Institut für Bank- und Finanzgeschichte (IBF) (Ed.)

Proceedings

Conference on "Banking and the State"

IBF Paper Series, No. 01-22

Provided in Cooperation with:
IBF – Institut für Bank- und Finanzgeschichte / Institute for Banking and Financial History

Suggested Citation: Institut für Bank- und Finanzgeschichte (IBF) (Ed.) (2022) : Conference on "Banking and the State", IBF Paper Series, No. 01-22, IBF - Institut für Bank- und Finanzgeschichte e.V., Frankfurt a.M.

This Version is available at:
https://hdl.handle.net/10419/253383

IBF Paper Series
Conference Papers | 01–22

Conference on

"Banking and the State"

jointly organized by the Leibniz Institute for Financial Research SAFE and the Institute for Banking and Financial History (IBF), virtually held on November 9, 2021

Contents

Public Banking Activities before 1945: Functions and Effects

01 | 1–27 Maria Stella Chiaruttini, Great Expectations: Public Banking in Southern Italy Between Promises and Failures

02 | 1–54 Theocharis Grigoriadis / Marvin Suesse, Financing Late Industrialisation: Evidence from the Russian State Bank

State–owned Banks and Development Banking in the Aftermath of the Second World War

03 | 1–15 Armin Grünbacher, "Politics of pragmatism": The Kreditanstalt für Wiederaufbau as a bridge between the state and private banks and businesses during West Germany's reconstruction period, 1948–1961

04 | 1–24 Zeliha Sayar, The State–owned Banks in Turkey after the Second World War: Crowding Out or Supplementary Role?

05 | 1–23 Ilaria Pasotti, The role of the Istituto Mobiliare Italiano at the service of the Italian government's economic policy. Research suggestions from the Intesa Sanpaolo Group Historical Archives

Stabilizing and Crowding Out Effects of Public Banks

06 | 1–15 Michael Schwan / Mark Cassell, Sparkassen revisited. The resiliency of German savings banks between globalization and crises

07 |1–35 Marcin Borsuk / Oskar Kowalewski / Pawel Pisany, State–owned banks and International shock transmission

08 |1–33 Matthias Thiemann / Dan Mocanu, Chasing Unicorns: Recent EU Initiatives in the Context of the Evolving Role of Public Development Funds in European Venture Capital Markets

IBF FRANKFURT | Institut für Bank– und Finanzgeschichte e.V.
Goethe–Universität Frankfurt
Theodor–W.–Adorno–Platz 1 | Hauspostfach 13
D–60323 Frankfurt am Main | Germany
www.ibf–frankfurt.de

IBF Paper Series
Banking and Finance in Historical Perspective
ISSN 2510-537X

Redaktion / Editorial Office

Hanna Floto-Degener
Geschäftsführerin
IBF FRANKFURT | Institut für Bank- und Finanzgeschichte e.V.
Goethe-Universität Frankfurt
Theodor-W.-Adorno-Platz 1 | Hauspostfach 13
D-60323 Frankfurt am Main | Germany
Tel.: +49 (0)69 6314167
Fax: +49 (0)69 6311134
E-Mail: floto-degener@ibf-frankfurt.de

Satz: Pauline Lauch, Frank Dreisch

Dr. Maria Stella Chiaruttini

Great Expectations: Public Banking in Southern Italy Between Promises and Failures

Contents

Abstract	1
1. Introduction	2
2. Public Banking Before Unification	5
3. Public Banking After Unification	9
4. Conclusions	15
References	17
Figures	20

Maria Stella Chiaruttini is a University assistant (Post-doc) at the Department of Economic and Social History of the University of Vienna.

Address: Department of Economic and Social HIstory, University of Vienna, Universitätsring 1, 1010 Wien

E-Mail: maria.chiaruttini@univie.ac.at

Abstract

This paper explores the secular tradition of public banking in Southern Italy, focusing in particular on the nineteenth century. In its long history, Southern public banking took different forms, characterised by different degrees of centralisation, of control exercised by local or state authorities and the involvement of civil society according to a model of stakeholder banking. Over the centuries, public banking played a crucial role in stabilising and integrating monetary markets and supporting public finances. It also provided credit to the private economy and helped combat usury. In this regard, however, its record is more mixed, especially as regards the first half of the nineteenth century. In those decades, the Bourbons came to manage a powerful, state–owned banking system which, by prioritising fiscal stability, proved dramatically unable to foster credit and economic development. This changed after the unification of Italy. The market was liberalised, public banking was reformed and exposed to the direct competition of private banks. By relying on both private and public banking, the Italian government was able to extract within a novel fiscal framework even more resources than the Bourbons from public banking alone and at the same time foster credit provision to the private sector. Competition made public banks more efficient than under the Bourbons but it did not eliminate problems of governance typical of public enterprises. Moreover, public banking transformed into a pawn of regional party politics. It also complicated the drafting of a coherent banking legislation at national level and contributed to the slower development of private financial markets in the South. If there is a lesson to be learnt from the history of Southern public banking, it is this: that its performance benefits significantly from exposure to private competition and that it depends less on its being 'public' than on the specific character it takes in a given historical context.

1. Introduction

Massive state intervention in the financial sector during the Global Financial Crisis of 2008-10 and the steady rise of China's state capitalism have rekindled the debate about the role of the public sector in banking. While across the globe state presence in banking has substantially decreased since the 1990s, the Global Financial Crisis has slightly reversed this trend. Moreover, public banking is still strongly represented in Russia, China, South Asia, North Africa and South America, while it still carries weight in high-income countries, although to a lesser extent (Cull et al. 2017; see also Gonzalez-Garcia and Grigoli 2013; La Porta et al. 2002).

Since the 1990s, the literature on public banking has drawn upon the insights of the research on non-financial state-owned enterprises (SOEs), while exploring the peculiarities of public intervention on credit markets. One school of thought emphasises the positive aspects of such intervention by pointing out the pervasiveness of market failures in the financial sector (Stiglitz 1992). According to an interpretation dating back to Gerschenkron (1962), the state can play a major role in economic development, particularly in less advanced countries, where it can channel financial resources to promising but credit-constrained sectors. Besides managing development banks (see e.g. Lazzarini et al. 2015), the state can also improve access to banking services and combat predatory lending (Herndon and Paul 2020). Moreover, public banks can help stabilise the economy by behaving less procyclically (Marshall and Rochon 2019; Chen et al. 2016; Brei and Schclarek 2013; Micco and Panizza 2006).

Other scholars, however, caution against public involvement in banking. Public banks, like other SOEs and government agencies, can be plagued by corruption and misallocation of resources due to agency problems, despite their goal being to maximise social welfare (see Banerjee 1997; Tirole 1994). According to a yet more radical view, public banks can be easily manipulated by politicians to supply political patronage and pursue political rather than economic goals, like buying consensus by providing public jobs or favouring local firms (Dinç 2005; Sapienza 2004; Shleifer and Vishny 1994).

Although no definitive consensus has yet emerged (see Yeyati et al. 2004), recent international literature tends to see public banking in a rather negative light. Public banks tend to lend more to the government and to other SOEs (Lin et al. 2015; Gonzalez-Garcia and Grigoli 2013; Cornett et al. 2010), thus weakening fiscal discipline and crowding out private credit. They tend to be riskier, less profitable and efficient than private banks (Boubakri et al. 2020; Cull et al. 2017; Megginson 2017; Zhu and Yang 2016; Jiang et al. 2013; Shen and Lin 2012; Cornett et al. 2010; Ghosh 2010; Sarkar and Sensarma 2010; Micco et al. 2007; Berger et al. 2005; Boubakri et al. 2005; Verbrugge et al. 1999). As such, they might also be more at risk of insolvency, although they are also more likely to benefit from government protection and bailouts (Megginson 2017). Public banks are mostly found in countries with less efficient governments and their contribution to economic growth seems to be doubtful (Lin et al. 2015; La Porta et al. 2002). At the same time, there is significant variation in the performance of public banking across different economic and political regimes: public banking, though less common in high-income countries, performs better in environments characterised by stable governments as well as effective regulation and strong legal

protection of property rights (Boubakri et al. 2020; Boubakri et al. 2018; Micco et al. 2007). Better performance is also achieved when public banks compete with private banks or are otherwise more directly exposed to market forces, both in the domestic and the international arena (Banerjee and Velamuri 2015; Jiang et al. 2013; Cornett et al. 2010; Berger et al. 2009).

The economic literature on public banking tries to identify through theoretical models and statistical methods recurrent patterns from which to derive policy implications. History, however, can contribute to the scientific debate on public banking by highlighting its complexity and variety, its evolution within a dynamic context and by problematising concepts like private and public as categories of analysis. While economic research can offer historians an analytical framework to structure their narrative, history can in turn provide multifaceted examples of how the forces identified by economists work in practice. It is in this spirit that I will explore the nineteenth-century history of public banking in Southern Italy.

In many respects, Southern Italy is an ideal case to study. The region has had a long tradition of public banking, starting in the early-modern period and definitively ending only in the early 2000s with the takeover of the Bank of Naples (Banco di Napoli) and the Bank of Sicily (Banco di Sicilia) by two Northern banking groups, namely Intesa San Paolo and Unicredit. The region is also known for its economic and financial backwardness relative to Northern Italy. Since at least the country's unification in 1861, the South has underperformed the North in terms of economic achievements (Felice 2013) and has been persistently characterised by a more fragile banking sector (SVIMEZ 2011; A'Hearn 2005 and 2000; Banca d'Italia 1990). Although historians are well aware of some of the weaknesses of public banking in the South (see e.g. Asso 2017), the fact that the largest banks in the region were public has often contributed to their lionisation as local champions (see Chiaruttini 2021b). This attitude is also mirrored in the tendency to study Southern public banks in isolation from their private competitors. This paper takes a different perspective, focusing instead precisely on the interactions between public and private banking in the South in the nineteenth century, a century which witnessed both the creation of a national, state-owned bank from the ashes of a decentralised network of city public banks under the Bourbons and the opening up of this new, centralised system to aggressive private competition after Italian unification. In so doing, this study shows how diverse public banking can be, depending on the changing institutional and economic context. Moreover, in focusing on public versus private banking, it also challenges an established narrative which presents the banking history of Southern Italy after unification as a clash of regional interests between the local public banks and their main competitor, a Northern private bank of issue predecessor of the Bank of Italy. Rather than emphasising the rivalry between regional interest groups, in fact, this paper identifies the ways in which public banking was transformed and to a great extent strengthened rather than weakened by private competition.

In the next Section I will discuss the origins of Southern public banking, its historical strengths and weaknesses. Public banking in Southern Italy did in fact originate to correct market failures, as suggested by the most benevolent economic view of public banking, but it was only under severe fiscal pressure that the original system was rationalised and expanded countrywide in order to support first and foremost the Treasury. Although a hybrid

system in which private and public investment should have mingled in the management of a national bank had at first been envisaged, the lukewarm attitude of private investors as well as the restoration of absolutist rule after the Napoleonic Wars resulted instead in the creation of a fully state–owned bank. The very public nature of the new bank enabled the government to collect large deposits and provide cashless payment services across the country. At the same time, however, the necessity of ensuring the soundness of a public banking system responsible for the government's fiscal stability and the payment infrastructure of the country conflicted with the opportunity of harnessing its sizeable resources in order to foster economic development in peripheral areas. This risk aversion was then further reinforced by the bureaucratic management of the bank and the lack of political pressure from disenfranchised citizens, whose interests were sacrificed to those of the largest merchant bankers, close to the Crown. Although the Bourbon bank was never conceived as a modern development bank, its potential for pursuing broader economic and social goals was well understood. Of these, however, only the provision of a stable payment system and of commercial and subsistence credit to, respectively, its wealthy clients and the Neapolitan populace were achieved, while the expansion of banking services outside the capital remained severely constrained. Fiscal and political conservativism thus resulted in very stable system, which however was dramatically unable to compete on the same footing with the future Bank of Italy, once Italian unification opened the Southern markets to external competition.

The evolution of Southern public banking after unification is discussed in Section 3. The arrival on the Southern market of a powerful private bank from the North has often been portrayed as a hostile takeover by Northern financiers with the backing of an Italian government favouring Northern interests. Here, instead, I will argue that the main question was the replacement of a weak fiscal state – that of the Bourbons, relying on direct financing from its own state bank – by a more complex financial system – that of unified Italy, moulded on the Piedmontese one – where the fiscal needs of the state where satisfied through the expansion, rather than repression, of private credit markets. The amount of resources and trust that public banking commanded in the South thanks to the privileges enjoyed under the Bourbons made the complete substitution of public with private banking a political impossibility. In order to disengage itself from public banking, therefore, the central government handed it over to the local administrations. While competition between public and private banking made the former more efficient than under the Bourbons, it did not eliminate problems of governance typical of public enterprises. On the one hand, Southern public banking transformed into a pawn of regional party politics. On the other, its survival partly slowed down the development of strong financial markets, while preventing the drafting of a coherent banking legislation and indirectly reducing fiscal discipline by allowing the state to play multiple banks of issue – either private or public – against each other in order to extract the maximum amount of loans.

The main message of the paper is then summarised in the Conclusions: public banking per se was not bound to fail and instead could have been very successful in a developing country like the Two Sicilies. Poorly managed, however, it retarded financial development, thus weakening the Southern economy vis–à–vis the North before unification. Thereafter, its benefits were mostly derived from its mimicking of private banking rather than its public character.

2. Public Banking Before Unification

The origins of public banking in Southern Italy date back to the early-modern period. In Sicily, public banking was from the beginning truly public, namely directly controlled by the local government. In Naples, by contrast, there were public banks that were regarded as such not because they were owned or managed by the government but because they had been granted a state charter and were entrusted to lay confraternities. Banks, in Naples, were therefore public, in some sense, because they were not privately owned. They had not been founded by private investors as profit-seeking ventures. Instead, they were in the hands of charitable institutions which, by running the banks, were furthering their philanthropic aims, besides providing banking services to private and public clients according to a model of 'stakeholder banking'. The banks administrations were in fact managing them in the interest of the collectivity. Both in Naples and Sicily, public banking provided useful deposit and payment services to the local economy and financed the public household. In Sicily, public banking developed precisely to bring stability to the monetary system and support public finance. In Naples, the foundations of public banking were laid by charities interested in investing their resources for the sake of philanthropy. By doing so, however, over time they too became crucial players in the payment system as well as creditors of the government, which increasingly put them under its own supervision. Moreover, unlike Sicilian banks, which could only lend to the public sector, the Neapolitan banks were also very active on the private market. On both island and mainland, however, public banking long remained a distinctively urban phenomenon, circumscribed to a handful of cities.

In Sicily we know of at least three banks founded in Palermo, Messina and Trapani in the sixteenth century by the local authorities in order to finally bring some order to a chaotic monetary system that had already caused the bankruptcy of most private bankers. Public banks, which pursued a balanced budget rather than profit and whose debts were guaranteed by public property, offered a valuable social service by stabilising and rationalising the monetary system, easing payments and ensuring the value and safety of deposits. Their utility to the private sector was, however, severely constrained by their being prohibited from engaging in private lending. Although this prohibition was not always rigorously enforced, Sicilian public banks mostly limited themselves to serve as treasurers and lenders to the public bodies directly controlling them. Thanks to their deposit and payment services to the private sector, in fact, they were able to collect private, unremunerated deposits with which they financed the local authorities – a model later refined by the Neapolitan central government after the Restoration. While originally public intervention had been necessary to ensure the success of new institutions in the face of market failures in the private economy, over time direct public control, in an environment where private agents were less competitive as providers of deposit and payment services, left ample space for mismanagement and the appropriation of private resources by public authorities. After several unsuccessful attempts at reform, in the mid-nineteenth century this system of urban public banking was eventually replaced by a more modern nationwide system managed by the central government in Naples – a solution that safeguarded the benefits of public banking while curbing the influence of local politics.

In Naples, seven out of eight public banks were founded by charitable institutions. The first of these banks, for instance, was created to provide gratuitous pawn loans shortly before the expulsion of the Jewish bankers in 1539.

As already mentioned, Neapolitan banks were public in that they had a public charter and were partly under government supervision. They can also be regarded as public since they were not profit–oriented partnerships but were managed in the interests of their founding charities by the representatives of civil society, typically noblemen, lawyers and, to a smaller extent, merchants. However, for this same reason, namely the role played in their creation and management by private citizens rather than public officials, Neapolitan public banking may also be – and indeed often was – regarded as a peculiar form of private rather than public enterprise. The formal independence of the banks from the state and from each other, in fact, made them less pliable to the financial requests of the public authorities than was the case in Sicily, although they did invest in public securities and provided useful payment services to the public bodies. At the same time, the coexistence in one single city – unlike Sicily – of several banks enabled them to create a payment network through the mutual acceptance of their notes that reinforced their collective power and reputation. Whoever deposited money in one bank against the issue of a transferable deposit certificate could in fact – despite legal sanctions against this practice – cash it at another bank's counter. The repute enjoyed by the Neapolitan banks thanks to both their independence and charitable origins helped them collect sizeable resources which they then reinvested not only in the public sector – as was the case in Sicily – but also in the private one.

This system eventually collapsed during the Napoleonic Wars, when the banks were put under direct government control and forced to grant disastrous loans to the Treasury, thus making them unable to honour their notes. In those years, it became painfully clear how sound public banking was essential in the South in order to re–establish an orderly system of cashless payments. At the same time, however, it also became increasingly clear that public banking could be transformed in order to serve first and foremost the Treasury and that the two goals were not necessarily incompatible.

Several reforms were attempted by both the Bourbons and the French. The Neapolitan banks had to be merged into a novel institution sponsored by the central government. The most ambitious project was that of Murat, who tried to create a joint–stock bank similar to the Bank of France. He failed, however, due to a lack of private investment. As a result, when the Bourbons came back to power in 1815, they established a fully public bank under the direct control of the finance minister. The backbone of this new system of public banking was very similar to that of Sicilian public banking, with the exception that management and guarantees were now provided by the central government and that the system was now no longer urban but national in scope. The main idea was to collect unremunerated deposits with which to finance the Treasury by providing reliable deposit and payment services to both public and private actors. Deposit facilities were at first available only in Naples, but the payment system set up by the government was truly national. In fact, the notes issued by the new bank, the Bank of the Two Sicilies (Banco delle Due Sicilie), were accepted by the public coffers and convertible into specie by tax agents throughout the country. Very often, these tax agents acted as actual moneychangers, also changing specie against notes.

