The Single Supervisory Mechanism and centralized vs. decentralized decision making in supervision

Seminar Paper

submitted to
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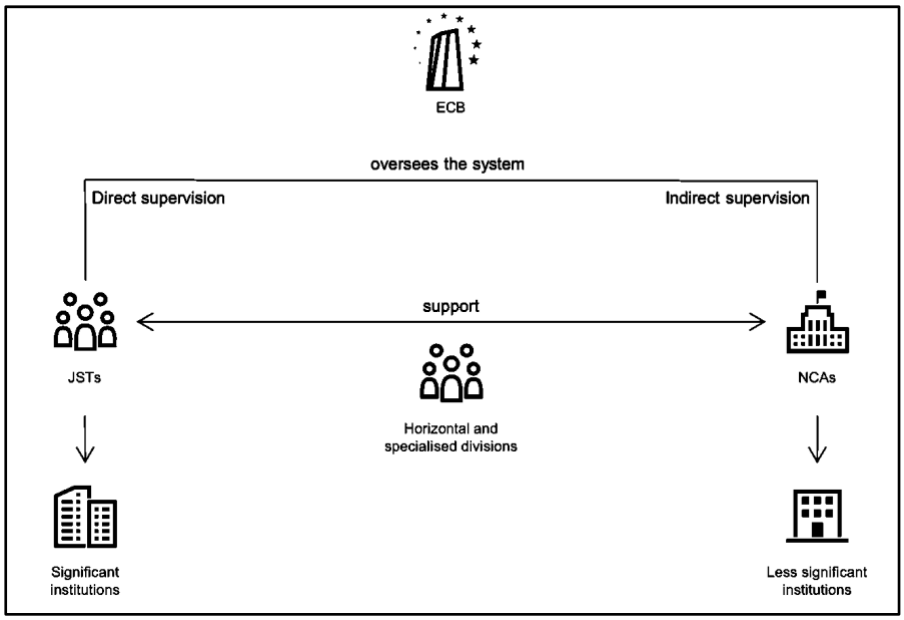
II. Abbreviations

AEP	Alternate Examination Program
BVR	Association of German Cooperative Banks
CAMELS	Capital adequacy, Assets, Management capability, Earnings, Liquidity, Sensitivity
DIF	Deposit Insurance Fund
e. g.	exempli gratia
EBA	European Banking Authority
EBU	European Banking Union
ECB	European Central Bank
EDIS	European Deposit Insurance Scheme
EFSF	European Financial Stability Facility
ESM	European Stability Mechanism
et al.	et alii
EU	European Union
FDIC	Federal Deposit Insurance Corporation
Fed	Federal Reserve
FRS	Federal Reserve System
i. e.	id est
JST	Joint Supervisory Team
LSI	Less significant institution
MNB	Multinational bank
NCA	National Competent Authority
NMB	Non-member bank
OCC	Office of the Comptroller of the Currency
PD	Probability of Default
RWA	Risk Weighted Asset
SEP	Supervisory Examination Program
SI	Significant institution
SMB	State member bank
SREP	Supervisory Review and Evaluation Process
SRM	Singe Resolution Mechanism
SSM	Single Supervisory Mechanism

US	United States
w. r. t.	with respect to

III. Figures

Figure 1: Organization of the oversight function



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Source:

European Central Bank, 2018, SSM Supervisory Manual - European banking supervision: functioning of the SSM and supervisory approach (page 8) (European Central Bank, Frankfurt am Main).

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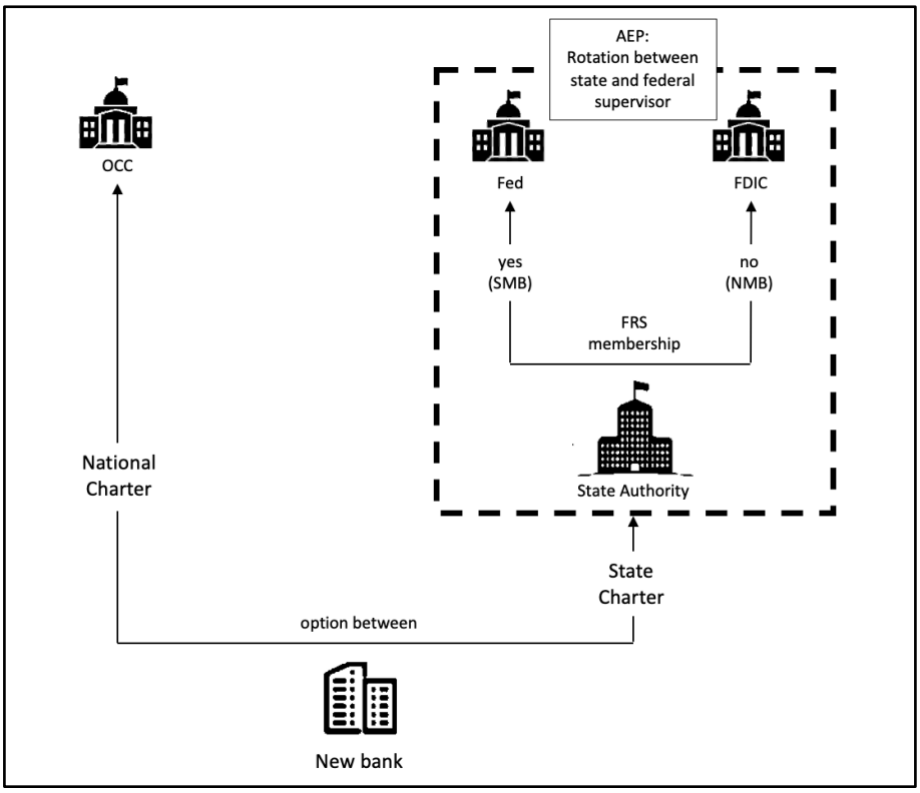
Figure 2: Banking supervision in the US



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1. Introduction

After the financial crisis, the start of European debt crisis and resulting bank failures and rescues, politicians, regulators and experts agreed to take measures in order to make the European banking sector more resilient. The European Commission (2012) had the vision to create a European Banking Union (EBU), which it set out in the legislative proposal "Roadmap towards a Banking Union". The main aim was the creation of a unified European banking market within the Eurozone, which can solve the problems that arose during the crises.

The first step towards the EBU was the establishment of the Single Supervisory Mechanism (SSM) in 2014. The SSM centralizes banking supervision of the largest banks in the Eurozone. Prior to the establishment of the SSM, all banks were supervised decentrally by their national authorities.

This paper examines the position of the SSM within the EBU and points out the main reasons for its establishment. Further, it describes the characteristics of the SSM to understand the structure of European banking supervision. The paper answers why the European Union (EU) responded to the crisis with partly centralizing supervision and shows which problems this entailed. For that, it analyzes the advantages and disadvantages of centralized and decentralized supervision. Based on the analysis of empirical results, the paper points out that differences between centralized and decentralized regulators exist. These differences can be applied to find arguments for centralized, respectively, decentralized supervision. In the end, these findings are applied to reflect the current structure of the SSM and to derive aspects, which an optimal supervisory architecture should comprise.

