1.0000	
invfix							1.0000
invinst	0.6177*	0.4803*	0.3690*			0.3538*	
invvldef	0.4568*	0.3505*	0.2763*			0.3649*	
invyrdef		0.2356*	0.3135*	0.4867*		0.1816	
invclawm	0.3688*	0.2292*					
ctrlVtF						0.2010*	
ctrlfix				-0.2432*			
ctrlinst	0.3036*	0.2642*					
ctrlvldef	0.3198*	0.1747				0.2183*	
ctrlyrdef		0.2570*	0.3288*	0.4881*		0.2050*	
ctrlclawm							
LDR	0.1732					-0.1806	
ROA							
assts	0.5679*	0.3859*	0.2781*		0.5075*	0.2495*	
own	-0.2726*			0.1704			
NPL				-0.2742*		-0.1736	
	invinst	invvldef	invyrdef	invclawm	ctrlVtF	ctrlfix	ctrlinst
invinst	1.0000						
invvldef	0.7354*	1.0000					
invyrdef	0.1658	0.1922	1.0000				
invclawm	0.3623*	0.2530*		1.0000			
ctrlVtF					1.0000		
ctrlfix		0.6625*				1.0000	
ctrlinst	0.3989*	0.4260*	0.2633*			0.2682*	1.0000
ctrlvldef	0.5184*	0.7922*			0.2106*	0.6896*	0.5298*
ctrlyrdef		0.1863	0.9529*				0.2777*
ctrlclawm	0.2756*	0.3011*		0.4120*			
LDR			-0.3164*				
ROA	-0.1903	-0.2769*					
assts	0.5675*	0.5226*		0.2744*			0.1710
own	-0.2836*	-0.3017*	0.1739	-0.2061*			
NPL							
	ctrlvl~f	ctrlyr~f	ctrlcl~m	LDR	ROA	assts	own
ctrlvldef	1.0000						
ctrlyrdef	0.1843	1.0000					
ctrlclawm			1.0000				
LDR		-0.2954*		1.0000			
ROA					1.0000		
assts	0.2777*		0.2203*		-0.2273*	1.0000	
own		0.2573*		-0.1753		-0.4816*	1.0000
NPL		-0.1674		-0.1767			-0.2000*
NPL							
NPL	1.0000						