Depositing money with the state was therefore more attractive than ever, also thanks to an implicit state guarantee on private deposits. This success is evident in the colossal increase in the note circulation of the Bank of the Two Sicilies, to which one should add that of the future Bank of Sicily, a second public bank created in 1850 out of the two Sicilian branches of the Bank of the Two Sicilies (Figure 1). The contribution of public banking to the Southern monetary system becomes even clearer when compared to the achievements of private banks of issue in the rest of

Italy. On the eve of unification, the Two Sicilies not only had the largest amount of paper money in circulation in Italy, but paper money issued by its public banks represented almost one third of its total money supply. This was probably a higher proportion than in Tuscany, with its dispersed network of private joint–stock banks of issue, or in Piedmont–Sardinia, the Italian state with the most vibrant financial system at the time and home to the predecessor of the Bank of Italy (Figure 2). In many respects, the monetary services rendered by public banking in the Two Sicilies were even superior to those of private banks of issue. In fact, Southern notes were quasi–legal tender and could be changed across the entire country. Instead, in the other Italian states, where one or more private banks of issue were operating, change of banknotes at par was possible only where they had established their own branches. Moreover, the legal nature of Southern notes – registered and transferable certificates of deposit more akin to cheques than anonymous banknotes (albeit performing a similar function) – even protected their owners in the event of theft or loss, a major advantage in a country devoid of a good transport system and plagued by brigandage.

Public ownership of the payment system, however, was a double–edged sword. If, on the one hand, a centralised organisation and state guarantees made the system particularly attractive, on the other, especially during the first years of the Restoration, when the government was on the verge of default, the state bank of an absolutist monarchy in financial distress was likely to inspire little confidence. In order to win over private depositors, the government therefore committed itself to a prudent fiscal policy, abstaining from an excessive exploitation of its own bank. Unlike Piedmont–Sardinia and, later, unified Italy, where banknotes were routinely declared inconvertible in war times, the restored Bourbons carefully safeguarded the convertibility of their notes, keeping very large reserves of specie to this end. Even in the most turbulent times, like the first years of the Restoration, followed by a prolonged Austrian military occupation which almost bankrupted the country, or the revolution in 1848–49, note circulation was covered by at least 30–40 per cent of metal reserves. On average, coverage was higher than 50 per cent, with peaks of 70 per cent (Figure 3).

The sound management of the bank increased the government's ability to collect enormous deposits, both on the mainland and in Sicily, where in the mid–1840s it opened the first two branches of the Bank of the Two Sicilies, de facto replacing the old public banks of Palermo and Messina. (These branches would become an autonomous public bank in 1850.) This resource abundance, in turn, benefited the Treasury while reducing its incentive to draw excessively on the bank. The bulk of resources available to the government continued to come from the issue of public debt and from tax revenues. Public banking, however, by granting substantial, regularly rolled over short–term loans, was crucial for its liquidity management. In a virtuous circle, therefore, the government's self–restraint, motivated by its desire to be able to fiscally exploit public banking in the long rather than just the short term, ensured the stability of a system otherwise very vulnerable to mismanagement. Moreover, public banking rendered further services to the Bourbon Treasury, like lending on public debt securities to private clients – whereby it increased the liquidity and boosted the market value of public debt –, or like managing public payments through a sophisticated accounting system that made the government machine more efficient by reducing the opportunity for fraud as well as the costs of specie payments. The very success of public banking in supporting public finances, however, had the perverse effect of bolstering absolutist rule, since it reduced the overt dependence of the government on private investors and taxpayers. In practice, private depositors were financing an absolutist state

at no interest in exchange for the issue of a nationwide, reliable means of payment, while having no say in the management of their public banking system, neither as bank shareholders nor as voters, and being accordingly left in the dark about its activities. What they got in return was a stable monetary and fiscal system, which enabled the government to keep taxes low – a policy that made a non–constitutional regime more palatable than it would have been otherwise.

Southerners, of course, profited from public banking also as regards lending. In Naples, the Bank of the Two Sicilies discounted bills of exchange through a separate department (a Discount House, Cassa di Sconto) and continued the pawnbroking activities of the old city banks. Pawnbroking, by providing credit – not exclusively but very often – to the lower classes, can be seen – and was definitely advertised – as a social service fostering access to credit and combating usury: another positive contribution of public intervention. However, credit was not particularly cheap, while one could usually get only two thirds of the estimated value of the gage. Moreover, mismanagement was often rampant in the bank's pawnbroking department, with clients frequently in need to pay third parties in order to access the bank's services. Finally, this service was offered only in the capital city and, rather than expressing truly philanthropic concerns, it was a means of assuaging the needs of the urban poor and reinforcing their traditional support for the Bourbon dynasty. That pawn lending was not part of a broader banking policy aimed at social betterment is also evident by the lack of support for the establishment of savings banks on the part of the government and the upper classes, banks which by contrast were flourishing in the rest of Italy. The Bourbon government, in this regard, limited itself not to discourage their institution (which nevertheless remained as rare as hen's teeth) or the creation of other more primitive institutions of micro–credit, such as corn banks.

The most apparent failure of public banking, however, concerned commercial credit. The South was a region characterised by high inequality, both across social classes and territories. Thanks to its abundant resources and the confidence it inspired, Bourbon banking could have played a major role in fostering credit development throughout the country. Although in the nineteenth century there were no development banks in the modern sense of the word, Southern intellectuals and politicians had been discussing the importance of banking services for local development since the eighteenth century. When the Bank of the Two Sicilies was founded, the government was well aware of the role it could play in financing trade and industry as well as bringing banking services to the Southern provinces. Very soon, however, fiscal concerns prevailed. The bank's resources were superabundant with respect to the needs of the Treasury and were accordingly also lent to the private sector. Yet this happened almost exclusively in Naples. In fact, in order to spare money and concentrate private deposits in the capital rather than disperse them across the country, the government never built a network of bank branches worthy of the name. After decades of requests from the provinces, only one branch was opened on the mainland as late as 1858, while the branches in Palermo and Messina started to lend a minuscule fraction of their deposits only in 1859.

This failure had many reasons. For decades, the only way in which rich provincials could avail themselves of a current account at the public bank was by depositing specie in Naples. There, coin was at the disposal first of the Treasury and then of merchant bankers, tax farmers and government suppliers at low interest rates, thus reinforcing the economic supremacy of the capital city. Idle deposits were not employed in the provinces, where wealthy landowners and large merchants would have certainly not welcomed the competition of the branch of a public bank in isolated, local credit markets they could easily control, and where no mechanism of political representation could

put pressure on the government to embark upon the creation of an expensive network of bank branches to the advantage of the disenfranchised majority. Moreover, though potentially bringing higher returns than in the capital–rich Naples, investing in poorer regions also entailed higher risks. And risk was precisely what the government wished to avoid at all costs, because through public banking it wanted first and foremost to ensure monetary and fiscal stability. In a vicious circle, the government was not banking the provinces because they were poorer and since they had only limited access to credit, the provinces remained poor. Finally, the bank's risk aversion was also partly the result of its bureaucratic management. The Bank of the Two Sicilies was not a bank of merchants and capitalists, of profit–seeking shareholders. It was managed, like the ancient Neapolitan banks, by landowners, lawyers and only to a limited extent by merchants (from Naples) who were interested in the bank as clients rather than owners. As such, its management was often advocating investment policies even more conservative than the government itself. The result of this overly cautious policy focused on the needs of the Treasury and the Neapolitan business elite was the sluggish growth of credit provision by public banking despite the constant accumulation of deposits, deposits that were overwhelmingly employed to the advantage of the Treasury (Figure 4).

Public banking was crowding out private credit not only in that privileged public banks attracted a disproportionate amount of private deposits which partly remained idle and partly went to the Treasury, but due to its privileges, it also discouraged the establishment of private banks. As a result, on the eve of unification, the Bank of the Two Sicilies was by far the largest bank of issue in Italy in terms of deposits, note circulation and metal reserves (in per–capita terms, the Bank of Sicily was equally large). But, unlike other Italian regions, Southern Italy had very few and very fragile private banks. Furthermore, the fact that the most powerful economic institutions in the South, namely the Bourbon banks, were fully owned by the government, instead of being joint–stock companies with a participation of private capital, retarded the development of modern financial markets, depriving domestic investors of a safe alternative to public debt and land ownership.

3. Public Banking After Unification

In 1860, the Bourbons were overthrown and the South was annexed to the Kingdom of Italy, a new constitutional state that was created in a matter of months thanks to the military campaigns of Garibaldi in the South and of the Piedmontese army in the North. In the first years after unification, the ruling party, the Historic Right (Destra Storica), tried repeatedly to dismantle public banking in the South and to impose the monopoly of note issue of a fully private Piedmontese joint–stock bank, the National Bank (Banca Nazionale), the forerunner of the Bank of Italy. Southern historiography has often portrayed this policy as an encroachment on the South's financial autonomy motivated by the private interests of Northern finance. In fact, what happened was much more complex. Private interests and the entanglement between Northern politics and finance did certainly play a role, but the loss of pre–eminence of Southern public banking had deeper roots.

3.1. Public Banking at the Service of the Public Sector

In the South under the Bourbons, public banking had developed to serve the needs of the government. In Piedmont–Sardinia, private banking had developed to serve the needs of the private economy. Accordingly, in peace times the amount of credit granted to the Piedmontese government by the largest Italian private bank of issue, the National Bank, was only a fraction of the credit it provided to the private sector, unlike the Bank of the Two Sicilies, which operated according to the opposite principle. The Piedmontese system, on the one hand, encouraged further private investment in banking and the expansion of financial markets. On the other, it did not constrain excessively the public household. In fact, thanks to the granting of constitutional rights in 1848, the Piedmontese government had been able to issue more debt and raise more taxes than the Bourbons (Chiaruttini 2021a). At the same time, it could nonetheless rely on the National Bank for a limited amount of short–term loans in peace times and on its willingness to print inconvertible banknotes in war times, a willingness that the bank's shareholders hoped to see remunerated with privileges, most particularly that of the monopoly of note issue.

After unification, the Italian government tried to export the same model to the whole country. For the South, this meant, ideally, leaving the business of commercial credit to the private sector and dismantling or downsizing the public banks, so as to divert their unremunerated deposits to private banks. The government would free itself from the annoyance and risks of running a bank, while deposits would be more profitably reinvested into the economy by private institutions. As we will see, this radical solution could not be achieved because the South lacked the large private banks which could benefit from such an arrangement and the representation of Southern business interests on the board of the National Bank – which instead could benefit from it – was only very limited. In order to protect local interests and networks of power, the two public banks were therefore allowed to survive, albeit no longer under the management of the central government but of local authorities.

Although at the very beginning the Italian government, out of necessity, did remorselessly borrow from the Southern public banks, the fact that it could count also on the National Bank implied that, proportionally, the Bank of Naples – as the Bank of the Two Sicilies was renamed – had more resources to devote to the private sector. As shown in Figure 5, in the first years after unification the Bank of Naples still lent more to the public than to the private sector compared to the private banks of issue, but the proportion of public loans in its balance sheet had nonetheless diminished compared to previous times (while that of private banks had rather increased). The public sector already received more than 50 per cent of its bank loans from the private banks of issue (the National Bank and two smaller Tuscan banks). This proportion was already increasing when the financial and military crisis of 1866 broke out. In an attempt to salvage the banking system and its own finances before waging a new war against Austria, the government declared the notes of the National Bank inconvertible legal tender. This abnormal state continued until 1874, when a consortium of all six banks of issue replaced the National Bank in the issue of inconvertible notes on behalf of the state. Thereafter, the government came to rely more evenly on the private banks of issue for roughly 70 per cent of its bank loans (more than 60 per cent from the National Bank, later the Bank of Italy, alone) and for the remaining 30 per cent on the public banks (mainly the Bank of Naples), as shown in Figure 6.

If we look at the banks' balance sheets, we see that, for roughly twenty years after 1866, a private bank of issue, the National Bank, devoted to the Italian government a share of its credits almost as large as that granted by the Bank of the Two Sicilies to the Bourbon Treasury (Figures 4 and 5). Was the Italian government therefore simply exploiting a private bank as the Bourbon one had previously exploited public banking? The answer is no. The National Bank was not employing its capital and its deposits to provide more credit to the public than to the private sector, as the Bank of the Two Sicilies did. It was printing inconvertible banknotes that it loaned to the government: it was therefore financing the government not out of its private resources, but out of additional resources created to that very end. Moreover, the Italian government could also get credit from all other, public and private, banks of issue, each of which usually devoted to it no more than 10—30 per cent of its total credit provision. Since the mid−1880s, this was true also of the National Bank and, later, the Bank of Italy, at least until the First World War. By playing with more banks and by its readiness to embrace note inconvertibility, the Italian government was therefore able to extract much larger resources from the banking system than the Bourbons had been, while weighting less on each bank, including the public ones.

3.2. Public Banking at the Service of the Private Sector

While the wish of the Italian government to leave banking matters in private hands and reshape the fiscal system was one reason for its lack of interest in public banking, another reason why Southern public banks at first struggled to compete with the National Bank was their own weakness compounded by their public nature. First of all, immediately after unification the National Bank began to open its branches in the South and elsewhere in Italy because it wanted to bolster its claims to the monopoly of note issue. And this was most easily done in the South, where the provinces had been credit−starved by the former Bourbon government. The lack of dynamism of public banking before unification therefore left the door open to the intrusion of the National Bank. Secondly, the National Bank, a private enterprise, could either replace or compete with the Southern banks, but could not merge with them since they were public bodies, not joint−stock companies. The fact that Southern banks were public institutions meant, on the one hand, that the government, if it wanted to favour the National Bank, could simply abolish them, which would not have been possible with a private or semi−private bank, whose existence a liberal government was obliged to respect. But it also meant that, however large, the Southern banks could not bargain on equal terms with the National Bank and force it, if it wanted to achieve hegemony on the national market, into a merger securing Southern interests, a strategy that the National Bank was systematically pursuing with other, much smaller, private banks of issue in the rest of Italy.

That the absence of strong private rather than public banks put Southerners at a clear disadvantage in bargaining over financial matters in their own regions was evident in their hasty attempts in the wake of unification to found new joint−stock banks of issue, attempts which however floundered against the unsympathetic attitude of the government as well as the partial opening of the National Bank board to some major Southern financiers. Southern representatives on the National Bank board were, however, a minority, as were the Southern shareholders of the National Bank. Truly Southern were only the public banks, which made it politically unsavoury for the government to dismantle them. In unified Italy, those used to getting credit from the Bourbon banks and to be entrusted with

their daily management wanted to keep them alive. At the same time, however, now that Bourbon rule had collapsed, they too had no interest in having their regional banks controlled by an Italian, rather than a Southern, government. As a compromise, the Banks of Naples and Sicily remained public but were put under the control, not of the central government (which retained only supervisory power), but of the local administrations. In this way, the Italian government could disengage itself from banking, the National Bank was not subject to competition from privileged state banks, and the Southern elites took over from the central government at no cost two banks widely trusted on the local market.

While contemporaries and later scholars have often blamed the competition of the National Bank against the Southern banks as excessively aggressive, it was precisely this aggressiveness that forced the latter to become more efficient. As I will argue below, Southern public banks were never free from political influence, but precisely because Southern politics had a stake in the banks, it needed to keep them alive and competitive, even if no private shareholders were profiting from this. In this sense, we can say that direct competition with a private bank forced the public banks to partly conform to market incentives. In many ways, the Southern banks thus started to emulate the National Bank. They opened provincial branches (first in the South, then in other regions as well), privileged credit provision to the private sector, ventured into new markets, such as mortgage lending, and reformed their governance and accounting system. As a result, Southern towns which a few years earlier did not have a single bank branch, could all of a sudden access the services of two competing banking networks. As a group, private banks of issue always lent to the private sector more than public banks did, but the credit supply of the latter was increasing too (Figure 7). Before public banks definitely lost the privilege of note issue in 1926, the credit they supplied represented on average roughly 20–30 per cent of the total that banks of issue procured to the private economy: a remarkable achievement, given that before the twentieth century the National Bank/Bank of Italy was never able to durably increase its own market share of approximately 60 per cent (Figure 8). As regards interest rates, the discount rate of the Bank of Naples very closely tracked that of the National Bank, while that applied by the Bank of Sicily was slightly higher in years of sustained speculation (mid-1870s, late 1880s). After the establishment of the Bank of Italy, however, the discount rates of the three remaining banks of issue converged (Figure 9).

In terms of note circulation, public banks could not compete on the same footing with the National Bank, which, even before note inconvertibility, had branches across the entire country where its banknotes could be redeemed. After the years of exclusive inconvertibility of the National Bank notes, however, public banks regained ground despite their smaller branch network and continued to issue roughly 25–30 per cent of all Italian notes (Figure 10).

Compared to the private banks of issue as a whole, the public banks were still making less profits, measured in terms of their total assets, patrimony, note circulation or credit supply (Figures 11, 12, 13 and 14), but by the early 1890s this difference disappeared.

Although more efficiently managed than under the Bourbons, Southern public banks continued to suffer from governance problems typical of public enterprises. While in a joint-stock bank like the National Bank shareholders entrusted the bank's management to a board of directors which, in turn, relied on the Director General for the implementation of its decisions and the supervision of the bank's daily business, in the South the rough equivalent

of the shareholders was the local population at large. Citizens did not vote directly for the officials representing them on the boards of the public banks. Instead, they selected them for the job indirectly, since the supreme body governing the public banks, the General Council, was formed by representatives of the Municipality, Province, Chamber of Lawyers, Tribunal and Chamber of Commerce of the main cities where the banks were active, together with the Director General and two members selected by the government. The Southern banks were therefore under the control of stakeholders, rather than shareholders. Yet this meant that the public banks were to a large extent in the hands of notables and politicians rather than businessmen. As mentioned above, it was in their interest to preside over powerful credit institutions, yet their objective was not so much to maximise profit – which was not distributed but retained by the banks – but rather to maximise the political benefits achievable through the banks. Not by chance, in the first decades after unification the opposition party, the Left, quickly began spearheading the cause of Southern banking against the ruling party, the Right, closer to the National Bank. By posing as a champion of the South's interests and its regional banks against a government of alleged Northern sympathies, the Left progressively gained ground in the South. And, unlike in the North, whose economic landscape was dominated by private banks, gaining ground in the South meant being able to control wealthy banks through elected politicians. MPs of the Left could thus promote in parliament banking policies more favourable to the regional banks, whose management was partly left in the hands of their colleagues elected to local public bodies.