2. Characteristics of the SSM

The first chapter focuses on European banking supervision. It covers the design and structure of the SSM, which was established in 2014 and has fundamentally changed banking supervision within the Eurozone.

2.1 The SSM as the first pillar of the European Banking Union

This section introduces the EBU and the importance of the SSM within this system. It is based on information from the European Central Bank (ECB) published on its website (2021a and 2021b) and in the SSM Supervisory Manual (2018a).

After the European single market and the monetary union, the EBU was the next institutional step towards a consistent economic union. The EBU represents an EU-wide regulatory framework to centralize the European banking policy in order to harmonize the European banking market. This implies that banks within the Eurozone should be supervised consistently, regardless the country's domicile.

All members of the Eurozone are automatically part of the EBU. Besides these countries, other EU members can join the Banking Union. To date, Bulgaria and Croatia are also members of the EBU.

The fundament of the EBU is a single rulebook, which provides consistent regulatory standards for the financial sector. To date, the EBU stands on two pillars, the SSM and the Single Resolution Mechanism (SRM). Since the establishment of the EBU, there has been a broad discussion about a common deposit insurance to complete the EBU. While the SRM regulates the liquidation and restructuring of distressed banks, the SSM reorganized the European banking supervision. In this process, the ECB took over the competence for the direct, respectively the indirect supervision for banks within the EBU.

The SSM plays a central role, as it ensures that the regulatory standards from the single rulebook are implemented consistently across the member states. Furthermore, the ECB as a new supervisor has a major impact on whether a bank must be liquidated or restructured.

2.2 Reasons for the SSM

The real estate crisis in the United States (US) starting in 2007 and resulting bank failures (e. g. the bankruptcy of Lehman Brothers in 2008) led to a worldwide financial crisis. Due to the tightly interconnected global financial system, European banks were also affected and were close to bankruptcy or even went insolvent. At this time, European states had to decide whether to support banks to prevent a total collapse of their national financial system. In the end, European governments spent billions of Euros to recapitalize affected banks.

As a result, some European countries overindebted themselves to save banks and to provide economic stimulus packages. This led to the European debt crisis and again to severe problems within the European banking sector.

Although most of the European states were in the single monetary union, the individual states decided on their own, whether, and how to support their banks. This led to uncoordinated bank rescues within the Eurozone in both the global financial crisis and the European debt crisis.

The ECB (2012) describes that inconsistent banking regulations in the run-up to the crises and disagreements about the right bank rescue during the crises led to a massive loss of trust between individual banks and between national governments.
The excessive holding of domestic government bonds by banks led to strong dependencies between the national governments and these banks. This strong interdependence meant that if one party was in financial distress, the other was also strongly affected. Conflicts of interests arose from this, which could influence national supervisors (this phenomenon will be analyzed in more detail in subsection 3.5.4), as the ECB (2012) argues. The Euro almost collapsed due to this uncoordinated approach and the excessive national debt of some countries.
These crises have highlighted the need for action regarding a single European banking supervision. As the ECB (2012) argues, the SSM can immediately break dependencies between the national states and banks. In the long run, the ECB expects to achieve a more stable banking sector through common supervision, which should prevent such crises in the future.

2.3 Establishment of the SSM

Although the SSM's necessity after the financial crisis was apparent, the establishment and implementation were a difficult political process. This section is based on the paper of Haselmann, Singla and Vig (2019) regarding the establishment of the SSM.
In September 2012 the European Commission proposed a "Roadmap towards a Banking Union". This proposal served as a blueprint for the establishment of the SSM.
The proposal was preceded by discussing how the SSM should be structured and whether all 6.000 banks in the Eurozone should be supervised directly by the ECB. There were also complaints about the new "double" role of the ECB as central bank and banking supervisor, which could create conflicts of interests. Proponents argued that this would improve the coordination between monetary policy and supervision.
The commission chose the approach of having the ECB supervise only so called "significant institutions" (which will be defined in the section 2.8). After the Economic and Financial Affairs Council's, the European Parliament's, and the Councils' consent, the way was open for the SSM. In November 2014, the ECB took over the responsibility for the supervision of 130 significant institutions. To ensure a smooth takeover, a transition period already started one year earlier. However, in the beginning, the ECB had problems due to an insufficient personal capacity. As a result of this, only larger banks within the ECB supervision could be supervised from day one in the intended manner.

2.4 Differentiation between the EBA and the SSM

As a result of the financial crisis, the European Union established the European Banking Authority (EBA) already in 2011. The EBA (2021) describes that it sets EU-wide technical standards and guidelines to create a single European rulebook in banking, which is fundamental to the EBU. In comparison to the SSM, the EBA is not responsible for the direct supervision of financial institutions. Also, the EBA is an EU-wide institution and sets regulatory standards across the member states of the EU.

However, Tröger (2014) argues that the ECB as the supervisor is actual a more important norm-setter than the EBA. The technical standards from the EBA and the supervisory framework are remarkably similar, but in some points, the ECB standards are even stricter compared to the EBA. Due to ECB's supervisory power, it can encumber stricter standards on the national authorities within the SSM. In such a case, the ECB is able to set the standards for European Banking Regulation. This can lead to an unclear distribution of tasks or, in the worst case, to competence disputes.

2.5 Organization of the SSM

In order to elaborate on the organization of the SSM, light needs to be shed on the operational structure and relevant bodies of the SSM, the role of the ECB and the national competent authorities within the SSM and how the interaction in-between is facilitated. This interaction also comprises decision-making under the SSM.

As manifested in the "SSM Supervisory Manual" issued by the ECB (2018a), the operating structure of the SSM is based on the separation principle, which aims to prevent potential conflicts of interest between the ECB's supervisory responsibilities under the SSM and its responsibility for monetary policy as a central bank. Therefore, separation has been implemented in a three-dimensional way within the ECB, so that each role can be exercised independently following its own objectives: First, the ECB's conduction of banking supervision is overseen by a Supervisory Board which is comprised by ECB and NCA staff and acts independently from the purely ECB staffed Executive Board, which manages the day-to-day business of the ECB. Also, a splitting of operations related to the two ECB functions is implemented in the Governing Council, which is the highest decision-making instance within the ECB, comprised by ECB members and the presidents of all national central banks in the Eurozone. Second, information-sharing policies between the ECB's two functions have been

put in place. Third, separation at staff level is ensured by the functional and direct reporting of four specialized "Directorates General" and a Secretariat to the Supervisory Board.

The ECB as an independent EU institution safeguards banking supervision from a European perspective. Within the SSM, the ECB's overall responsibility is to ensure that the SSM operates in a stable and effective manner. In this context, it is in charge for ensuring consistent supervision for all – directly and indirectly – supervised banks by developing and applying high supervisory standards and by making sure, that the supervisory methodologies applied by the member states are of high quality. Additionally, the ECB is responsible for the direct supervision of significant institutions (SIs) and the indirect supervision of less significant institutions (LSIs) across the SSM which will be elaborated in more detail in section 2.8.