As a result, public banks became dispensers not only of credit but also of favours, at many different levels. Local administrations had privileged access to the banks' credit. The top management was handsomely paid. Internal supervision was poor. Mismanagement was hardly or very leniently punished and high-ranking officials often protected their minions at the expense of more rigorous employees. Favouritism was common, both in appointing and in providing credit to the local elites. Generous credit provision easily resulted in bad debt and the central government, although theoretically responsible for banking supervision, was reluctant to meddle so as not to antagonise local politics.

The Southern banks were also major employers: in Naples alone, hundreds of people were working for the city bank. This was due to their cumbersome accounting, since the notes they issued were in many respects more akin to cheques than banknotes. Instead of just printing notes, in fact, the Southern banks, issuing negotiable deposit certificates, provided deposit and payment services of a slightly different kind than standard banks of issue. Although the difference in the numbers of employees needed to run a public or a private bank of issue was therefore mainly determined by current technology and types of services offered, this meant that public banks could also use employment policies as a means of currying favour with the petty bourgeoisie as any other public administration. Accordingly, discipline was not strictly enforced, many employees were absentee and had a second job. Finally, the fact that public banks were in the hands of local politicians also meant that the expansion of their branch networks was influenced by political considerations as well. In fact, while on the one hand geographical expansion was necessary in order to compete with the National Bank, on the other it diluted the power of local authorities, since new provincial representatives had to be admitted to the banks' boards. For this reason, for instance, the Bank of Sicily was very reluctant to open branches outside the island despite the obvious economic benefits that they could provide.

The fact that public banking survived in the South had also further implications. The entanglement between economic and political interests in the management of the Southern banks exacerbated the opposition to central banking. Letting the National Bank, or a new bank that merged the National Bank and smaller banks, to become Italy's central bank would have deprived national and local politics of two large banks. As a result, the Italian banking system emerging from decades of struggle was an oligopoly of first six and later three banks of issue, in which the National Bank – later the Bank of Italy after its merger in 1893 with the two Tuscan banks – was economically dominant while being constantly prevented until 1926 from acquiring the monopoly of note issue. Oligopolistic competition then resulted in larger credit provision to both the private and the public sector, a probably overall positive phenomenon which, however, also led to a looser fiscal policy as well as to occasional speculative bubbles.

From a different perspective, then, the fact that two of the largest enterprises in the South remained public instead of transforming into or being replaced by joint–stock companies further reinforced the region's traditional reliance on the public rather than the private sector, thus contributing to more traditional investment attitudes (mostly privileging public securities and land) rather than to the development of modern financial markets. Also as a result of the public nature of the two largest banks in the South, Southerners thus remained severely underrepresented as bank equity holders nationwide (Chiaruttini 2020a). To get a sense of the importance of public banks in the Southern market, suffice it to say that, in 1876, while accounting for almost 40 per cent of the Italian population and for one third of the country's GDP, the South had only 8 per cent of all Italian credit institutions and joint–stock companies (Figure 15). The only sector in which it was well represented was that of the banks of issue and mortgage lending (controlled, in the South, by the public banks themselves). The Banks of Naples and Sicily, including their mortgage lending departments, accounted for 41 per cent of all capitals invested in Southern banks and joint–stock companies (as against an Italian average of 16 per cent of the total capital invested in banks of issue and mortgage lending), and represented 66 per cent of the nominal capital of Southern banking. The relative scarcity of local joint–stock companies in the South was an indicator of the unwillingness or inability of capitalists to invest in them and therefore suggests that public ownership was the price for the South to pay in order to have two of the largest Italian banks. At the same time, however, public ownership was the result of a secular tradition, not just of present necessity: Southern investors might have been unable to purchase their banks from the state at their market value, but no plan had been devised to privatise them – in full or in part – through a more favourable scheme. Consequently, retaining public ownership of such large and trusted institutions reduced dramatically the opportunity for Southern capitalists to invest in local enterprises, leaving them with the choice of financing other, equally solid companies outside the region, new Southern banks for which the public ones could however prove formidable competitors, or other ventures whose profitability was more uncertain than that of powerful banks well connected with both the central and the local government.

4. Conclusions

The history of Southern public banking confirms many insights of the economic literature while at the same time stressing the influence of political agency and somehow blurring the lines between private and public banking systems. It also reminds us that public banking is not a static concept but may assume many different meanings and work very differently depending on the historical context. For this reason, history cautions us against the temptation to label public banking as good or bad simply on the basis of statistical analysis.

Historically, public banking in the South was created in order to overcome market failures in the form of inadequate monetary and credit supply. In Sicily, until Italian unification, public banking constantly privileged the provision of payment services and the financial support to local administrations, which, however, severely constrained the expansion of private credit provision, despite the relative abundance of capital in the major cities, and favoured mismanagement by local authorities before the direct intervention of central government supervision in the mid–nineteenth century. In Naples, public banking was a form of 'stakeholder banking' simultaneously serving social goals and the economic needs of the private as well as the public sector. Part of the success of this alternative model rested on the informal coordination of a decentralised system of multiple banks which were not directly subject to the government.

The fiscal crisis of the Napoleonic era shattered this system, which the government replaced with a fully public bank under the direct control of the finance minister. According to this new model, the central government provided free payment services across the whole country against the collection of sizeable, unremunerated deposits mainly used to finance the public household. Although public banking in an absolutist regime was entirely beyond the supervision of citizens, it was never grossly misused by the government, which pursued a prudent fiscal policy more palatable to disenfranchised citizens while valuing the long–term fiscal support that sound public banking could offer more than short–term gains. The main drawbacks of this paternalistic banking policy, however, were the crowding–out of private credit and the stifling of credit development. In fact, private investors could hardly compete with a state bank while the bank's bureaucratic and elitist management had little interest in fostering financial deepening outside the capital. Social goals on a small scale, in the form of pawn lending to the Neapolitan poor, continued to be pursued by the state bank, but the government's early ambitions of leveraging public banking so as to promote better access to credit and economic growth across the entire state soon faded away in order to privilege fiscal stability. In a country like the Two Sicilies, characterised by extreme market fragmentation and high inequality, public banking could have played a major role in promoting market integration and economic development. Paradoxically, however, precisely those circumstances which made public intervention on the credit markets so desirable determined its failure.

In unified Italy, public banking did not survive because of its superior performance with respect to private banking, but simply out of political necessity. The bureaucratisation of banking under the Bourbons had retarded the creation of strong private banks able to compete on the wider, national market with Northern joint–stock banks. Letting the

Southern public banks survive under the management of local officials was thus a means of ensuring a stronger representation of Southern economic interests within the new country in the absence of equivalent private institutions. Despite its dire fiscal conditions, the Kingdom of Italy was able to renounce direct financing from a state bank because, as a constitutional monarchy wedded to economic liberalism, it relied more on taxation and the expansion of private credit markets than the Bourbons did. Therefore, ironically, a constitution and the competition between several banks for the privilege of note issue contributed to softer budget constraints for the Italian government than public banking alone under the Bourbons.

The history of Southern public banking after unification strongly confirms the findings of the economic literature on the beneficial effect of competition between public and private banks. In fact, although in terms of legal privileges the position of the Southern banks was drastically undermined, the actual expansion of their lending activities and their branch networks only started under the pressure of competition. Public banks became more efficient for they needed to emulate the private banks in order to stay afloat. At the same time, however, being controlled by local politics rather than private shareholders, they were characterised by a weaker governance and frequent problems of mismanagement, as they were trying to maximise consensus instead of just profit. Finally, the very success of public banking further reinforced the role of the public sector in the Southern economy at the expense of modern financial markets.

The history of public banking in Southern Italy is in many respects accidental. Local and central authorities continuously reformed and readapted to changing circumstances what they had at hand, often intervening in a state of economic and fiscal emergency. Depending on the historical period, Southern public banking was more or less centralised and more or less afflicted by the typical problems of public enterprises. Over time, it ensured monetary stability and supported public finances, while providing credit to the private sector. In hindsight, however, it was also partly responsible for the sluggish development of regional financial markets and their relative backwardness compared to the North.

References

A'Hearn, B., (2000). Could Southern Italians Cooperate? *Banche Popolari* in the *Mezzogiorno*, *Journal of Economic History*, 60, 1, pp. 67–93.

A'Hearn, B. (2005). Finance-Led Divergence in the Regions of Italy, *Financial History Review*, 12, 1, pp. 7–41.

Asso, P. F., ed. (2017). *Storia del Banco di Sicilia*. Rome: Donzelli.

Baffigi, A. (2020). *La contabilità nazionale in Italia dall'Unità a oggi, 1861–2017* (dataset DATA_NA_150_1861_2017). https://www.bancaditalia.it/statistiche/tematiche/stat-storiche/stat-storiche-economia/index.html.

Banca d'Italia (1990). *Il sistema finanziario nel Mezzogiorno*. Rome: Banca d'Italia.

Banerjee, A. V. (1997). A Theory of Misgovernance. *Quarterly Journal of Economics*, 112, 4, pp. 1289-1332.

Banerjee, S., Velamuri, M. (2015). The Conundrum of Profitability Versus Soundness for Banks by Ownership Type: Evidence from the Indian Banking Sector. *Review of Financial Economics*, 26, 1, pp. 12-24.

Berger, A. N., Clarke, G. R. G., Cull, R., Klapper, L., Udell, G. F. (2005). Corporate Governance and Bank Performance: A Joint Analysis of the Static, Selection, and Dynamic Effects of Domestic, Foreign, and State Ownership. *Journal of Banking and Finance*, 29, 8-9, pp. 2179-2221.

Berger, A. N., Hasan, I., Zhou, M. (2009). Bank Ownership and Efficiency in China: What Will Happen in the World's Largest Nation? *Journal of Banking and Finance*, 33, pp. 113-30.

Boubakri, N., Cosset, J.-C., Fischer, K., Guedhami, O. (2005). Privatization and Bank Performance in Developing Countries. *Journal of Banking and Finance*, 29, 8–9, pp. 2015–41.

Boubakri, N., El Ghoul, S., Guedhami, O., Megginson, W. L. (2018). The Market Value of Government Ownership. *Journal of Corporate Finance*, 50, pp. 44-65.

Boubakri, N., El Ghoul, S., Guedhami, O., Hossain, M. (2020). Post-Privatization State Ownership and Bank Risk-Taking: Cross-Country Evidence. *Journal of Corporate Finance*, 64, 101625.

Brei, M., Schclarek, A. (2013). Public Bank Lending in Times of Crisis. *Journal of Financial Stability*, 9, pp. 820-30.

Chen, Y.-S., Chen, Y., Lin, C.-Y., Sharma, Z. (2016). Is There a Bright Side to Government Banks? Evidence from the Global Financial Crisis. *Journal of Financial Stability*, 26, pp. 128-43.

Chiaruttini, M. S. (2018). The Lira: Token of National (Dis)union, 1814-74. *EUI/HEC Working Papers*, 2018/01. Florence: European University Institute.

Chiaruttini, M. S. (2019). *The Risorgimento and the Southern Question: A Financial History, 1814-74*. PhD dissertation. Florence: European University Institute.

Chiaruttini, M. S. (2020a). Banking Integration and (Under)development: A Quantitative Reassessment of the Italian Financial Divide, 1814-74. *IBF Paper Series: Banking and Finance in Historical Perspective*, 03-2020. Frankfurt am Main: Institute for Banking and Financial History.

Chiaruttini, M. S. (2020b). Woe to the Vanquished? State, 'Foreign' Banking and Financial Development in Southern Italy in the Nineteenth Century. *Financial History Review*, 27, 3, pp. 340-60.

Chiaruttini, M. S. (2021a). 'Robbery Made the Kingdom of Italy, Misery Will Unmake It': Fiscal Conflicts and Italian Nation-Building. *Jahrbuch für Wirtschaftsgeschichte*, 62, 2, pp. 369-403.

Chiaruttini, M. S. (2021b). The Bank of Naples and the Struggle for Regional Power in Risorgimento Italy. *Modern Italy*, 26, 3, pp. 313-30.

Chiaruttini, M. S. (in press). Telling Figures: A New Dataset on the Regional Origins of Italian Central Banking and the Rise of Piedmontese Finance Before 1861. *Rivista di Storia Economica.*

Costabile, L., Neal, L., eds. (2018). *Financial Innovation and Resilience: A Comparative Perspective on the Public Banks of Naples, 1462–1808*. Cham: Palgrave Macmillan.

Cornett, M. M., Guo, L., Khaksari, S., Tehranian, H. (2010). The Impact of State Ownership on Performance Differences in Privately–Owned versus State–Owned Banks: An International Comparison. *Journal of Financial Intermediation*, 19, 1, pp. 74-94.

Cull, R., Martinez Peria, M. S., Verrier, J. (2017). Bank Ownership: Trends and Implications. *IMF Working Papers*, WP/17/60.

Cusumano, V. (1892). *Storia dei banchi della Sicilia* (2nd vol). Rome: Ermanno Loescher.

De Mattia, R. (ed.) (1967). *I bilanci degli istituti di emissione italiani dal 1845 al 1936, altre serie di interesse monetario e fonti* (vols. 1-2). Rome: Banca d'Italia.

De Mattia, R. (ed.) (1978). *Storia del capitale della Banca d'Italia e degli istituti predecessori* (2nd vol). Roma: Banca d'Italia.

De Mattia, R. (ed.) (1990). *Storia delle operazioni degli istituti di emissione italiani dal 1845 al 1936 attraverso i dati dei loro bilanci* (3rd vol). Roma: Banca d'Italia.

De Simone, E. (1974). *Il Banco della Pietà di Napoli 1734-1806*. Naples: ISTOB.

Demarco, D. (1958). *Il Banco delle Due Sicilie, 1808-63*. Naples: L'Arte Tipografica.

Dinç, I. S. (2005). Politicians and Banks: Political Influences on Government–Owned Banks in Emerging Markets. *Journal of Financial Economics*, 77, 2, pp. 453-79.

Felice, E. (2013). *Perché il Sud è rimasto indietro*. Bologna: Il Mulino.

Felice, E. (2019). The Roots of a Dual Equilibrium: GDP, Productivity, and Structural Change in the Italian Regions in the Long Run, 1871-2011. *European Review of Economic History*, 23, pp. 499-528.

Filangieri, R. (1940). *I banchi di Napoli dalle origini alla costituzione del Banco delle Due Sicilie, 1539-1808*. Naples: Tipografia degli Artigianelli.

Gerschenkron, A. (1962). *Economic Backwardness in Historical Perspective: A Book of Essays*. Cambridge, MA: Harvard University Press.

Ghosh, S. (2010). How Did State–Owned Banks Respond to Privatization? Evidence from the Indian Experiment. *Annals of Public and Cooperative Economics*, 81, 3, pp. 389-421.

Giuffrida, R. (1972). *Il Banco di Sicilia* (1st vol.). Palermo: Officine Grafiche.

Gonzalez–Garcia, J., Grigoli, F. (2013). State–Owned Banks and Fiscal Discipline. *IMF Working Papers*, WP/13/206.

Herndon, T., Paul, M. (2020). A Public Banking Option as a Mode of Regulation for Household Financial Services in the US. *Journal of Post–Keynesian Economics*, 43, 4, pp. 576-607.

Jiang, C., Yao, S., Feng, G. (2013). Bank Ownership, Privatization, and Performance: Evidence from a Transition Country. *Journal of Banking and Finance*, 37, 9, pp. 3364-72.

La Porta, R., Lopez–de–Silanes, F., Shleifer, A. (2002). Government Ownership of Banks. *Journal of Finance*, 57, 1, pp. 265-301.

Lazzarini, S. G., Musacchio, A., Bandeira–de–Mello, R., Marcon, R. (2015). What Do State–Owned Development Banks Do? Evidence from BNDES, 2002-09. *World Development*, 66, pp. 237-53.

Lin, J. Y., Sun, X., Wu, H. X. (2015). Banking Structure and Industrial Growth: Evidence from China. *Journal of Banking and Finance*, 58, pp. 131-43.

Marshall, W. C. and Rochon, L.–P. (2019). Public Banking and Post–Keynesian Economic Theory. *International Journal of Political Economy*, 48, 1, pp. 60-75.

Megginson, W. L. (2017). State Capitalism and State Ownership of Business in the 21st Century. Available at SSRN: https://ssrn.com/abstract=3094412.

Micco, A., Panizza, U. (2006). Bank Ownership and Lending Behavior. *Economics Letters*, 93, pp. 248-54.

Micco, A., Panizza, U., Yañez, M. (2007). Bank Ownership and Performance. Does Politics Matter? *Journal of Banking and Finance*, 31, 1, pp. 219-41.

Ministero d'Agricoltura, Industria e Commercio (1877). *Statistica ed elenco generale degli istituti di credito e società per azioni nazionali ed estere esistenti nel Regno al 31 dicembre 1876* (2nd edn.). Rome: Tipografia Eredi Botta.

Sapienza, P. (2004). The Effects of Government Ownership on Bank Lending. *Journal of Financial Economics*, 72, 2, pp. 357–84.

Sarkar, S., Sensarma, R. (2010). Partial Privatization and Bank Performance: Evidence from India. *Journal of Financial Economic Policy*, 2, 4, pp. 276–306.

Shen, C.–H., Lin, C.–Y. (2012). Why Government Banks Underperform: A Political Interference View. *Journal of Financial Intermediation*, 21, 2, pp. 181-202.

Shleifer, A., Vishny, R. W. (1994), Politicians and Firms. *Quarterly Journal of Economics*, 109, 4, pp. 995-1025.

Stiglitz, J. E. (1992). The Role of the State in Financial Markets. *Working Papers of the Institute for Policy Reform*, IPR56.

SVIMEZ (2011). *150 anni di statistiche italiane: Nord e Sud, 1861–2011*. Bologna: Il Mulino.

Tirole, J. (1994). The Internal Organization of Government. *Oxford Economic Papers*, 46, 1, pp. 1-29.

Verbrugge, J. A., Megginson, W. L., Owens, W. L. (1999). State Ownership and the Financial Performance of Privatized Banks: An Empirical Analysis. Paper presented at the World Bank/Federal Reserve Bank of Dallas Conference on Banking Privatization, Washington, DC, 15-16 March.

Yeyati, E. L., Micco, A., Panizza, U. (2004). Should the Government Be in the Banking Business? The Role of State–Owned and Development Banks. *Working Papers of the Inter–American Development Bank*, 517.

Zhu, W., Yang, J. (2016). State Ownership, Cross–Border Acquisition, and Risk–Taking: Evidence from China's Banking Industry. *Journal of Banking and Finance*, 71, pp. 133-53.

Figures

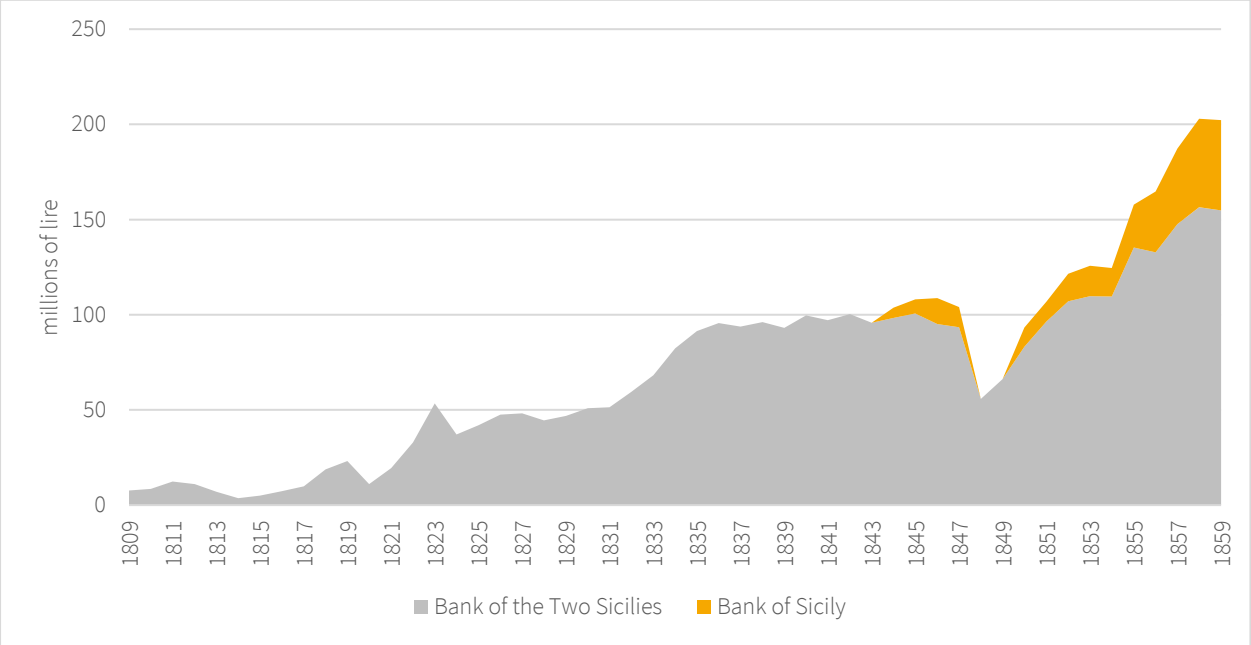


FIGURE 1. Total note circulation of the Southern public banks (1809–59).

Note: The unit of account in the Two Sicilies was the ducat. For the sake of comparison, however, throughout the paper values in ducats have been converted in Italian lire. *Sources:* Demarco (1958) and Giuffrida (1972).

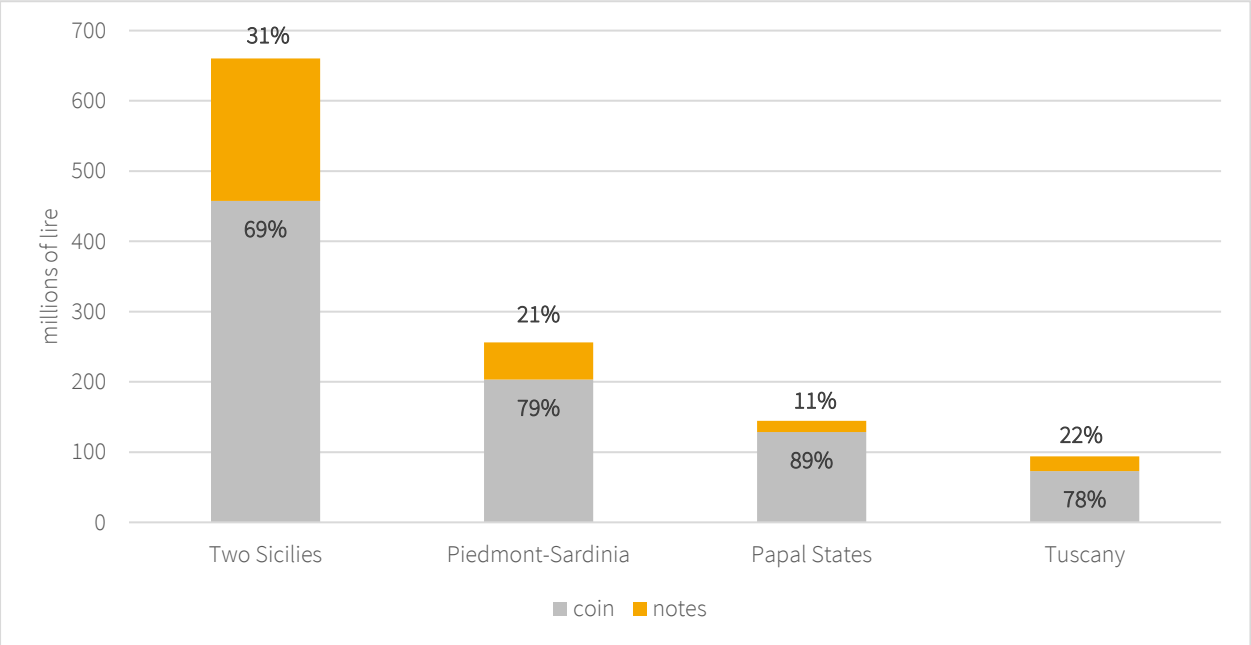


FIGURE 2. Total money supply (coin and bank notes) and its composition in Italy around 1860.

Notes: Figure 2 omits the two smallest Italian states, namely the Duchy of Parma and Piacenza and the Duchy of Modena and Reggio, where no bank of issue operated before 1860. It also omits Lombardy–Venetia due to a lack of data concerning its only bank of issue, a modest institution active in Venice. For a comparison of the Italian banks of issue before unification, see Chiaruttini (in press). *Sources:* See Chiaruttini (2018).

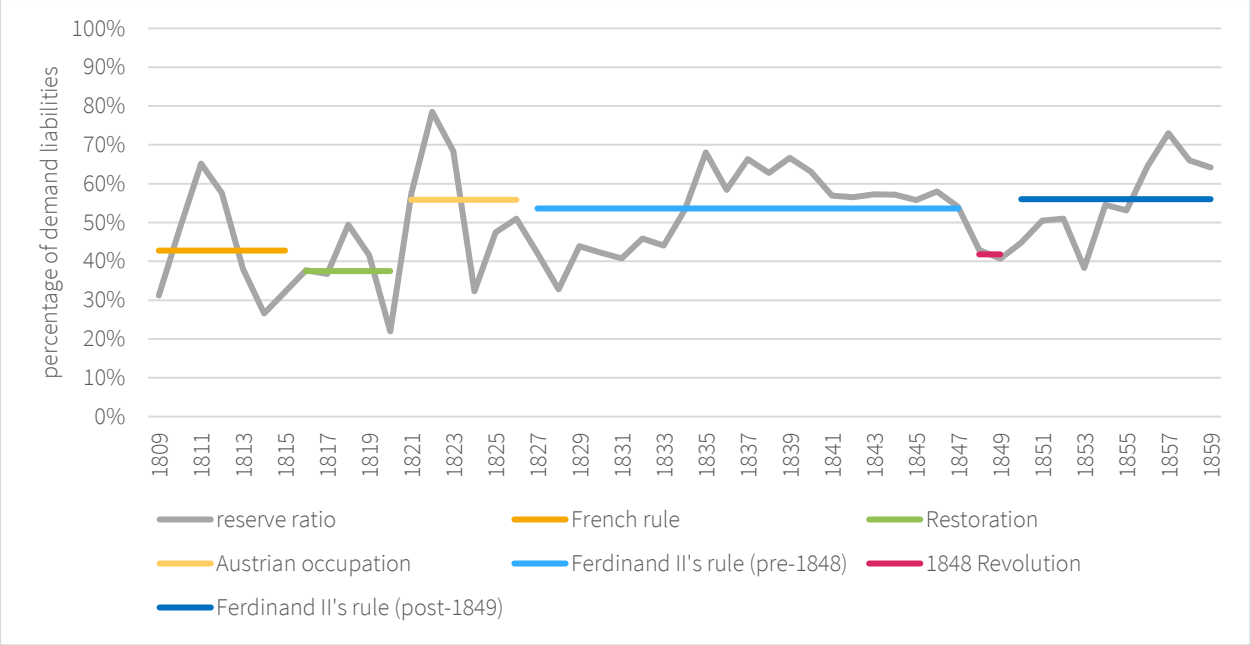


FIGURE 3. Reserve ratio (total specie reserves as percentage of total demand liabilities) of the Southern public banks: actual value and period averages (1809–59).

Note: For the sake of simplicity, the last years of reign of Francis I (1825–1830) have been conflated with the first ones of his son Ferdinand II (1830–1859). *Sources:* See Figure 1.

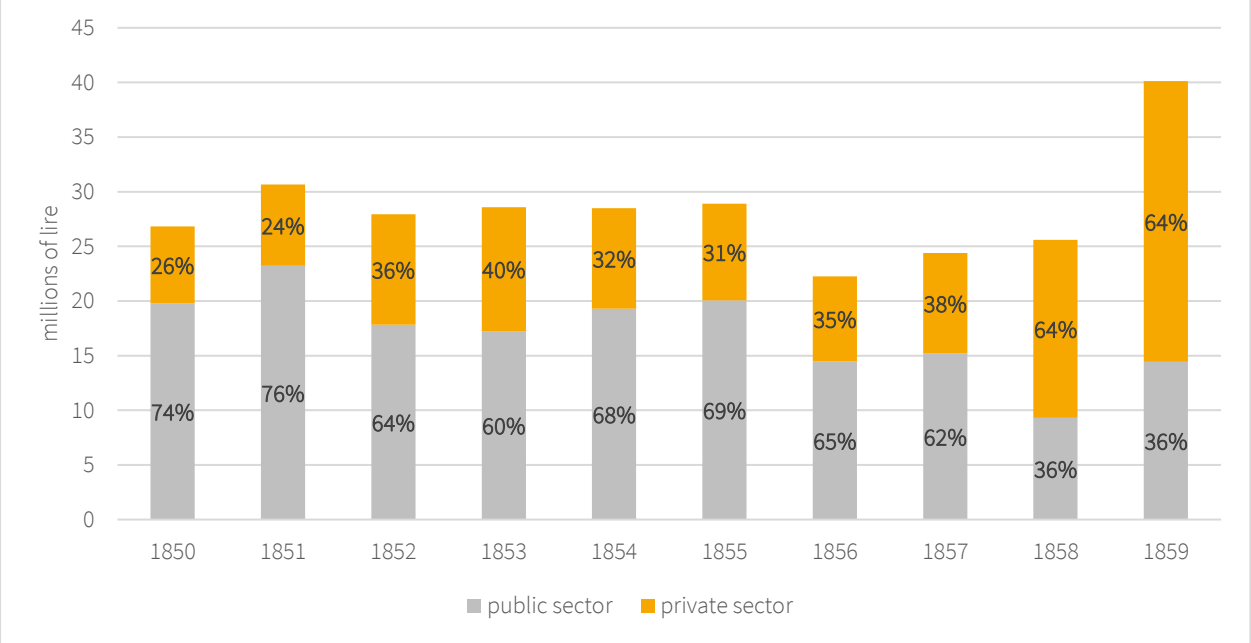


FIGURE 4. Lending to the public and the private sector by the Discount House of the Bank of the Two Sicilies: total amount and composition (1850–59).

Note: Due to a lack of data, the figure does not report annual lending volumes but total outstanding credit at year's end. *Sources:* See Chiaruttini (2020b), with a correction for the year 1856.

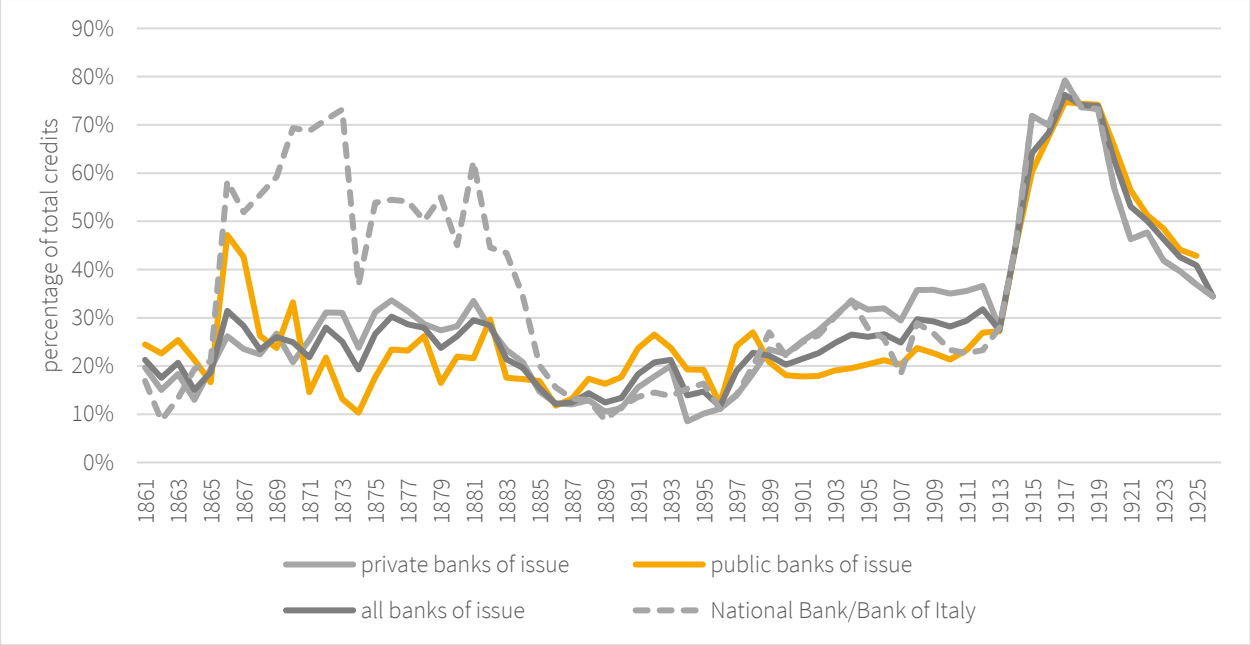


FIGURE 5. Credits of the Italian banks of issue with the public sector as percentage of their total domestic credits: total outstanding credits at year's end (1861–1926).

Notes: Total domestic credit does not include credit between the banks of issue themselves. Data are averages of the credit composition of each bank. Data are missing for the Bank of Sicily until 1870. *Source:* Own calculations based on De Mattia (1967: 1).

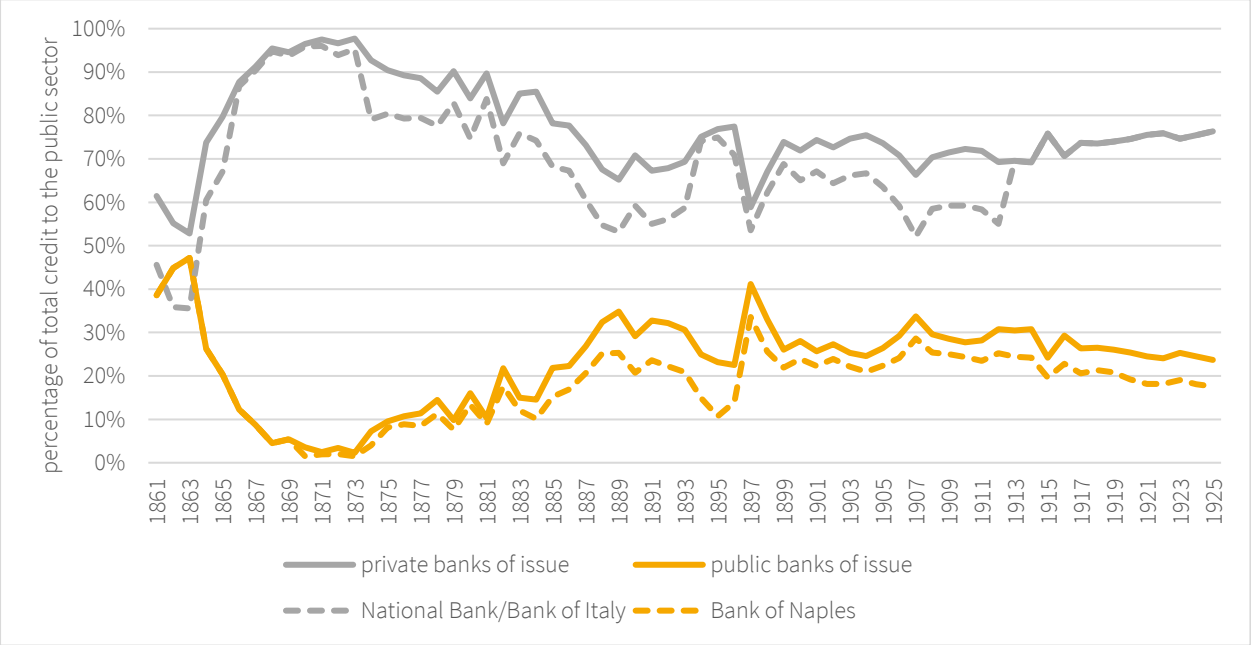


FIGURE 6. Shares of total credit granted to the public sector (outstanding credit at year's end) by the Italian banks of issue (1861–1926).