The national competent authorities (NCAs) are responsible for the direct supervision of less significant institutions (LSIs) under the SSM – this will also be further explained in section 2.8. Moreover, NCAs supervise aspects not covered by the SSM Regulation (2013) or which have not been transferred to the SSM so far.

The ECB (2018a) further describes that the SSM relies on close communication and cooperation between the ECB and NCAs in all supervisory activities to create a common understanding of supervisory standards.

Accordingly, decision-making involves both, the ECB and the NCAs. Given the separation principle, legally binding decisions relating to banking supervision are processed under the "non-objection procedure". This foresees, that the Supervisory Board of the ECB approves legally binding draft decisions. Due to its composition, the ECB but also the NCAs can hand in draft decisions for supervision via the Supervisory Board. Afterwards, the draft decision goes into the Governing Council for final adoption – hence, the Governing Council can only agree or raise objections to draft supervisory decisions but cannot change them.

2.6 Tasks of the SSM: visualization as a supervisory cycle

As depicted by the ECB (2019), the tasks related to banking supervision can be visualized as a cyclic process, in which supervisory regulations and policies set the frame for the development of supervisory methodologies and standards, which define "day-to-day supervision". Lessons learned during the latter and through other channels are used to improve this process and thus, close the circle.

Taking a closer look at the cyclic process mentioned above, the ECB engages in the development of prudential requirements for SIs and LSIs, covering a variety of topics like

capital and liquidity levels, management practices and compensation standards. Further, the ECB may put in place own instructions to support standards for day-to-day supervision to achieve proper and consistent supervisory outcomes. One major example to be stated in this context is the Supervisory Review and Evaluation Process (SREP), which sets proportional frameworks for the ongoing risk assessment in direct and indirect supervision.

Ongoing supervisory activities, i. e. day-to-day supervisory activities entail the continuous interaction with the supervised entities and the continuous supervision of their operations as set out by supervisory methodologies and standards. Besides ongoing activities, the ECB and, to some extent, the NCAs can take ad-hoc supervisory measures and impose sanctions, as elaborated in section 2.7.

Potential for improvement is identified throughout the supervisory process and thematic reviews and fed back into the development of new and the redefinition of existing regulation, supervisory methodologies, standards and practices. The interplay of micro- and macroprudential supervision also gives valuable impulses for enhancements.

2.7 Tools of the ECB within the SSM

The ECB is entrusted with the responsibility to guarantee consistent supervision for all banks under the SSM and to safeguard the stable and effective functioning of the SSM. In these regards, it has the power to use a variety microprudential tools to ensure the former and certain macroprudential tools to contribute to the latter.

Microprudential supervision contributes to a safe European banking system. To do so, corresponding tools challenge and test the risks of banks individually. On a microprudential basis, the ECB can conduct supervisory reviews, such as stress tests, on-site inspections and specialized investigations. Further, it can grant or withdraw banking licenses, authorize acquisitions and extend capital requirements to mitigate general financial risks. It also may enforce compliance with EU prudential rules and - if this cannot be ensured - impose corrective measures and sanctions (ECB, 2021c).

Macroprudential supervision aims to ensure the stability of Europe’s financial system. To preserve this overarching goal, the ECB can use tools intending to prevent the excessive build-up of risk, to smoothen the financial cycle, to increase resilience of the financial sector and to encourage a common approach in financial regulation. These tools are mainly the application of higher prudential requirements for banks, (e. g. counter-cyclical capital

requirements, in contrast to the microprudential tool of setting higher capital requirements against general financial risk) and to intervene in measures taken by NCAs (ECB, 2021c).

2.8 Organization of the oversight function: direct vs. indirect supervision

Within the SSM, banks are either directly or indirectly supervised by the ECB. As depicted in Figure 1, the ECB directly supervises banks considered as "significant" institutions (SIs) via Joint Supervisory Teams (JSTs). Correspondingly, the ECB indirectly supervises banks considered as "less significant" institutions (LSIs) as these remain under direct supervision of the relevant NCA, which is overseen by the ECB. Nevertheless, the ECB can take any of these banks under its direct supervision to ensure a consistent application of supervisory standards, if deemed necessary. Both, JSTs and the NCAs are supported by horizontal and specialized divisions of the ECB, who add expertise in particular supervisory topics.

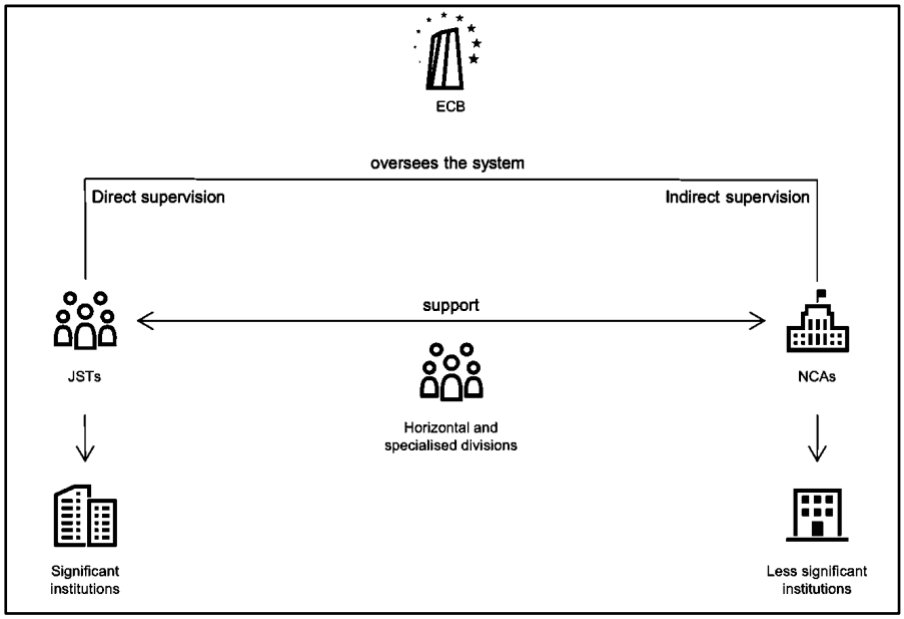

Figure 1: Organization of the oversight function

The classification of a bank as significant is based on four criteria set out in the SSM Regulation (2013) and the SSM Framework Regulation (2014). If at least one criterion is fulfilled, the bank is deemed significant. The significance criteria encompass the aspects as enumerated in the following: First, the size-specific criterion is met if a bank´s total asset value exceeds 30 billion €. Second, the economic importance criterion is fulfilled if the bank is of systemic relevance for a particular country or for the EU. Third, the cross-border activity criterion is met if the

bank´s total asset value is larger than 5 billion € and if its "cross-border-positions ratio"[1] exceeds 20%. Fourth, the public financial assistance criterion is fulfilled if the bank has requested or received financial aid from the European Stability Mechanism (ESM) or the European Financial Stability Facility (EFSF). Besides these mandatory criteria, a bank can also be deemed significant if it is one of the three weightiest banks in a country. The ECB regularly reviews all licensed banks across the SSM. Hence, a bank's "significance status" can change – this typically happens due to usual business operations but can also happen in the course of a certain event such as a merger or acquisition.