Source: See Figure 5.

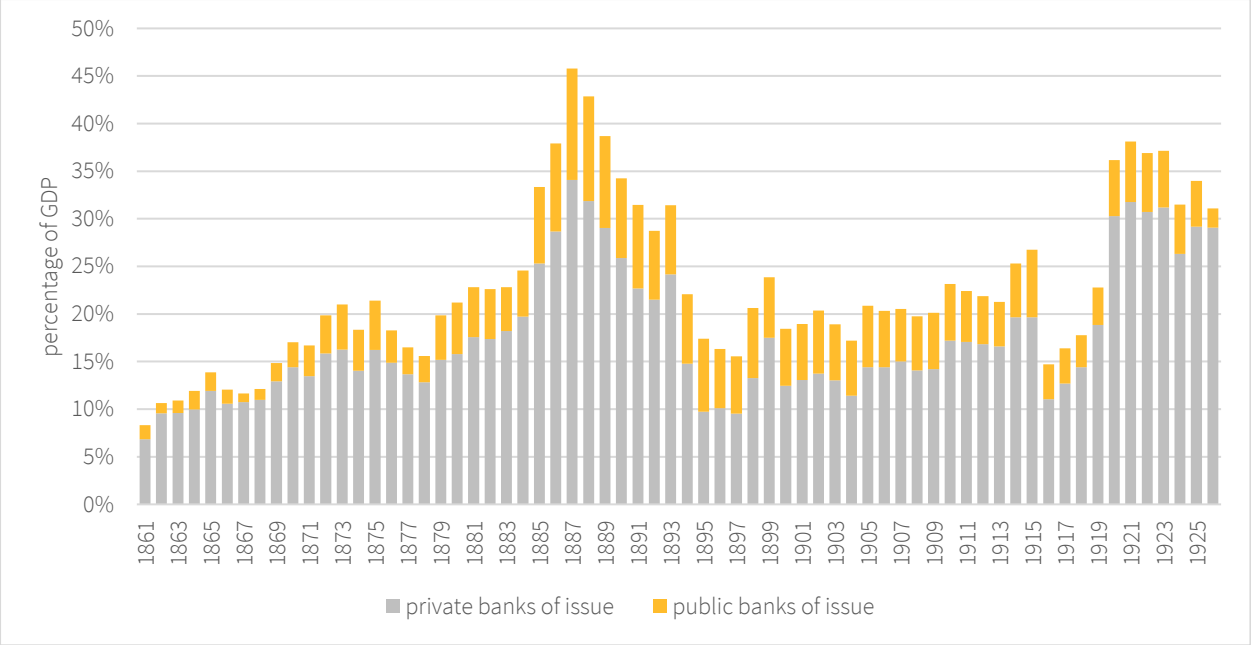


FIGURE 7. Credit supply to the private sector by the Italian banks of issue as percentage of GDP (1861–1926).

Note: Unlike Figures 5 and 6, data refer to credit volumes rather than outstanding credits. *Sources:* Own calculations based on Baffigi (2020) and De Mattia (1967: 2).

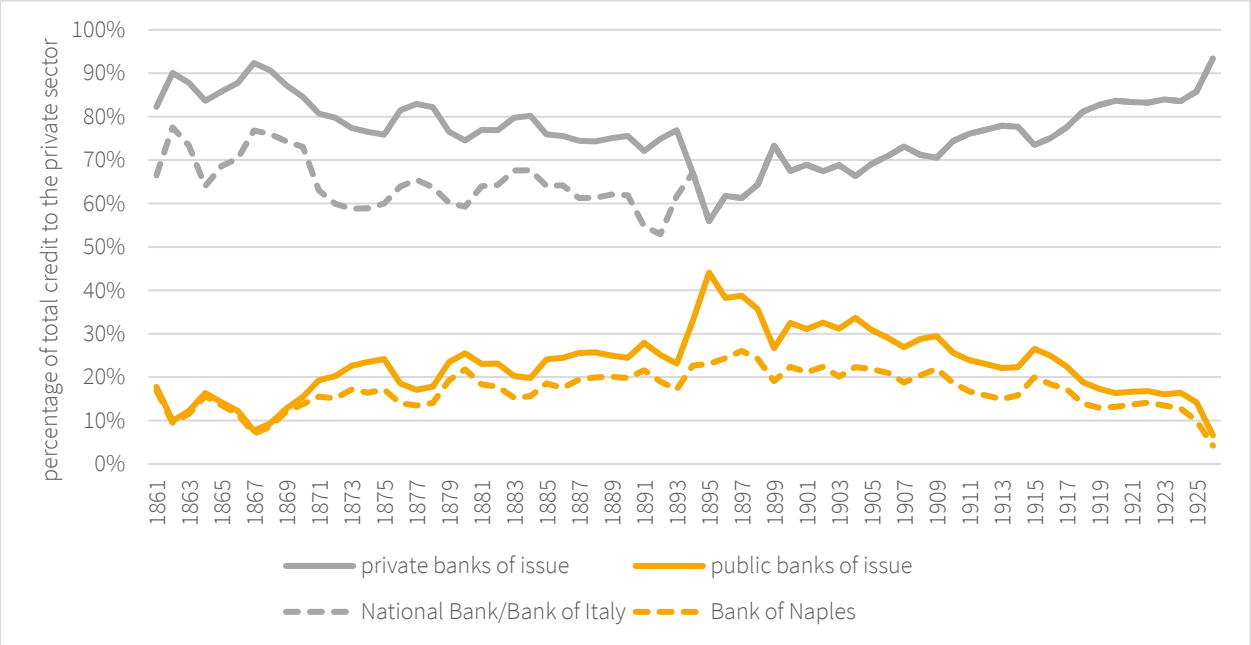


FIGURE 8. Shares of the total credit supply granted to the private sector by the Italian banks of issue (1861–1926).

Note: See Figure 7. *Source:* Own calculations based on De Mattia (1967: 2).

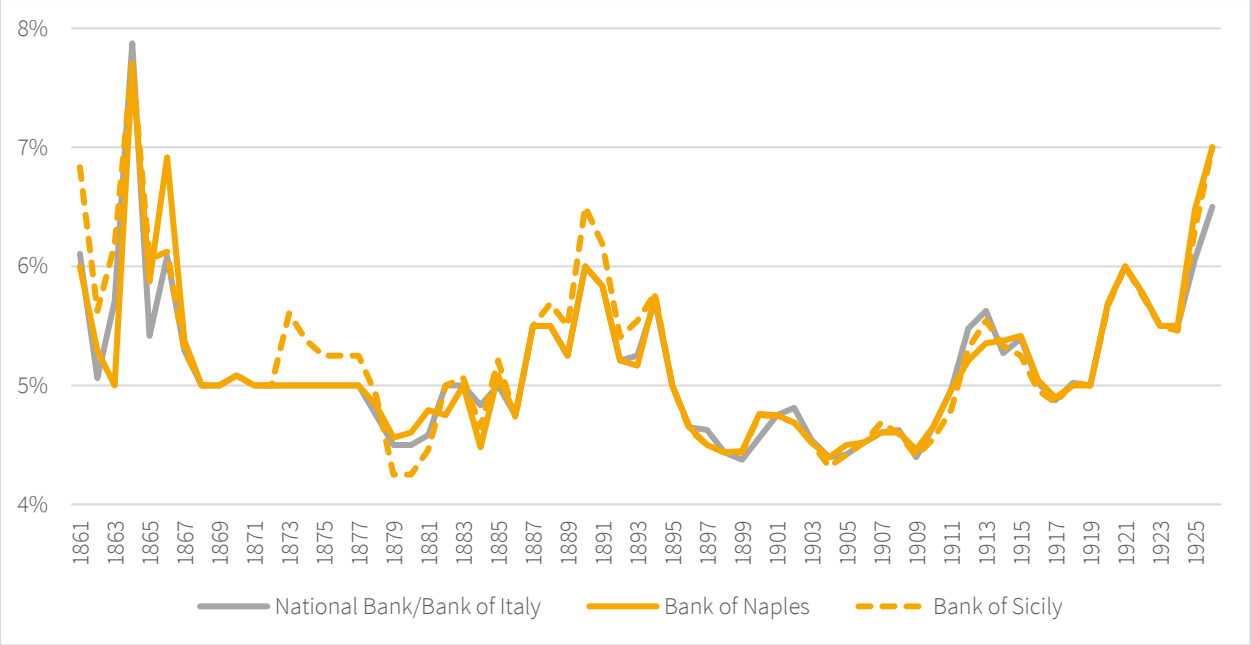


FIGURE 9. Discount rates of the Italian banks of issue (1861–1926).

Source: De Mattia (1978).

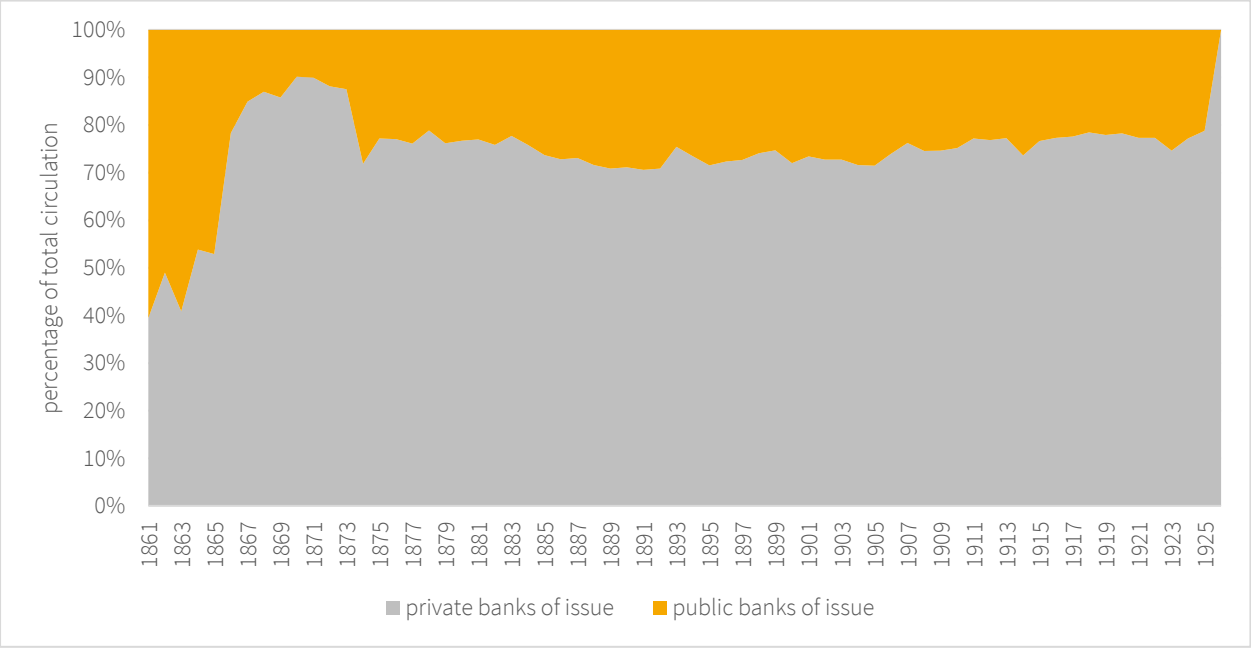


FIGURE 10. Shares of the total note circulation in Italy (1861–1926).

Source: Own calculations based on De Mattia (1967: 1).

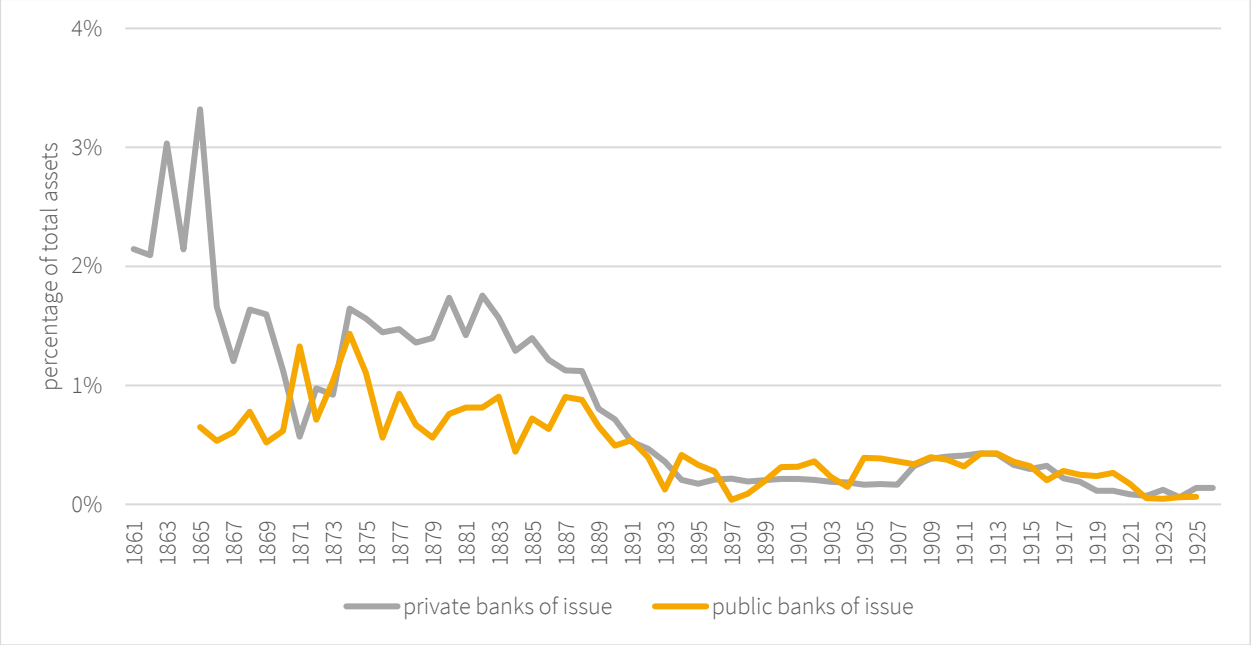


FIGURE 11. Return on assets (ROA) of the Italian banks of issue (1861–1926).

Notes: ROA is calculated as the ratio of net profits to total assets. The decrease of the ratio for the private banks of issue between 1866 and 1874 is due to the National Bank's massive issue of paper money on behalf of the state. In Figures 11, 12, 13 and 14 returns are calculated on the consolidated balance sheet of private and public banks as a group, not as averages of the returns of each bank. Data are missing for the Bank of Naples until 1870. *Sources:* Own calculations based on De Mattia (1967: 1 and 1990).

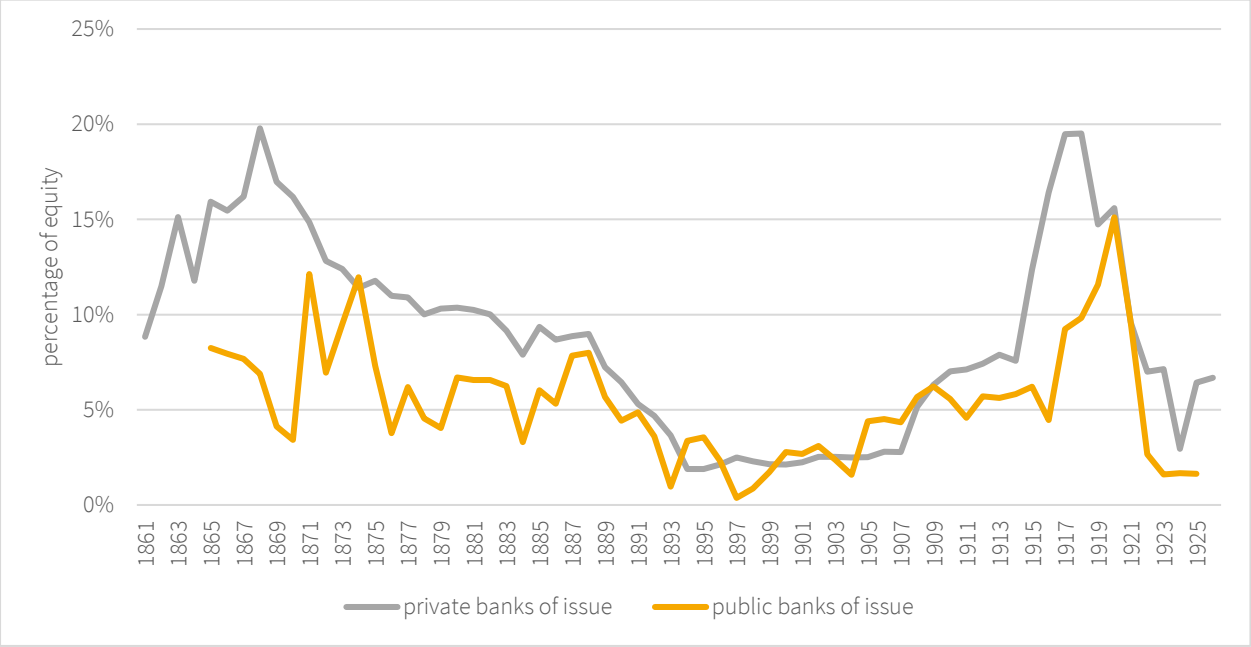


FIGURE 12. Return on equity (ROE) of the Italian banks of issue (1861–1926).

Notes: ROE is calculated as the ratio of net profits to equity. For the public banks, the equivalent of shareholders' equity was their patrimony. See also Figure 11. *Sources:* Own calculations based on De Mattia (1967: 1 and 1990).

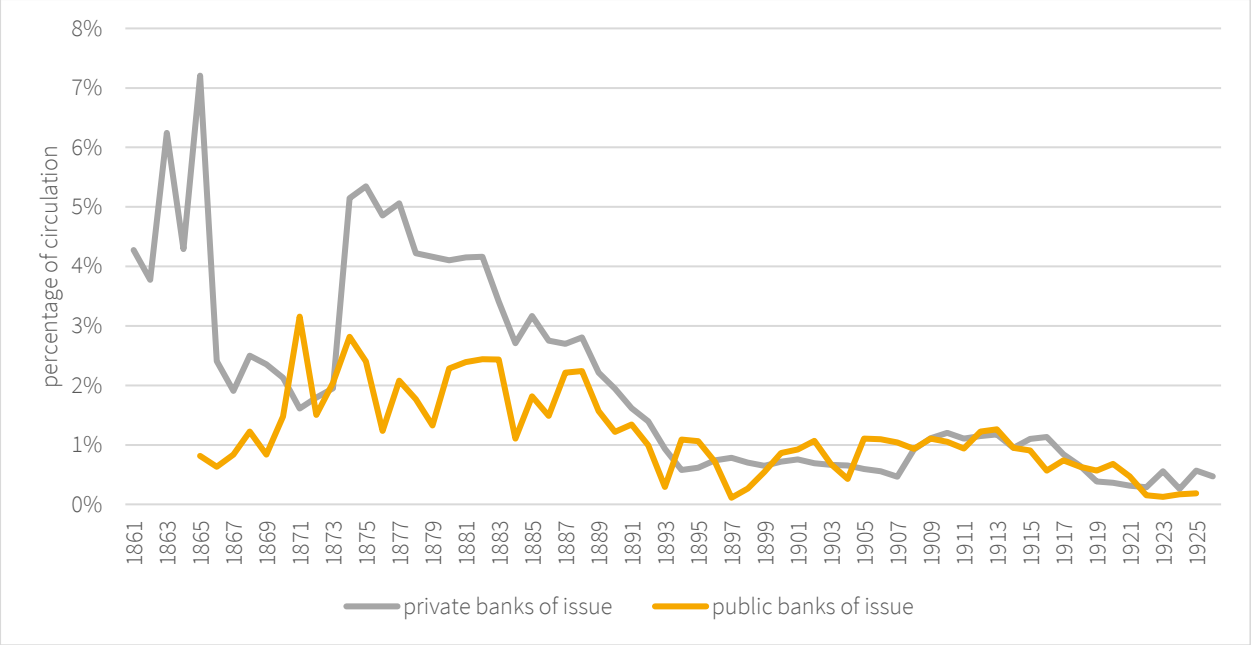


FIGURE 13. Return on note circulation of the Italian banks of issue (1861–1926).

Notes: The ratio is calculated as the ratio of net profits to note circulation. See also Figure 11. *Sources:* Own calculations based on De Mattia (1967: 1 and 1990).

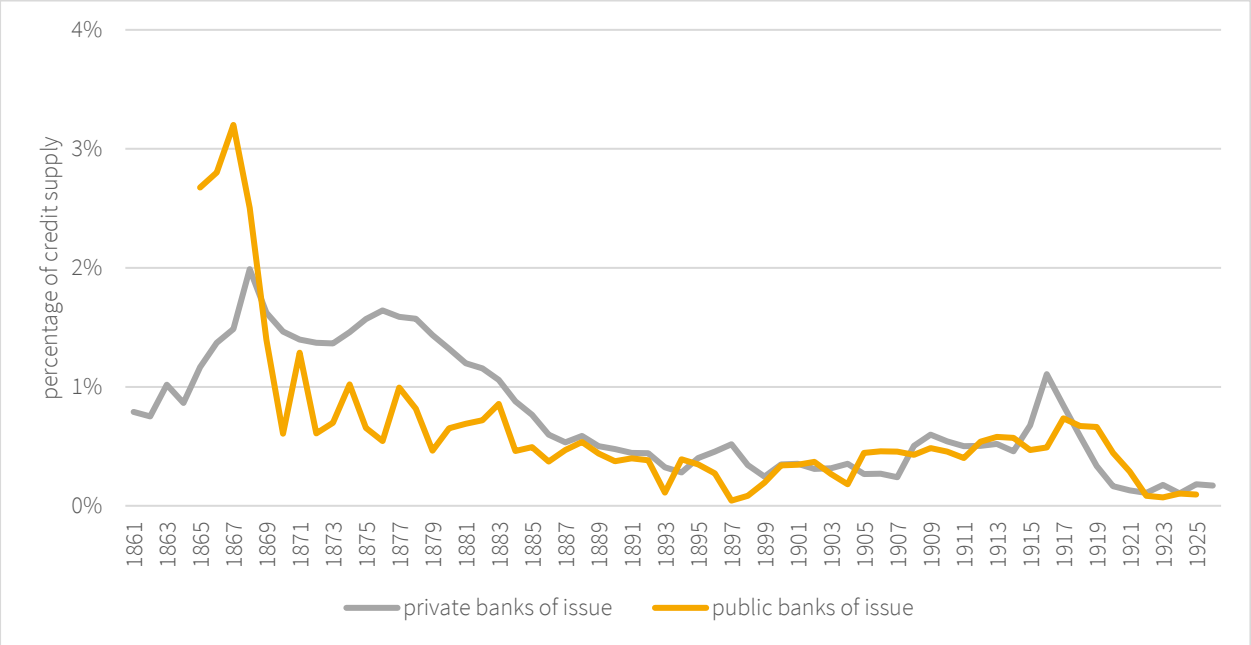


FIGURE 14. Return on credit of the Italian banks of issue (1861–1926).

Notes: The ratio is calculated as the ratio of net profits to credit supply (see Figure 7). See also Figure 11. *Sources:* Own calculations based on De Mattia (1967: 2 and 1990).

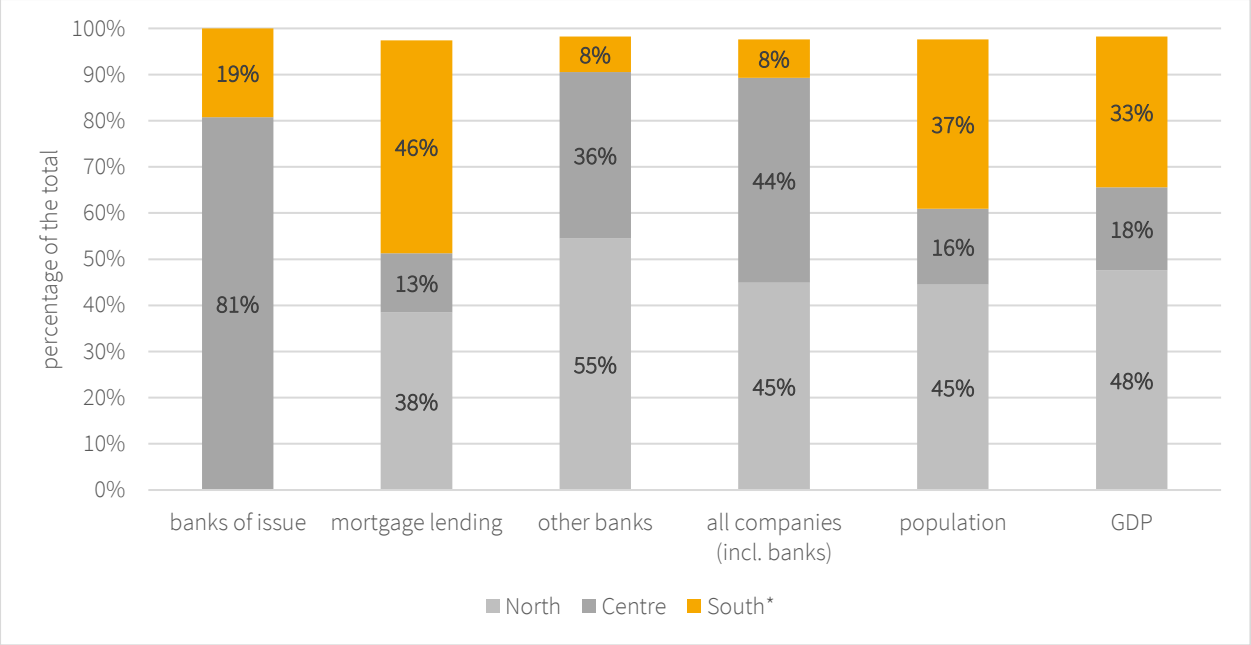


FIGURE 15. Regional shares of population, GDP and of the nominal capital invested in different kinds of credit institutions and in joint-stock companies in 1876.

Notes: South* excludes Sardinia, which historically did not belong to the Two Sicilies. This explains why shares do not add to 100%. The concentration of investment in the Centre is due to the location of the capital city (Florence from 1865 to 1870, later Rome), where the National Bank was also headquartered. *Sources:* Own calculations based on Ministero d'Agricoltura, Industria e Commercio (1877). Regional population and GDP data by courtesy of De Felice (see De Felice 2019), own interpolation for the year 1876.

Marvin Suesse, Theocharis Grigoriadis

Financing Late Industrialization: Evidence from the State Bank of the Russian Empire

Contents

1. Introduction 1
2. Historical Background 7
3. Data 11
4. Empirical Strategy 15
5. Results 19
6. Conclusion 34
References 35
Appendix 39

Marvin Suesse, Trinity College Dublin
E-Mail: marvin.suesse@tcd.ie

Theocharis Grigoriadis, Free University of Berlin
E-Mail: theocharis.grigoriadis@fu-berlin.de

Financing Late Industrialization: Evidence from the State Bank of the Russian Empire[1]

Marvin Suesse
Trinity College Dublin
marvin.suesse@tcd.ie

Theocharis Grigoriadis
Free University of Berlin
theocharis.grigoriadis@fu-berlin.de

[1]We wish to thank Ruben Enikopolov, Amanda Gregg, Sergei Guriev, Stefan Heblich, Igor Korolev, Nicola Limodio, Andrei Markevich, Nicola Mastrorocco, Steven Nafziger, Nikolaus Wolf, Ekaterina Zhuravskaya as well as participants at various conferences and seminars for insightful comments and suggestions. We are also indebted to Mariya Karpenko, Volodymyr Kulikov, Steven Nafziger, Eugenia Nazrullaeva, Imil Nurutdinov and Sofya Salomatina for sharing and discussing data with us. Roman Bakuradze, Arseniy Maley, Elena Kulikova, Tatiana Rusakova and Anatoli Scholz provided valuable research assistance. All errors remain our own.

Financing Late Industrialization: Evidence from the State Bank of the Russian Empire

Abstract

Can state-owned banks spur development? Gerschenkron (1962) identified the State Bank of the Russian Empire as the main institutional driver of the country's catch-up industrialization. In this paper, we test this assertion by evaluating the outcome of a policy experiment (1892-1903) under the reformist Finance Minister Sergei Witte. The policy utilized the established branch network of the state banking system to extend cheap credit directly to industrial plants. We exploit variation in geographical access to State Bank branches at the factory level using a uniquely geocoded data set on industrial plants in 1890 and 1908. This permits us to circumvent the endogeneity of bank location to regional economic conditions. Our results show that improved access to public banking led to faster growth in factory-level output, mechanization, and labor productivity. In line with theories of late industrialization, we also find evidence that the effect of public credit was larger in regions where private sources of finance were scarcer and markets were smaller. However, our results also indicate that the effectiveness of the State Bank was limited by varying levels of state capacity within Russia, and more pertinently by low levels of human capital.

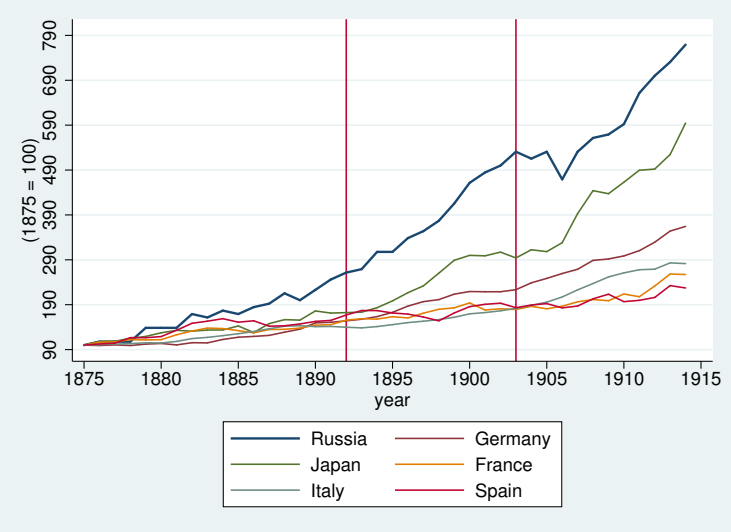
JEL classification N53 · N63 · N93 · P48 · P51

Keywords industrialization · economic geography · banking · industrial policy

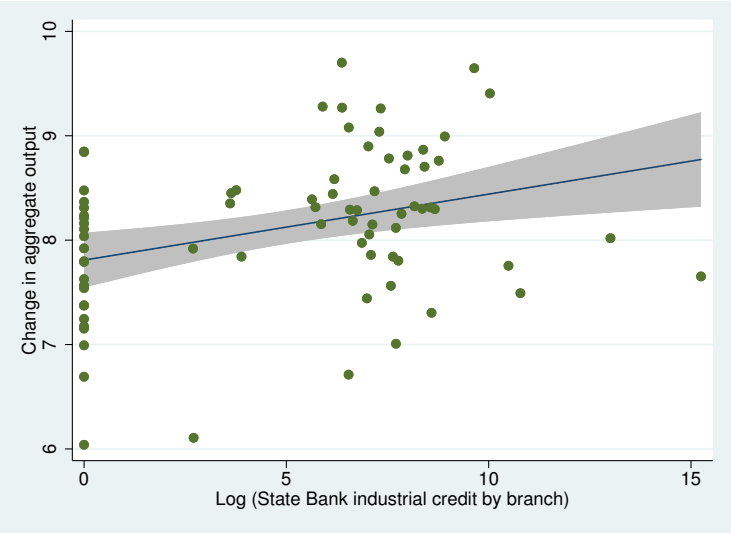
1 Introduction

The Russian Empire underwent an unprecedented industrial boom in the final decade of the 19th century. Industrial production grew by 8-9% annually between 1890 and 1900, outperforming other prominent industrializing countries of the time, including Germany and Japan (Crisp, 1976). As apparent in figure 1a, Russia's industrial growth also outpaced that of countries starting at a similarly low level of development, such as Italy or Spain. Contemporary economists marveled at the transformation from "serf Russia when machinery was still scarcely known in the Russian factory, [to] our present age, the age of the machine's dominance" (Tugan-Baranovsky, 1970, p. xi). Lenin heralded Russia's industrialization as a sign that capitalism had finally come to Russia (thus bringing it one step closer to the socialist revolution). What was the cause of this industrial spurt?

We explain Russia's growth by leveraging theories of late industrialization. In classic work, Gerschenkron (1962) argued that late industrializers such as Russia were too scarce in capital to develop through a free interplay of market forces. Instead, the state in Russia substituted for "missing" markets by directing investments through the public banking system. Figure 1b presents *prima facie* evidence for Gerschenkron's claim. The 1890s witnessed an expansion of public credit to industrial enterprises, and output in provinces



(a) Industrial output in the Russian Empire and selected late industrializers. Sergei Witte's tenure marked in vertical lines. Source: Bénétrix et al. (2015)



(b) State Bank credit and industrial output growth, provinces of the Russian Empire, 1890-1908. Source: authors' calculations based on archival material.

Figure 1: **Industrial output and credit during late industrialization**.

receiving more credit indeed grew at a faster rate. Older generations of economic historians have therefore followed Gerschenkron's view. Using such descriptive data, Crisp (1976) attributed Russia's growth to lending by the State Bank. Garvy (1972) agreed that "[i]n no other country, prior to World War I, was the central bank so clearly a tool of government, so openly controlled by the Ministry of Finance, and so heavily engaged in credit

operations with the private sector, the purpose of which was to stimulate the industrial development of the country and to serve its national interests."

More recent contributions have pointed to the limitations of drawing causal inference from highly aggregated data. Both Gregory (2014) and Kahan (1989) argued that Russian economic growth may have occurred despite, rather than because, of intervention by the Tsarist state. Using multi-sector growth models calibrated with Russian data, Allen (2003) and Cheremukhin et al. (2017) are similarly skeptical regarding the capacity of Tsarist institutions to deliver long-run growth.

This paper brings new micro-data to test Gerschenkron's assertion. We focus on an ambitious policy by the reformist Finance Minister Sergei Witte between 1892 and 1903 that used the public banking system to extend credit to private industry. Before Witte's appointment, the ability of the State Bank to lend directly to private enterprises had been restricted. During Witte's tenure, these restrictions were rescinded and the State Bank lent heavily to industrial enterprises across the country. After Witte was removed from office, his credit policy was dismantled. Witte's credit expansion therefore presents a clearly delimited policy intervention. We evaluate the impact of this policy on output, labor productivity, and machine use at the factory level, using newly geocoded data on manufacturing establishments in the Russian Empire between 1890 (before the start of the policy) and 1908 (after the policy had been ended).

Our results demonstrate that access to a public bank branch raised the growth rate of factory-level output, productivity and the use of advanced machinery. This offers an explanation of the astounding pace of industrial change in Tsarist Russia. In a second step, we examine the effect of access to public credit according to factory and region characteristics. In line with Gerschenkron's argument, we find that the effect of the State Bank was more important for factories without access to private sources of finance, and for factories located in areas where output markets were weakly developed. This suggests the state substituted for private capital. Thirdly, we investigate the limits of public credit. Descriptive work on the historical role of states in development emphasizes a lack of state capacity or human capital as hindering effective industrial policy in developing countries (Kohli, 2004). We similarly find that in regions where the presence of the Russian state was more recent, and where illiteracy rates were high, access to the State Bank was ineffective in spurring industrial change.

Our set-up exploits the geographical distance from each individual factory to the local bank branch as an exogenous determinant of its access to public credit. We can treat distance as exogenous in our context because the location of bank branches and factories

was determined before the start of Witte's credit policy. Additionally, we show suggestive evidence that neither factories nor bank branches sorted geographically before the start of the policy in a way that affects later factory-level outcomes (see section 4.1 on our exclusion restriction). Accordingly, distance to province capitals housing a State Bank branch is a statistically significant predictor of a factory's outcomes in 1908, after Witte's credit policy had ended. Distance is not a predictor in 1890, before the start of the policy. Moreover, as we use factory data over two periods, we can control for factory characteristics at baseline. Finally, our use of plant-level data allows us to control for fixed effects at the level of the bank branch. In other words, our empirical strategy relies on variation between factories with *differing* levels of access to the *same* branch of the public banking system. Unlike much of the literature on banking and growth (see below), our principal estimates do not rely on comparison between branches in different regions.