The direct supervision of SIs on a day-to-day basis is undertaken by JSTs, which are comprised of ECB and NCA staff of all participating countries in which the SI operates. For each SI, a dedicated JST is established and its composition and organization are proportional to the SI's "nature, complexity, scale, business model and risk profile", as outlined by the ECB (2018a).

The JST drafts and organizes the Supervisory Examination Programme (SEP, which defines ongoing supervision of the respective SI) and for the actual conduction of the ongoing supervision. The latter also entails assessing a SIs risk profile and risk management, business model and strategy, internal governance and control systems on a regular basis. In this context, the JST also performs the SREP and retains continuous interchange with the SI. Also, JST staff partakes in on-site inspections and specialized investigations. Even though dedicated ECB personnel coordinates a JST, NCA staff supports in various aspects and thus, brings in the opinions of the relevant NCAs.

3. Analysis: Advantages and disadvantages of centralized and decentralized supervision

The first sections of this chapter set the stage for the analysis by introducing the idea of hybrid systems, as they serve as laboratory examples for analyzing differences between centralized and decentralized supervision. Simultaneously, these differences in hybrid systems, potential explanations and related consequences are pointed out. Sections 3.5 and 3.6 address the actual advantages and disadvantages of (de-) centralized supervision, based on findings from hybrid systems. Afterwards, some suggestions on the characteristics which an optimal supervisory architecture should have are pointed out.

[1] "Cross-border-positions-ratio" = ratio of a banks' cross-border assets or liabilities in more than one other participating member state to its total assets or liabilities.

3.1 Introduction to hybrid systems in supervision – focus: United States

There are two main examples of supervisory architectures which feature both, central and decentral supervision and thus, provide multi-faceted insights into the pros and cons of both, considered individually and combined. In the following, these will be called "hybrid systems".

First, as elaborated in section 2.8, banks in the Eurozone are directly supervised either decentrally by the relevant NCA or centrally by the ECB. Nonetheless, supervision is conducted in close collaboration in both cases – either via JSTs or through oversight of the NCA by the ECB and reciprocal communication.

Second, as Agarwal, Lucca, Seru and Trebbi (2014) describe, and as depicted in Figure 2, banks in the US are able to choose between a national and a state charter. National chartered banks are solely supervised by the Office of the Comptroller of the Currency (OCC) on federal level. State chartered banks are supervised either by their state supervisor or by one of two different federal supervisors: The Federal Reserve (Fed) or the Federal Deposit Insurance Corporation (FDIC). A rotation policy organizes the alternate examination programs (AEPs), which assign the banks to time intervals of 12 or 18 months between state and federal supervisors. Besides their relevant state supervisors, nonmember banks (NMBs) of the Federal Reserve System (FRS) rotate to the FDIC, whereas state member banks (SMBs) rotate to the Fed as their federal supervisor. Relatively few banks are excluded from the AEPs. Those banks are either examined by federal regulators only or jointly with the relevant state regulators.

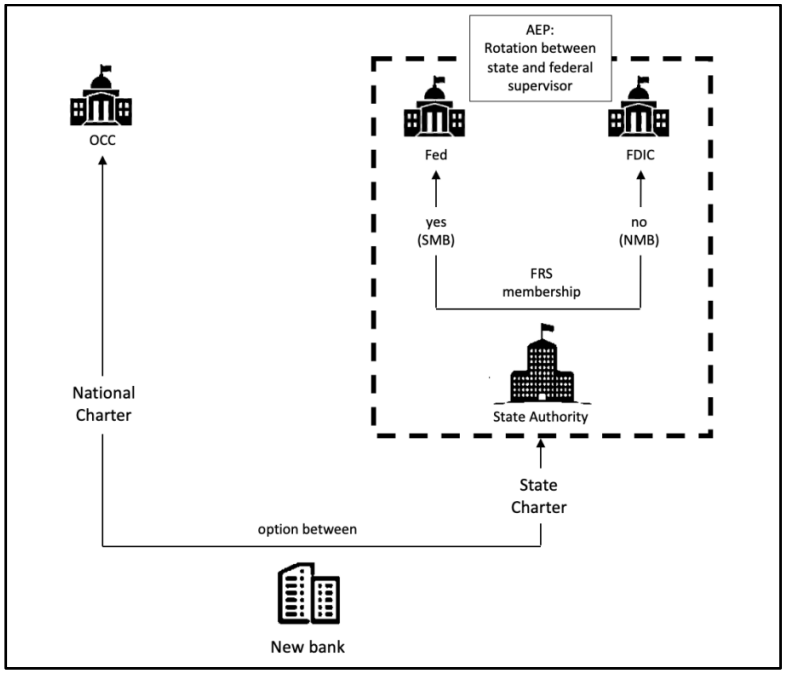

Figure 2: Banking supervision in the US

3.2 Empirical evidence for differences in supervision

This section summarizes the most important empirical results in the US and the EU regarding the differences between a centralized and a decentralized supervision.
The focus will be on the reported risk-weighted assets (RWAs) and the reported probabilities of defaults (PD) of issued loans for EU banks. The RWAs puts all assets and off-balance sheet activities of banks in proportion to their risk. To evaluate RWAs, the bank must determine the PD of its issued loans. The RWAs are used to calculate the required capital ratios for a bank.
For US banks, the focus will be on CAMELS ratings. US supervisors use CAMELS ratings to analyze the shape of banks. In the end, every bank gets a rating between 1 (best) and 5 (worst).

Since the establishment of the SSM, there are significant differences between the reported RWAs of the ECB supervised banks and banks supervised by NCAs, as Haselmann et al. (2019) explored. Haselmann et al. (2019) show that between November 2012 and November 2017 the RWAs from ECB supervised banks increased by 7,1% compared to NCA supervised banks. These large differences also become clear in reported PDs. Haselmann et al. (2019) illustrate that the reported PDs of banks under the ECB supervision are 4,1% higher than those of banks under the NCA between November 2014 and November 2017. As the RWAs are used to calculate the required capital ratios, higher RWAs imply a lower capital ratio, respectively, the need for more equity resources. In other words, if the banks under the ECB supervision report higher RWAs, they have to underlie their assets with more equity than other banks.

Agarwal, et al. (2014) examine effects on CAMELS Rating between centralized and decentralized supervised US banks. Thereby, Agarwal et al. (2014) found significant differences between state and federal supervision. This shows that the central supervisors downgrade commercial banks twice as likely as its decentral opponent. Also, the federal supervisors upgrade banks less often than state regulators.
All these results demonstrate that neither in the EU nor in the US, the supervisory standards between central and decentral institutions are consistent. These empirical results suggest that central supervisors are significantly more strict than decentral regulators.