Our research is intimately related to recent scholarship investigating the determinants of Russian industrial growth before the Revolution. Markevich and Nafziger (2017) highlight the heterogeneity of institutional developments in Imperial Russia. Markevich and Zhuravskaya (2018) provide evidence that the abolition of serfdom by the Russian government in 1861 increased industrial output. Gregg (2020), using some of the same manufacturing censuses as this paper, shows how incorporation helped industrial enterprises to grow, despite the complicated concession system involved. Whereas Gregg (2020) focuses on incorporation as a way for the largest firms to secure equity finance, our paper focuses on the mass of industrial plants that relied on external credit. The role of the State Bank in this process has not been quantitatively tested, despite the centrality of the Bank to Imperial economic policies.[2]

Our results on the State Bank matter beyond their importance for Russian economic history and speak to a large debate surrounding the role of the state in late industrializing countries. Murphy et al. (1989) famously generalized Gerschenkronian arguments in a formal model. The model emphasizes the need for coordination between the investment decisions of decentralized enterprises. This is necessary if initial market size is small, so that private investment will be unprofitable. A coordinated "Big Push" in investment can simultaneously enlarge markets so that all firms profit from spillovers: a new railway increases demand for the steel mill and the mine, and vice versa. The links between state aid and industrial growth have since been used to explain the rapid development of East Asian economies, such as Japan and South Korea after the second World War (Woo, 1991;

[2] Salomatina (2014b) contributes to our understanding of the relationship between the State Bank and the emerging commercial banking sector. Bugrov (2012) provides a rich narrative history of the State Bank in Russian, while Frenkel (2017) analyzes descriptive statistics on the Bank's branch network.

Allen, 2011; Lane, 2021). Recent policy debates on the role of national development banks in the industrial policy of emerging economies tread similar ground (Musacchio et al., 2017).

Importantly, our paper contributes to the voluminous literature examining the impact of banking on growth (Levine et al., 2000). Whereas early contributions showing a positive correlation between finance and growth relied on cross-country evidence (King and Levine, 1993), newer contributions have exploited more extensive and plausibly exogenous variation either in the time series (Rousseau and Sylla, 2005; Burhop, 2006), or at the sub-national level (Jayaratne and Strahan, 1996; Guiso et al., 2004; Berkowitz et al., 2012; Pascali, 2016). It is to this latter strand that this paper is most closely related. Three papers of this vast literature are of particular interest.

Firstly, Heblich and Trew (2019) study the effect of variation in the location of bank branches on industrial development in nineteenth-century Britain. The authors' interest is in exploring how regional differences in financial development shaped the location of industry at the origin of the industrial revolution, in Britain. On the other hand, we study the role of a policy intervention for a late industrializer. Methodologically, Heblich and Trew (2019) employ an instrumental variable estimation to exploit exogenous differences in local financial development. Our paper exploits variation at the sub-branch level.

Secondly, Lehmann-Hasemeyer and Wahl (2021) examine the effect of savings banks in Imperial Germany in the nineteenth century. The authors find a positive effect of savings banks on the local development of infrastructure and manufacturing. The authors study a late industrializer, like we do. However, the case of Russia presents an instance of even heavier state involvement in the banking sector. Instead of setting policy parameters, as the German government did, the Russian state directly determined loan volumes.

Thirdly, Burgess and Pande (2005) investigate the effect of a determined push by a government to expand financial intermediation to unbanked locations. Their study of India in the 1970s and 1980s, however, is mainly concerned with poverty alleviation rather than industrialization or enterprise-level outcomes. Yet their study does demonstrate that the positive relationship between finance and growth found in the literature does include cases of heavy government involvement.

It is important to state, however, that we do not argue that lending by the government is necessarily an optimal allocation of resources in developing countries. We show that access to public banking spurred industrial output and productivity, especially in poorer regions. We cannot formally assess the full welfare implications of public credit, as we observe neither the opportunity cost of public funds, nor the deadweight loss incurred in

raising them. It is likely that Witte's policy redistributed income from the bottom to the top in a society with an already highly skewed income distribution. This is because Witte's policies involved a redistribution from taxpayers to recipients of industrial loans. Taxes were largely indirect, and thus regressive (Ananich, 2006).[3] Witte's policy pursued one goal – industrialization to maintain Russian geopolitical pre-eminance – at steep trade-offs.

Moreover, banking with the state in Imperial Russia was dependent on cultivating access to local bureaucrats. Political patronage networks between industrialists and state bankers played a large role in the allocation of credit in the provinces (Lychakov, 2018). This is in line with the literature on government banking, which identifies the soft budget constraint as a structural element of a centralized financial system, where the lender cannot credibly commit to terminate an inefficient project ex-ante (Dewatripont and Maskin, 1995; La Porta et al., 2002; Barth et al., 2008). However, the prevalence of insider lending benefits our argument in three ways. Firstly, the importance of personal access to state bankers for obtaining credit validates the use of geographical distance as a proxy for loan access, because business networks decrease with distance (see section 4.1). Secondly, our results show an effect of access to the State Bank on factory outcomes even in the presence of such financial frictions. Thirdly, and relatedly, the presence of these frictions heightens the applicability of our results to modern developing countries. Indeed, a similar paradoxical mix of high growth, government intervention in credit markets, and insider lending have marked Asian late industrializers such as South Korea and Malaysia (Gomez and Jomo, 1999).

The rest of the paper proceeds as follows. Section 2 provides the historical background of reforms in Witte's Russia. Section 3 describes the data collected, and 4 sets up our identification strategy. In section 5 we first estimate the effect of the State Bank on factory-level outcomes, before examining the importance of regional characteristics. We then proceed to discuss limits to the State Bank's effectiveness. The last section concludes.

[3] In addition to taxes, Witte's policy was financed by floating government loans abroad. Their repayment, of course, would eventually have landed on the Russian taxpayer had it not been for the repudiation of these debts by the Bolsheviks after the Revolution (Malik, 2018).

2 Historical Background

2.1 Establishment of State Bank branches

The State Bank of the Russian Empire was founded in 1860 as part of a reform package sponsored by Tsar Alexander II. Anxious to retain Russia's vaunted status as a Great Power after its defeat in the Crimean War, the Tsar sought to modernize the Russian economy, including its financial system. Upon its founding, the State Bank was effectively incorporated as an agent of the Ministry of Finance. Per Charter, tight limits were placed on the ability of the State Bank to issue credit to commercial enterprises, although the Bank did sometimes advance short-term working capital on the basis of discounting promissory notes (See figure 2c). The bank's principal functions during the first decades of its existence revolved around the coordination of public finances, including placing government bonds, managing the Imperial gold reserve, and collecting and transferring tax payments. This last function mandated the build-up of an Empire-wide system of deposit accounts and a payment mechanism, which led to the establishment of branches outside of the capitals St. Petersburg and Moscow (Gindin, 1960; Bugrov, 2012; Garvy, 1972; Ananich, 2006). Between 1860 and 1866, 33 branches were set up (see figure 2a). As the objective was to maximize the collection of deposits from the regions, Tsarist authorities allocated branches to the commercially most important towns, that is those with a high density of tax payers and savers. Through these branches, the State Bank effectively acted as a giant "pump" funneling resources from Russia's provinces to St. Petersburg for use by the central government (Bugrov, 2012; Frenkel, 2017, p. 180, 183).

Further expansion of the branch network proceeded slowly for about a decade. This was due to the difficulty in attracting skilled staff to remote locations, and the low level of capitalization of the Bank itself. Deposits also grew slowly in the first decades (figure 2b). Many branches had difficulty breaking even, partly because the high level of central control written into the Bank's Charter limited the ability of branches to adjust their assets flexibly to local conditions. Central control, in turn, was perceived necessary given the low levels of human capital of banking staff employed in the regional branches. This further reduced the appetite for expansion, until resources for a second wave of expansion were again available in the 1880s (see figure 2a). In expanding, authorities followed the rule "every town a bank", meaning that a new branch was allocated to the administrative capital of each province. The principal reason behind this decision was that the State Bank was a bureaucratic institution, which followed the general hierarchy of the Empire's ad-

ministrative divisions.[4] By the start of Witte's tenure in 1892, most provincial capitals had received a local branch (Bugrov, 2012; Frenkel, 2017, p. 184).

The Bank's early history has important implications for our empirical setup. Firstly, the timing of branch establishment was clearly endogenous to local economic conditions. This precludes a straightforward comparison between branches. Instead, our empirical strategy employs within-branch variation provided by distance. Secondly, while the timing of branch placement was endogenous, the *location* of placement was determined by administrative criteria (namely the location of the provincial capital). Thirdly, the purpose of the early public banking system was not to support local industry. Quite reversely, it was used to "pump" taxable surplus out of the regions. Being geographically close to a branch was therefore not necessarily advantageous for industrialists before the start of Witte's policy.[5]

2.2 Witte's policy experiment

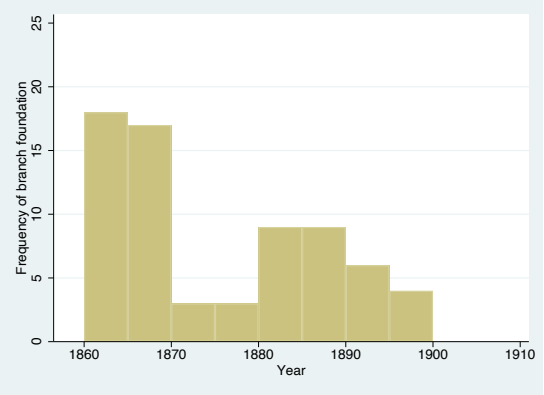
The role of the State Bank changed dramatically after the reformer Sergei Witte took over the Ministry of Finance and hence authority over the State Bank in 1892. Witte was a follower of Friedrich List, the German economist whose writings on development strategies for late industrializing countries dissented from the tenets of classical economics. From List's writings, Witte distilled two policy recommendations. Firstly, protective tariffs were to insulate Russian industries from more advanced Western competition. Secondly, the government was to dispense credit to domestic industry in order to aid its expansion and technological upgrading. This would make Russian factories productive enough to export, first to less competitive markets in Asia, and eventually to Europe. In order to mobilise the public funds for this ambitious scheme, Witte did not only rely on domestic tax revenues, but also increased the issuance of Russian government bonds abroad. Finally, in order to increase Russia's attractiveness for foreign investors, Witte tied the ruble to gold in 1897 (Drummond, 1976; Ananich, 2006; Wcislo, 2011).[6]

The State Bank was a key institution for the implementation of Witte's new policy framework. Macroeconomically, it received the right to issue currency backed by gold and

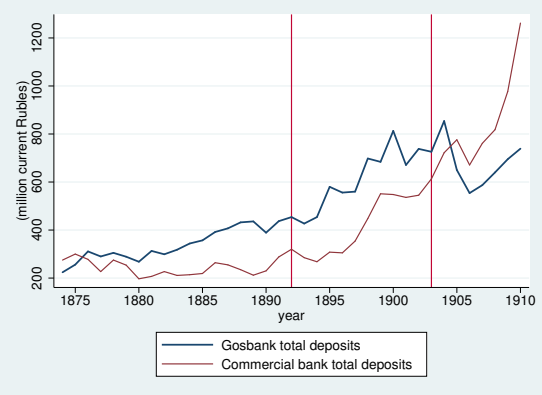
[4]This approach was modeled on the 'federal' system pursued by the German Reichsbank at the time. Note that in some provinces, one or two secondary branches were established outside of the capital, for which we control in the empirical analysis.

[5]The Bank's branches could be used to transfer funds other than tax payments, thus carrying some advantage to private customers. This function, however, was more useful to merchants who operated in inter-regional trade rather than factory owners, who depended on finance in a capital scarce economy (Bugrov, 2012).

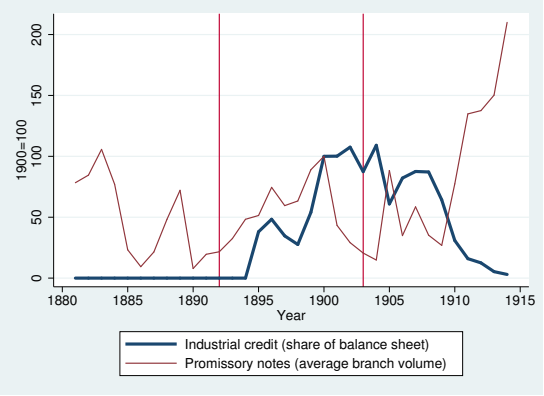
[6]There was a potential contradiction between Witte's aim of credit expansion and his commitment to the maintaining the ruble's parity to gold. The Russian government was able to overcome this tension by maintaining a larger gold stock than necessary, thus providing it with a margin of flexibility.



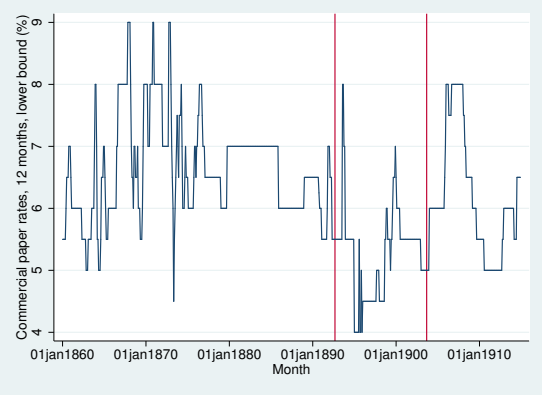
(a) Founding year of first State Bank branch in province



(b) Deposits in State Bank and private banks



(c) Industrial loan and promissory note issues, State Bank



(d) Interest rate, State Bank

Figure 2: **Evolution of State Bank of Russian Empire, 1860-1913**. Vertical (red) lines indicate tenure of Sergei Witte as Minister of Finance. Source: Crisp (1976); Bugrov (2012); Salomatina (2018) and authors' calculations based on Russian State Archives.

would act as Russia's guarantor of gold convertibility. Most importantly for our purposes, the State Bank would support the provision of industrial credit. In order to carry out these new functions, Witte rescinded the Bank's restrictive rule book by sponsoring a new Charter in 1894. This provided Witte with several policy levers. Firstly, the new Charter abolished previous restrictions on commercial lending, and additionally made provisions for the provision of loans to smaller borrowers. It also extended the term structure of existing financial instruments, making it possible for factories to finance a broader range of capital needs on the basis of promissory notes. Secondly, Witte created a new set of financial instruments specifically designated as "industrial credit" for long-term investment purposes. As figure 2c shows, the volume of credit under this heading expanded massively once the new Charter took effect. Thirdly, the State Bank not only expanded the volume

and structure of lending, but also made credit cheaper (figure 2d). Interest rates on State Bank loans during Witte's tenure were lower than in other periods, and were typically lower than those demanded by commercial banks (Ishkinina, 2010; Von Laue, 1968; Crisp, 1976).[7] Fourthly, Witte delegated the authority to approve loans to local branches.

The interaction between the Bank's central office and its local branches during Witte's tenure involved a blend of central rule and local discretion. The amount of funds allocated to each branch and region were often decided centrally. This gave precedence to poorer regions, as "the main aim [of the Bank] was to increase credit to all branches of the economy were private credit was deficient" and "to fill the gap left unattended by other credit institutions" (Crisp, 1976, pp. 134, 155). Within these central allocations, local branches typically enjoyed a large degree of discretion in determining the individual recipient of credit. There is evidence that this local discretion was often abused. As branches now had valuable loans to dispense, local business interests (who often sat on the boards of branches) had an incentive to cultivate access to local bankers. The difficulties of attracting qualified staff and the resulting low rate of turnover of bank managers further facilitated local political capture. Witte attempted to reduce insider lending by the State Bank's branches by increasing staff turnover frequencies and inspections, with modest results (Gindin, 1960; Bugrov, 2012; Lychakov, 2018).

2.3 Abrogation of Witte's policy

Witte faced a high degree of resistance against his policies, both by the rural poor who paid taxes and by the landed nobility who feared industrialization might undermine their rural power base. However, the eventual end of the experiment was not related to the policy itself. The cause for Witte's dismissal in 1903 were disagreements over Russian imperial expansion into the Korean peninsula, which he opposed. Witte lost the argument and Russian expansion went ahead. The resulting war with Japan (1904-05) wrecked disaster on the Russian economy (Wcislo, 2011). Facing mounting fiscal pressures, Witte's successors rapidly dismantled the State Bank's expensive credit drive. Industrial loans were once again curtailed (figure 2c). Instead, the Bank increasingly acted as an orthodox central bank attempting to defend the stability of the ruble by raising interest rates (Ananich, 2006).

Growth returned after 1907, with larger participation by the now rapidly expanding commercial banking sector. Joint-stock commercial banks had developed sluggishly un-

[7] For example, loan and discount rates demanded by the State Bank in 1897 were about 1%- point lower than those of commercial competitors, as evidenced by comparing data from Salomatina (2015) and Bugrov (2012).

til the late 1890s (figure 2b). The slow growth of private banking had partly been due to government restrictions, and partly due to the fact that many banking houses were linked to established enterprises, therefore having little incentive to invest in new ventures. Nonetheless, even after private banks had become important actors in industrial finance after Witte's exit, the State Bank did not entirely abandon its commercial interventions. The Bank continued to act as a lender of last resort to commercial banks and large strategic enterprises in times of crisis (Crisp, 1976; Boiko, 2011; Salomatina, 2014b). However, the purpose was now to effect emergency bail-outs, rather than foster industrialization.

3 Data

Our data set consists of three key components. The Russian manufacturing census of 1908, conducted four years after Witte left office and his credit policies were terminated, provides a baseline. Secondly, we use a similar census from 1890, two years before Witte's tenure, as a baseline. Thirdly, we employ data on the branching activities of the State Bank from its foundation in 1860 to 1914.