3.3 Reasons for differences in supervision

This section is intended to explain why differences between central and decentral supervisors may exist and which factors can influence supervisors' incentives to deviate from a common approach within a hybrid system.

Agarwal et al. (2014) find that differences in supervision are mainly associated with supervisors' different weighting given to local economic conditions and with differences in supervisory resources. Assessing some bank-level aspects like lending, portfolio and ownership status of a bank, they show that supervisors are less strict with larger banks and with privately held banks. Banks' asset compositions are not linked to differences in supervision. There is also no proof for a "self-interest hypothesis" as a reason for reduced strictness of state regulators.

In addition to reaffirming the aforementioned, the ECB (2019) names two further reasons for discrepancies between central and decentral supervisors. First, the informational costs of assessing a bank's condition are different - and especially in between local supervisors very heterogenous. Second, supervisors are often entrusted with non-disjunct mandates and related objectives, which leads to different incentives to use the information at hand.
Taken together, these reasons lead to the observation as described in section 3.2, that local or national supervisors are more lenient than a supranational supervisor.

3.4 Consequences of inconsistent supervision

This section highlights and briefly explains the consequences of inconsistent supervision, which are well observable in hybrid systems, especially prior to or after a shift to the central supervisor. For a better reading, the consequences are divided into microeconomic and macroeconomic effects.

3.4.1 Microeconomic effects

Looking at the US system and its rotation policy, Agarwal et al. (2014) test implications of inconsistent supervision on bank performance and come to three major results. First, they show that rotation from a state supervisor to a federal supervisor increases a bank's Tier 1 capital (core capital including equity capital and disclosed reserves) and, consequently, its regulatory leverage ratio (bank's core equity capital divided by its total risk-unweighted assets). Second, they find that banks under federal supervision see a drop in returns on assets and a rise in nonperforming loans, which corresponds to the observation of a higher expense ratio in relation to state supervised banks. Third, they find some evidence for a limited anticipatory effect prior to a switch from state to federal supervision, as banks may try to mitigate some adverse impacts when expecting a switch to the more thorough supervisor.

The aforementioned findings by Agarwal et al. (2014) for the US set-up go hand in hand with those by Haselmann et al. (2019) for German banks within the SSM set-up w. r. t. anticipatory risk shifting activities among banks under different supervisors. In particular, and as elaborated in section 3.2, they show that banks under direct ECB supervision report increased RWA and PD measures and lower collateral to loan ratios relative to banks which remained under supervision by their relevant NCAs. Stricter supervision for banks under the SSM impacts their activities, especially leading to a shift of loans and securities to banks that do not fall under SSM supervision. Such shifts occur specifically in riskier positions or activities leading to an increased amount of risk being carried by smaller non-SSM banks.
Looking at firm level balance sheet data for the German corporate sector, Haselmann et al. (2019) also find that risky firms obtain relatively less funding since the SSM establishment. The magnitude of this effect depends on the fraction of the banking sector that falls under direct ECB supervision. Furthermore, they observe a negative correlation between the degree of corporate funding from banks directly supervised by the ECB and corporate income.

3.4.2 Macroeconomic effects

The inconsistent supervision also has macroeconomic impacts. This subsection focuses on two major macroeconomic components, the financial stability and the real economy, and how these are influenced by inconsistent supervision.
As explained in subsection 3.4.1, these inconsistencies affect the bank lending activities. Haselmann et al. (2019) document that a transfer of riskier assets from large banks to small banks occurred since the establishment of SSM. This is related to the fact that large banks are under the strict supervision of the ECB, and small banks are still under a forbearing national regulation.
Regarding financial stability, these shifts have two opposing effects. Haselmann et al. (2019) argue that due to the broader distribution of these assets the cluster risk of individual institutions could decrease because a larger number of smaller banks hold these assets instead of only a few larger banks. Nevertheless, Haselmann et al. (2019) see a potential threat in this development if smaller banks have a less efficient credit risk management approach. Due to the advantages regarding the economics of scales of larger banks, this should not be a disregarded factor. To date, it is not possible to assess conclusively which factor predominates.
Agarwal et al. (2014) also show that in US states, where the inconsistency between the state and federal regulators is more distinctive, the failure rate of banks and the probability of distress

are higher. Increased failure rates of banks and the transfer of riskier assets impact financial stability and through this there are likely to be indirect effects on the real economy.

However, it is more difficult to determine the direct effects of inconsistent supervision on the real economy. Haselmann et al. (2014) compare the lending activities in France and Germany to find indications for an impact on the real economy. Due to the "Three-Pillar-Banking-System" in Germany (private banks, saving banks and cooperative banks), only 67% of the banking assets were supervised by the ECB compared to 92% in France. Haselmann et al. (2014) show that lending in France decreased by 5,5% more than in Germany. As primarily riskier behaving companies are affected by the reduction of lending due to the ECB supervision, this is an indication that it is more difficult for riskier companies in France to get loans since the establishment of the SSM. This could impact the performance of these companies negatively. It implies that an inconsistent approach could also have positive effects on the real economy, as riskier firms could continue to receive loans from nationally supervised banks as is the case in Germany, for example.

3.5 Advantages of centralized and disadvantages of decentralized supervision

This section analyzes the advantages of centralized supervision respectively the disadvantages of decentralized supervision, based on findings from hybrid systems.

3.5.1 Coordination between supervisors

Multinational banks (MNBs) operate in their domestic but also in foreign countries. Therefore, they often have to face multiple national supervisors. This can easily lead to coordination problems among the NCAs, as Calzolari, Colliard and Loranth (2017) demonstrate. They refer to the example of Dexia, which was supervised by four NCAs simultaneously and incurred a shattering failure resulting in a 6 billion € bail-out in 2011. Such a failure, which happened to a significant extend due coordination problems between the relevant NCAs, emphasizes the need for a common, well-coordinated approach for the supervision of MNBs, which is an integral component of centralized supervision and could have prevented a failure due to a lack of communication and collaboration.

As a potential explanation of the above-mentioned failure, Holthausen and Rønde (2002) show that the interests of domestic and foreign country NCAs of a MNB do not fully coincide if the

advantages and disadvantages from the bank's operations are not shared in the same way. Even if the bank has completely symmetric activities in both countries, the interests may diverge. With diverging interests, the local supervisors' information exchange is insufficient – as each party tries to exploit information asymmetries – or in the worst case, they hinder each other, holding back sensitive information especially when it comes to extreme situations or decisions such as bank closure. In that way, the MNB can take advantage of more lenient decisions resulting from the supervisors' inability to exchange comprehensive information about the bank. Within a centralized supervisory framework, where coordination of authorities in supervision and an adequate exchange of information is assumed, such regulatory arbitrage would at least be limited, if not impossible at all.

Supporting the above, the ECB (2019) also summarizes that centralized supervision lowers informational asymmetry between the relevant NCAs and thus, limits the possibilities for supervisory arbitrage by banks.

3.5.2 Cross-border externalities

As suggested by Beck and Wagner (2013), cross-border externalities become increasingly important in the financial sector as market integration grows. General externalities, such as effects arising from bank failures, infiltrate other countries since advanced markets are often highly interconnected with the jurisdiction in which the event occurred. In contrast, specific externalities only arise in monetary unions, such as the EBU: If public financial aid is needed in several member states of the monetary union e. g. due to a major bank failure affecting multiple countries, the relevant central bank's reserves (for its lender-of-last-resort function) may become scarce, which, in turn, can result in fewer financial aid for all affected countries and other countries in need. In other words: The higher the number of countries which rely on the same lender-of-last-resort is, the lower is the potential financial aid when needed and the more severe is the adverse impact of the specific externality.

They argue that a central supervisor, in contrast to a local supervisor, has a broader oversight and does not only take into account general cross-border externalities but also considers specific externalities as it may have to internalize them. Concludingly, a central supervisor is even more favorable for federal systems or monetary unions, as it is for single economies.

3.5.3 Homogenous strictness in supervision and risk

As identified in sections 3.2 and 3.3, locally supervised banks are typically treated more lenient and are better rated than federally supervised banks. In addition, the analysis undertaken by Agarwal et al. (2014) highlights that the alternation arrangement also marks a more lenient supervision (and thus, more risk) compared to a fully centralized system without alternation.

Agarwal et al. (2014) point out that, on average, there is a counteraction to the strictness of federal supervisors by state supervisors, as the downgrades in CAMELS are often reversed by upgrades from state supervisors. Nonetheless, empirical evidence shows, that the more thorough the federal supervisor is, the less likely it is that the state supervisor would reverse decisions of the former. This "federal-state-spread" is perceived especially for banks confronted with difficult local economic conditions and, consequently, when the banking system needs tight supervision the most. A federal regulator would then provide more stability by its toughness – in a purely centralized but also in a hybrid setup.

According to Agarwal et al. (2014), federal supervisors' toughness further results in improved information collection by state supervisors. This leads to an improved implementation of supervision in hybrid systems, when the central supervisor has the power to set supervisory standards and oversees local supervisors.

3.5.4 Independence in supervision

The ECB (2019) suggests that many informational advantages are linked to centralized supervision in an integrated set-up. The latter is defined as an arrangement in which a single institution, such as a central bank, is in exercise of monetary policy and banking supervision. These advantages comprise an eased exchange of information, a better alignment of objectives and a reduction of inefficiencies e. g. by early accounting for potential side-effects. Therefore, coordination can be improved significantly which leads to a broader and at the same time, more detailed set of information for both, the monetary policy function and the supervisory function. The ECB (2019) further argues that having the monetary policy authority unified with the supervisory authority under one umbrella (i. e. the central bank) shields the supervisory authority against potential political intervention and regulatory dependence. Therefore, an integrated set-up enhances the independence of the supervisory authority from the economy and politics and thus, reduces conflicts of interest.

3.5.5 Efficiency in supervision

Furthermore, the ECB (2019) concludes that especially a big central supervisor benefits from synergies in supervision and has a more profound view on the stability of the banking sector as a whole. Synergies are also transmitted to banks as the reporting to and coordination with only one supervisor is more efficient and cost-saving for them compared to a set-up in which multiple domestic supervisors are involved. Thus, centralized supervision is associated with a more efficient and cost-saving outcome for both sides, supervisors and supervised entities.
This corresponds to the idea of having a center of expertise for banking supervision within the centralized supervisor instead of a potential lack of competence within the NCA: Especially in small countries, where banking supervision is undertaken by authorities who are entrusted with other tasks besides banking supervision, limited resources, budget and specialization in supervisory tasks often hinder satisfactory supervisory outcomes.

3.6 Disadvantages of centralized and advantages of decentralized supervision

This section analyses the disadvantages of centralized supervision, respectively, the advantages of decentralized supervision, based on findings from hybrid systems.

3.6.1 Impacts on the real economy

The paper has already pointed out in section 3.2 that centralized supervisors, such as the ECB or the federal regulators in the US, are stricter than decentralized supervisors. As described in section 3.4, strict regulation has negative impacts on lending activities. In consequence, access to loans is limited to riskier firms. This might imply that central regulators behave stricter than they should, so the real economy suffers, therefore. This would mean that centralized regulators are miscalculating the bank risks due to less efficient supervision.
The next subsections are intended to give some indications of why this might be the case, that centralized supervision is less efficient. However, this theory can be refuted by the inefficiencies of decentralized supervision, which the paper has already highlighted in section 3.5.

3.6.2 Heterogeneity of countries

Beck and Wagner (2013) explain the advantages of a decentralized supervision due to countries' heterogeneity. As the judicial system and the regulatory framework varies from country to country, it is easier for a local supervisor to implement these different rules and standards. A local regulator can set specialized rules and standards for a country. A potential central supervisor has to handle different legal systems, which makes specialization difficult.
Haselmann et al. (2019) also argue that local regulators have an informational advantage. Due to its local knowledge and its long experience about the particular market, a decentral supervisor can respond even better to the specific structure and development of an individual economy. In addition, the local supervisor is more familiar with the architecture of the regional banking sector and has a better understanding of specific customer behavior and the needs of banking services and products. Furthermore, soft facts such as different cultures, languages, and work methods can complicate a multinational approach.
In addition, the factor that the bank and the central supervisor are placed in different locations makes communication between the two parties more difficult.
Through this asymmetric information, misunderstandings can arise, which can lead to supervision becoming less efficient.

3.6.3 The German banking sector as an example

This subsection highlights the problems that centralized supervision would bring if applied to small and regional banks. For example, in Germany, the banking sector is very fragmented, and through the saving banks and cooperative banks, there are many regional and small institutions.

The study from Hackethal and Inderst (2015), commissioned by the association of German cooperative banks (BVR), has already examined the effects of the changes in banking regulation since the financial crisis on small banks. Based on this, the BVR has already demanded in its position paper (2015) that regulatory standards of large banks should not be applied one-to-one to small banks.
It is often challenging for these banks to implement all regulatory requirements because their back offices do not have the same personnel capacity as big multinational banks. If these banks are confronted with multinational supervision, they can quickly become overwhelmed.
As already explained in chapter 2, the SSM organization is very complex, and the supervisory teams are multinational. For small banks, centralized supervision through the ECB would mean

that they face the complex and bureaucratic standards from the ECB with a small number of employees who are not trained for this. Also, they might have to implement new systems or reporting standards due to the stricter regulation of the ECB, which were intended for multinational banks, but are not necessary for a regional bank.
Furthermore, they would be confronted with a language barrier. This is not to be underestimated because small banks are often only regional rooted, and they do not need foreign languages for their daily business. In terms of that, it might be impossible to provide all required reports and documents in English for them. In the daily practice, it also could be difficult for these banks and the supervisors to exchange information or to discuss the supervisory results with the management due to the language barrier.

3.6.4 Different preferences

Beck and Wagner (2013) also argue that preferences may be different, which will be explained in this subsection. As already stated in section 3.4, strict regulation often has negative impacts on economic growth and the banks' profitability if there is at least no bank failure.
The government has to choose between a strict and a less strict regulation. Stricter supervision implies a more stable financial system, but negative effects on the real economy. Less strict supervision instead stands for weaker financial stability but more economic growth. In the end, it is a tradeoff between risk and returns, which requires a political decision.
It can be assessed differently from country to country based on its individual preferences. These preferences could be influenced by different factors, such as the architecture of the banking sector or the development and structure of an economy. It implies that the optimal equilibrium may not be the same for each country. For this reason, it could be challenging for supranational supervisors to satisfy all different preferences and find the optimal level of supervision.

3.6.5 Renationalization of the banking sector

The paper has already pointed out in section 3.5.1 that a multilateral supervisory approach could solve the coordination problems in the supervision of multinational banks between national regulators. Nevertheless, this is also associated with unexpected consequences. Calzolari et al. (2017) argue that multinational banks would seek to avoid the stricter supervision of a central institution.

In the end, banks want to strategically position themselves to maximize their gains within a given regulatory framework. If a new multilateral regulator takes responsibility for the supervision of multinational banks, a global banks' management must rethink its strategy, especially when this supervisor is stricter compared to the national counterpart.
After such a strategic review, the bank may decide to become a purely national bank or does not pursue internationalization to continue to be supervised by the national authority. This would be precisely the opposite effect than the politicians wanted when they created a central system such as the SSM.

3.6.6 Divergence between centralized supervision and decentralized deposit insurance

Calzolari et al. (2017) also describe the need for common deposit insurance within centralized supervision. As described in the subsection before, multinational banks must adjust their strategies after switching to a multilateral supervisory approach.
Calzolari et al. (2017) argue that multinational banks under national supervision had the incentive to set up a subsidiary structure. It allowed them to escape strict regulation because every entity was supervised separately through the respective national authority. Within centralized supervision, banks have no longer an incentive to organize themselves into a subsidiary structure. They would probably use a branch structure because it is usually more comfortable and cost-effective for the management to work with such a structure.
However, the subsidiary structure has positive side effects concerning the national deposit insurances. This structure implies that in the event of insolvency of an individual subsidiary, the deposit insurance fund in which the subsidiary is located is responsible. Besides that, it would also be possible that in the event of the parent company's insolvency, the profits of the subsidiaries abroad could be used to pay deposits back and thus relieve the deposit insurance fund from the home country.
Calzolari et al. (2017) consider two scenarios of what would happen if the bank, due to the centralized supervision, changes its organization into a branch structure or retreats to the national home market.
If a bank decides to discontinue its subsidiaries abroad, this will also negatively impact the national deposit insurance. In the case of bankruptcy of the institution, there are no subsidiaries abroad with positive profits, which could mitigate the deposit insurance payments.

If the bank changes its organization from a subsidiary to branch structure, there would only be one legal entity, namely the parent company. If the bank fails, only the deposit insurance fund, where the entity is located, must repay the deposits regardless of which country the customer is located. With a subsidiary structure, payments would be divided among different deposit insurances depending on the country in which the deposits are made. This means that a single deposit insurance fund's risk exposure could drastically increase if banks change their structure.

The divergence between centralized supervision and decentralized deposit insurance could, therefore, have disastrous consequences. These arguments have shown that national deposit insurances and supranational subversion are not compatible. This may even result in greater financial market instability if induvial national deposit insurances are strongly affected by bank failure.

3.7 Determinants of an optimal supervisory architecture

In this section, different approaches to an optimal regulatory architecture are discussed - which interestingly can be cut down to very few determinants for a balanced solution. Further, these results are briefly projected on hybrid systems as implemented in the EU and in the US.

Instead of a "one-size-fits-all approach", Beck and Wagner (2013) suggest deriving the optimal level of centralization in supervision on a national, sometimes even institutional basis, considering the existence, form and magnitude of cross-border externalities and the extent of heterogeneity between relevant jurisdictions. The recommended level of centralization is positively correlated to the degree and severity of cross-border externalities and negatively correlated to country heterogeneity. Therefore, an optimal supervisory architecture should reflect this trade-off between both factors.

This corresponds to the findings by Holthausen and Rønde (2002), who show, deploying a stylized analysis and assuming welfare-maximation of supervisors for their own countries, that first best (i. e. optimal) solutions can only be implemented if their interests are perfectly aligned. The more aligned they are the higher is welfare under central supervision.

Given a centralized supervisor has the full power over all banking related decisions but relies on information gathered by local supervisors, Carletti, Dell'Ariccia and Marquez (2016) conclude that a hybrid set-up causes information asymmetries if the central and local supervisors' objectives differ: The central supervisor is not able to collect as many or detailed information as the local supervisors. The biggest "net effect of centralization" in supervision therefore is gained when these two factors are balanced.

Assuming a similar distribution of powers like Carletti et al. (2016) but letting the centralized supervisor gather information via own channels as well, Colliard (2014) emphasizes that the optimal level of centralization varies with the magnitude of cross-border externalities, the opaqueness and the asset-specificity of the supervised banks. The optimal solution trades off better incentives of a supranational supervisor and better knowledge of national supervisors of their domestic banks. Therefore, joint supervision is superior to both pure forms if the cost of reliant information is not too high and the bank is not too opaque.

Additionally, Colliard (2014) argues that the ideal solution may be endogenously changed by supervised entities' reactions to a new supervisory set-up. Therefore, an optimal supervisory architecture should be progressive and bear certain flexibility to be able to adapt to market developments.

The implications of the aforementioned for the EU, respectively the US as financially well integrated but quite heterogeneous regions would generally be that purely centralized supervision would be too expensive and politically infeasible and thus, would neither contribute to welfare on aggregate nor on national or state level. For both scenarios in particular, but also in general, the presumption is that supervisory outcomes from hybrid systems supersede those from purely central or decentral supervision as they allow for exploitation of the advantages of both extremes of the spectrum of possible supervisory architectures.

4. Critical reflection of the SSM

The paper has already documented in chapter 3 the advantages and disadvantages of centralized, respectively decentralized supervision. It has also described that inconsistencies exist within a dual system and which consequences can arise because of it. In this chapter, the findings are applied to the SSM in order to reflect it.

As already explained in chapter 2, the SSM pursues a dual approach where only significant banks are under direct supervision, but national authorities still supervise smaller banks. The dual system is limited because the ECB has indirect supervision over all other banks within the EBU and can theoretically also directly supervise a small bank if necessary. With this approach, the EU wants to bring together the best of both concepts to avoid the disadvantages of purely centralized or decentralized supervision.

By centralizing the supervision of large banks, important problems that arose within the European banking sector during the financial crisis could be solved. As explained in section 3.5, the ECB, as the central supervisor, can solve coordination problems in the supervision of

multinational banks, and it can respond better as a neutral institution to the strong dependencies between the national states and banks.

The decision that the ECB will supervise only significant banks will especially protect small and regional banks. Since these banks play a central role in financing companies and households in many European countries and their business models have often proven themselves but would have reached their limits with centralized supervision (the problems have been already highlighted in subsection 3.6.2), the dual system can be quite positive in this respect.

Due to the joint supervisory teams, which was explained in section 2.8 the specific knowledge and experience of local regulators can still be used and maintained within central supervision.

Besides these positive effects, the structure of the SSM also brings its' disadvantages with it. Within the dual system, inconsistencies between the ECB and the national authorities exist, as described in section 3.2. The paper has already pointed out in section 3.4 the micro- and macroeconomic effects of this phenomenon. In this context, it is worth reiterating the threats to the financial system. Haselmann et al. (2019) describe how that inconsistent supervisory is a potential danger to the system due to the transfer of riskier assets to smaller banks. So, although the idea was a stabilization of the financial system through the SSM, the opposite could happen.

It could be argued that the ECB indirectly supervises all banks to avoid such inconsistencies. Furthermore, the ECB has the power to take over the supervision of small banks if they are in difficulties. However, since differences in supervision exist, as Haselmann et al. (2019) show, the ECB has probably made little use of indirect supervision so far or must increase its influence, which it is entitled to, on the national authorities. Whether the ECB's right of intervention or the established SRM has a positive impact on financial stability is difficult to judge today, as no long-term data are available yet.

The inconsistencies can also lead to regulatory arbitrage. Calzolari et al. (2017) argue that banks may decide to become purely national banks to avoid central regulation, as specified in subsection 3.6.5. This could prove disadvantageous regarding possible European bank consolidations.

One of the biggest problems of the SSM is still the incomplete banking union. Since banking supervision has been centralized, but the deposit insurance funds are still national. As already described in subsection 3.6.6, isn't the SSM therefore able to develop its full effect or even leads to negative effects.

The dual approach of the SSM combines positive aspects from both worlds to meet the different requirements of the individual member states. Nevertheless, the ECB has not yet managed to

avoid inconsistencies. Also, the divergence between centralized supervision and decentralized deposit insurance is still a big problem. This calls for both the ECBs assertiveness and the political will to complete the banking union to strengthen the SSM.

5. Critical reflection of the term paper

The last chapter includes a critical review of the findings and implications of the paper.
The paper analyzes the advantages and disadvantages of centralized and decentralized supervision. Therefore, papers with data from the US and the EU were used in order to make general statements about banking supervision. Both regions represent a large part of the global economy, but far not the entire global economy. Also, the US and the EU differ in various respects.
Due to the heterogeneities of countries such as different cultures, banking architectures, or economic developments, agents from different countries can react differently to regulatory approaches. This is the reason why it should be treated with caution by taking findings from the US or the EU to apply this to the respective other or other regions. It has to be adapted to the individual specifics of the region.
Since the SSM has only been established for seven years, there is no long-term data available yet. It is partly unsure how certain standards settle and whether the ECB or policymakers react to any misguided developments. As there was no new crisis since the establishment of the SSM, it is also difficult to assess whether and how the new banking supervision structure will prove itself. This should be considered for the empirical results from the EU, which the paper highlighted.

6. Conclusion and outlook

When analyzing centralized and decentralized approaches to supervision, one cannot evade looking at hybrid supervisory systems, as purely central and decentral solutions appear to be rather rare in reality. Hybrid supervisory systems entail both, components of centralized and decentralized supervision, but in varying extends and forms and thus, provide valuable insights when answering the question of benefits and costs of both pure forms of supervision.

Hence, this paper focusses on hybrid supervisory systems, namely those in the EU and the US in order to answer the question on advantages and disadvantages of centralized and

decentralized supervision - which often become clear through inconsistencies in supervision and related consequences in these systems.

The main advantages of centralized supervision comprise a reduction in coordination efforts and problems among local supervisors in MNB supervision, the fact that a multinational supervisor considers cross-border externalities which increasingly gain importance due to the cross-border integration of financial markets, a homogeneous supervision and minimum standards for all supervised entities leading to a decrease in financial risk and regulatory arbitrage and, finally, an independent and more efficient supervision as a result of unhinging NCAs from their local environment and, where applicable, bringing monetary and supervisory authority and know-how together under a single, politically and regulatory shielded umbrella.

In contrast, disadvantages of centralized supervision mainly relate to the persisting heterogeneity of jurisdictions under one supervisor so that an "one-fits-all approach" does not seem to fit all (especially not for very fractioned financial markets such as in Germany it would impose overproportioned regulatory burdens for small institutions), but also to different preferences on whether to prioritize financial stability over economic growth (and thus, supervisory strictness over laxity), as well as to the renationalization of the banking sector and the divergence between centralized supervision and decentralized deposit insurance.

Taken together and balanced against each other, these advantages and disadvantages of different approaches to supervision suggest that there is no patent for an optimal supervisory architecture, but that the ideal approach majorly depends on a few variables. These encompass the existence, form and magnitude of cross-border externalities, the heterogeneity of jurisdictions, the divergence of interests across them and the opaqueness of the supervised banks and the specificity of their assets (exogenous variables) as well as markets' reactions on supervisory structures (endogenous variable).

As an outlook, the attention will be drawn on two aspects which may influence the weighting of some advantages and disadvantages mentioned in this paper and the variables which matter for creating a well-fitted supervisory architecture: Cross-border banking consolidation in Europe and the transmission to a European Deposit Insurance Scheme (EDIS).

To enhance the financial stability of the European banking sector, more bank mergers are required, as big banks fall under the SSM, which reduces financial risks through common supervision and rules, as Crossland and Cermak (2018) claim. Accordingly, easing regulatory requirements and promoting incentives might be a way to encourage cross-border banking consolidation. But many banks seem too weak to facilitate a cross-border merger as they are still facing the aftermaths of the financial crises and therefore, focus on organic growth and

strengthening their own business. Concludingly, cross-border banking consolidation would rather be an option for the long-term to increase the stability of the European banking sector.

Therefore, in the short(er)-term, the initiative to introduce an EDIS besides existing national deposit insurance funds further contributes to a stable European banking sector as it would complement centralized banking supervision by requiring all member states to contribute to a common Deposit Insurance Fund (DIF) covering payouts in banking crises. As explained by the ECB (2018b), such contributions would have to be made based on a warrant-, risk- and size-specific approach in order to internalize specifics on bank and banking system level. Thus, fund intervening would be structured in the same hybrid way as banking supervision within the EBU and the co-existence of both in a fully-fledged manner would prevent what was still at the edge in recent years: cross-subversion of banks and the adverse consequences for financial stability and the real economy.

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