3.1 Geocoded 1908 enterprise data

The "List of Plants and Factories in the Russian Empire" provides us with the universe of factories in the Russian Empire in the year 1908.[8] The unit of observation is the physical unit of production, the plant or factory, rather than the legal entity owning the plant (firm or enterprise). Incorporation in the Russian Empire was expensive and rare, so that most establishments were owned by sole proprietors (Gregg, 2020). For each factory, the census list provides three types of variables.

Firstly, we have information on output (in rubles), size of the workforce (in persons) and installed machinery (by propulsion type and horsepower). These factory-level outcomes serve as dependent variables in the later analysis. We calculate labor productivity as output per person and include this as an outcome variable given the focus by Witte on improving productivity in industry.

Secondly, the census details a number of control variables for the analysis. These include the name and social status of its owner (noble, merchant, townsmen), the type of establishment (workshop, factory), the corporate form (none, publicly owned, partnership,

[8]The list contains a total of 19,939 factories. It excludes factories located in the Grand Duchy of Finland, which was autonomous. We also drop the autonomous Central Asian Khanates from the sample, as well as some frontier provinces in the Caucasus that do not possess the same civilian administrative divisions of the rest of the Empire. This leaves 19,472 plants.

share issuing corporation, cooperative). The census also provides an industry classification.[9] In addition, we approximate the ethnicity of the enterprise owner from his or her name (Russian or non-Russian). For many establishments, there is also information on the proximity to railway, riverine, postal and telegraph stations. We code these factory level control variables as indicator variables.

Thirdly, each factory on the list exhibits a precise address. This includes information on the first-level administrative subdivision the factory is located in, the province (*governorate*), as well as its second-level subdivision, the district (*uezd*). The third level subdivision, comprising the municipal area (*volost*) in rural regions, or the town (*gorod*) in urban regions, is the level at which geocoding takes place.[10] To accomplish this geocoding, we consult a broad array of sources on local Russian history which allows us to match historic town and village names to modern ones. This permits a geocoding of factory locations at the rural or urban municipality. We manage to geocode 87 % of the factories to this level. Map B.2 and B.2 in the appendix plot these factories.

3.2 1890 baseline census and matching

The manufacturing census of 1890 provides a baseline for our analysis. This census is similar in structure to its 1908 successor, and provides many of the same variables. In particular, it provides factory level revenues ('000 rubles), workforce (headcount), and machinery used (horse power, propulsion type, as well as number of machines). It also provides similar information regarding the social status of the factory owner. In addition, the census provides a founding year for each factory. It does, however, not provide detailed information on the location of the factory, typically only up to the district (*uezd*).[11]

We match the factories of the 1908 census to those in the 1890 census in three steps. Firstly, we use a learning algorithm that matches factories according to their province and the last name of their owner. The algorithm "learns" in the sense that it attempts different spellings of the last name in each iteration. As a second step, we check the matches identified by the algorithm by hand, using information on the industry of operation, and

[9] We only utilize the "single-digit" industry codes that are provided in the census, yielding 15 industries. Although the census provides additional information that would allow a finer classification, this information is not always easily categorizable.

[10] While towns have a natural center that can be geocoded exactly, we assign all establishments in a rural volost the location of the volost's principal village. While this may introduce some measurement error, this is likely to be small in practice. The Russian Empire contained more than 13,000 volosts, thus already providing a very fine-grained unit of observation. See appendix A.1 for information on administrative divisions.

[11] The census differs in three other ways from its 1908 successor. Firstly, it enumerated factories over a range of years (1890-1894), rather than providing a single snapshot. Secondly, the version we use is a compilation of two lists that were published separately, one for European Russia, and one for the Empire's border regions. Thirdly, although the industry of the factory is provided, the classification used is not the same as in the later census.

factory size. Thirdly, we exclude multiple matches, that is cases where one 1890 factory is matched to several 1908 factories, or vice versa. This can happen because factories split, or merge during the time period under consideration.[12] This leaves us with 2,677 conservative matches, which is comparable to the number Gregg (2015) arrives at. Using the 1900 census as an intermediate step, she is able to match 3,271 factories across all census years in a "rough" match that allows for the existence of multiple matches. The high rate of factory establishment and dissolution implied by the matching quotient is not surprising in a dynamically developing economy. The period 1890-1908 also encompasses several economic downturns that led to a large number of industrial bankruptcies (Gregg and Nafziger, 2020).

Table 1: Matching 1908 factories to the 1890 census: **Balance**

	Not matched to 1890 census			Matched to 1890 census			
Variable	Observations	Mean	Standard Error	Observations	Mean	Standard Error	p-value of difference of means
Revenue (rub.) in 1908	11,927	258655	16621	2,677	218009	12995	0.254
Machinery (hp) in 1908	11,927	111.6	6.81	2,677	69.9	4.48	0.041**
Workers in 1908	11,885	111.2	4.48	2,671	114.7	6.37	0.726
Distance to capital (km)	11,927	82.1	1.03	2,677	79.1	1.70	0.190
Urban population ('000)	11,927	162.4	3.02	2,677	164.2	6.68	0.798

Non-geocoded factories excluded from both groups. Factories with multiple matches are excluded from both groups.
* p<0.10, ** p<0.05, *** p<0.01

We compare the characteristics of the matched to those of the unmatched 1908 factories in table 1. This suggests that there is no statistically significant difference between the means of both groups according to revenues, workforce, urbanization and distance to the capital. There is, however a significant difference in the use of machinery, with unmatched enterprises in 1908 employing more machines. However, this does not necessarily suggest that we are oversampling unmechanized factories in our matched group. The unmatched group in 1908 will contain a certain number of *de novo* factories that did not exist in 1890. In an era of fast technological progress, newer establishments may be more capital intensive – a phenomenon that has been recognized for late Imperial Russia as early as Gerschenkron (1962). Moreover, our matched factories are drawn from the majority of districts and from almost all provinces of the Russian Empire (table A.1), suggesting a broad geographical representation.

[12] Although we exclude all multiple matches from our baseline analysis, we show our results are robust to their inclusion in appendix D.4.

3.3 Other data

Financial data for all 120 branches of the State Bank of the Russian Empire have been collected in the Russian State Historical Archive in St. Petersburg for the period 1881-1908. This information consists of the branches' balance sheets at the end of each financial year, as well as their annual turnover of deposits and advances. Annual turnover is further subdivided by the type of financial instrument (promissory notes (*vekselia*) and industrial loans). These are our two financial instruments of interest. Industrial credit only includes long-term loans. Promissory notes, a shorter term instrument, are widely considered to have been employed in industrial credit too. We therefore also code the volume of promissory notes by branch.[13] Although balance sheet data is complete for most years, data on individual financial instruments are not always available for all branches, especially before 1900. While the financial data do provide an overview of general trends in credit provision as shown in figure 1b, we therefore do not rely on them for our main results. For these, we measure access to finance provided by geography, rather than finance itself.

We complement this financial data with the founding year and location of each bank branch from Bugrov (2012). Most provinces received only one branch, located in the capital. By 1908, 11 provinces had not received a branch of the State Bank in the capital.[14] In order to control for the presence of private commercial banks, we employ data from Salomatina (2014a). She provides data on the location, foundation date, and capitalization of private commercial banks and their branches across the Empire. For the majority of the analysis, we simply employ a dummy variable taking the value of 1 if a municipal area is home to a private bank.

Finally, we include information from the 1897 population census. The census provides local population figures for each town or village of more than 500 inhabitants. Moreover, the census provides data on province-level economic variables such as aggregate output and literacy in 1897, which have been compiled by Kessler and Markevich (2020). Summary statistics for all variables are provided in table A.2.

[13] Industrial loans were extended on the basis of collateral, including government securities, and were often government-subsidized loans. The second type of loans were used to cover the short-term needs in credit for industrial projects, with their liquidity limit set by the promissory notes they are attached to.

[14] These 11 provinces were located around the Empire: Caucasus (Dagestan, Elizavetopol, Kutaissi), South Russia (Don, Taurida), Baltics (Kurland), Poland (Kielecka, Suvalska, Siedlecka) North Russia (Olonets) and Siberia (Yakutia).

4 Empirical strategy

4.1 Identifying assumptions

Causal inference We are interested in measuring the effect of Witte's credit expansion on Russian industry. As the historical overview in section 2 has shown, the timing of the State Bank's branching was endogenous to local conditions. This rules out a staggered treatment analysis of branching on provincial outcomes. Moreover, the credit volume each branch extended might have been determined as a response to local industrial characteristics. This rules out a simple comparison of credit volumes between provinces (as was done in figure 1b). Our core strategy is to treat both the branch network and factory location as given in 1890 before the start of Witte's policy and examine subsequent changes in outcomes at the factory-level.

Firstly, we need a measure of the exposure of each factory to the bank that is not driven by factory characteristics. For example, even if individual level loan data were available, the extension of loans is likely to have been driven by factory revenues, or expectations about revenues. We circumvent this problem by using the geographical distances from the factory to the bank branch as a measure of exposure to finance. Larger distances will be reflected in higher transaction costs for factory owners in applying for loans and in higher monitoring costs on the part of the bank. This is especially salient in Imperial Russia, were distances were large and transport links were still developing (Kahan, 1989).[15] Moreover, the historical overview demonstrated that cultivating personal connections to state bankers was an important factor in receiving loans. As personal business networks decrease with geographic distance (Chaney, 2014), so will the probability of receiving credit.[16]

Secondly, we need to fix the location of the bank branch. Clearly, policy makers could have placed branches closer to important clusters of factories to minimize the costs of accessing finance. In this case, distances would not be exogenous to firm characteristics. We therefore exploit the administrative rule for the location of bank branches: "Every Town a Bank". In practice, this meant that if a province received a bank branch, this was placed in the town serving as the administrative center of a province.[17] We can therefore use the distance from each factory to its provincial capital, rather than distance to a bank branch, as a measure for the access to finance. As the designation of towns as provincial capitals

[15] In our data, the mean distance to a branch of the State Bank is a considerable 79 km, roughly a 10-hour journey by horse carriage.

[16] Network analysis by Hillmann and Aven (2011) on entrepreneurs in Imperial Russia shows how access to credit depended crucially on network strength. Moreover, their results show that business networks in the Russian periphery were highly localised.

[17] Our data reveal that 82% of provincial capitals received a branch, while only 5% of lower-ranked towns were accorded such pre-eminence. We control for lower-ranked towns that receive a branch in the analysis.

had been historically determined before the creation of the State Bank, this measure is not influenced by bankers' assessments of the economic potential of a region.

Thirdly, we have to confront the likelihood that distance to the provincial capital coincides with access to administrative services or markets for inputs and outputs, all of which could spur the growth of factories. In this case, we would we picking up a general "capital" effect, rather than the specific "bank" effect. To circumvent this, we interact distance to the provincial capital with the presence of a State Bank branch in the capital, thus using factories located in provinces without a bank in their capital to identify the "pure" effect of being located close to a capital.

Fourthly, we insert fixed effects at the province – and therefore the branch – level. These serve a dual purpose. For one, these control for the possibility that the unobservable characteristics of a region (such as economic potential) could influence the decision on whether to invest the provincial capital with a bank branch. Furthermore, these fixed effects control for the specific geography of a province. For example, branches in outlying rural provinces may be systematically worse in allocating loans (a valid concern given the difficulties of finding qualified staff in remote locations). In this case, we would still pick up a "real" effect of finance on growth, but the interpretation would be different. Once we include province dummies, we capture the variation in access to finance by individual factories, rather than the supply of credit in an entire province.

Finally, having found an exogenous location for the bank branch, we need to fix the location of factories in space. If factories were free to relocate (or could be created *de novo*), owners could choose to locate close to the bank to minimize transaction costs. This might be a problem if the propensity to do so correlates with factory outcomes (i.e. more successful factories find it easier to relocate). We avoid this threat to our identification strategy by matching factories in 1908 to those already existing in their present location in 1890 before the start of Witte's policies. As noted, before the State Bank started to dispense credit liberally under Witte, there was little reason to locate close to the State Bank. Moreover, to preclude factory owners locating close to the bank in anticipation of this policy change, we limit the sample to those plants already established in their location *before* their local branch was founded, as a robustness check.[18]

[18] We can do this because the 1890 census provides each factory's founding date. Note that we estimate the effect of finance on existing firms (the intensive margin) as we exclude firms that were founded between 1890 and 1908 (whose location may be endogenous). Cheap credit may have eased the founding of these new firms at the extensive margin, which would imply that we understate the overall effect of Witte's policy.

Exclusion restriction We can now state our exclusion restriction. We estimate the causal effect of credit on factory level outcomes if the factories that will experience a stronger growth of output, machine use, or productivity in the 1890s do not systematically sort closer to the provincial capital in provinces eventually receiving a branch of the State Bank. Note that our exclusion restriction does *not* require factories in those two groups of provinces to be identical - it merely requires them to be identical in the dimensions of geographical sorting that are correlated with future growth. We now present evidence that this claim is plausible.

Table 2: No evidence of selection into treatment: **Falsification test**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Factory outcomes 1890	Factory outcomes 1908	Factory outcomes 1908 full sample	Factory outcomes 1890	Factory outcomes 1908	Factory outcomes 1908 full sample	Factory outcomes 1890	Factory outcomes 1908	Factory outcomes 1908 full sample
	Dep. Var.: Output			Dep. Var.: Machinery			Dep. Var.: labor Productivity		
Distance to province capital × bank in capital	-0.0009	-0.0030*	-0.0021**	-0.0390	-0.2048**	-0.4102**	-0.0002	-0.0029***	-0.0025***
	(0.0033)	(0.0015)	(0.0010)	(0.0312)	(0.0941)	(0.1686)	(0.0022)	(0.0007)	(0.0005)
Distance to province capital	-0.0006	0.0018	0.0017*	0.0220	0.1167	0.3539**	-0.0003	0.0018***	0.0020***
	(0.0033)	(0.0015)	(0.0009)	(0.0293)	(0.0839)	(0.1569)	(0.0022)	(0.0007)	(0.0005)
Province F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.26	0.49	0.40	0.08	0.29	0.09	0.27	0.41	0.40
Observations	1882	1882	16098	2490	2490	16739	2049	2049	16072

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Full sample is not restricted to factories matched across 1890 and 1908 census years. Dep. Var. (1) - (3): natural logarithm of factory-level output (in rubles); (4)-(6) horse power of installed machinery; (7)-(9) natural logarithm of labor productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. 1908 regressions control for (district level) output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (418-651 clusters).
Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table 2 shows that there exists no statistically significant relationship between factory-level outcomes in 1890 and the interaction of distance and bank status. Factories located closer to a capital city with a bank did not exhibit higher levels of output, machinery use, or productivity before the start of Witte's policy. This suggests that there was no geographical

sorting by high-performing plants. We then run this regression on the same set of plants in 1908, after Witte's policy of cheap credit. Now we do observe a relationship between factory outcomes and distance in banked towns. Given that distance between factory and bank is fixed by construction, this implies that the bank's lending activity has changed the importance of distance. Being far away from a bank now carries a penalty that it did not do before. In columns (3), (6) and (9) of the same table, we show that this insight is not due to sample selection stemming from our procedure of matching factories across census years. Running the same regression on the full set of geocoded factories in the Russian Empire, we find a similar result (with statistically similar coefficients): differential access to banking is associated with differential outcomes in 1908.

4.2 Specification in differences, 1890-1908

The preceding analysis on 1908 data offers preliminary evidence of the importance of the State Bank. For our main analysis, we express our dependent variables in differences. This has three advantages. First of all, by examining *changes* in revenues, workers or machinery, we can control for the starting level of these variables in 1890. Secondly, this focuses the analysis on factories whose location is fixed in 1890, before Witte's policy of industrial credit. Thirdly, by utilizing the 1890 census, we gain access to data on the founding year of each factory, which we use for robustness checks. Based on the requirements of our identification strategy discussed in section 4.1 above, our benchmark specification then is:

$$\Delta Y_{i,\,k,\,s(j)\,t_1} = \beta_0 + \beta_1 d_{ij} + \beta_2 d_{ij} * b_j + \beta_3 Y_{i,\,t_0} + X_i'\gamma + \mu_k + \mu_j + \epsilon_i \qquad (1)$$

where t_0 and t_1 are 1890 and 1908 respectively, and i refers to the individual factory, k to the industry, and $s(j)$ to the municipality s that is a part of the province j. Fixed effects (μ_j, μ_k) are therefore at the province and industry level. Distance between the factory and the provincial capital d_{ij} is interacted with the presence of a bank b_j in the provincial capital [0,1].[19] The parameter β_2 is our coefficient of interest. It will identify the causal effect of the State Bank subject to the assumptions discussed above in 4.1. Dependent variables Y include either growth in output, machinery use or labor productivity, all measured at the factory level.[20]. Factory baseline outcomes $Y_{i,\,t_0}$ - output, machine use or productivity in 1890 - are inserted as controls. Establishment-level covariates in X_i, such as ownership type, are time invariant.

[19] Note that in the presence of province fixed effects, the main effect of the bank in the the province capital is absorbed.

[20] Although we use the size of the workforce as an additional outcome with similar results to the others, we do not focus on this in the paper. Increasing manufacturing employment was not the core goal of Witte's policy, but rather a side effect.

We cluster standard errors at the level of the district (*uezd*), resulting in a maximum of 480 clusters.

5 Results

5.1 Principal results: Access to banking improves factory outcomes

Benchmark The empirical results suggest the State Bank supported the growth of Russian industry. In table 3, factories located further away from a branch of the State Bank in the provincial capital display a lower pace of growth in output, invest less in additional machinery, and experience slower growth in labor productivity. The coefficients on the interaction of interest are statistically significant at conventional levels, and do not change noticeably upon the inclusion of a rich battery of factory-level controls in columns (3), (6) and (9). Throughout, we control for baseline levels of output, machine use, and productivity. The sign on the coefficients of these baseline variables suggests convergence between factories for output and productivity, with initially strongly performing plants growing less rapidly on average. This suggests that the process of industrial growth was not confined to plants that had a head start.

The coefficient on distance supports the role of the State Bank. In columns (1), (4) and (7), before inserting the interaction of interest, the coefficient on distance is negative, and statistically significant. After interacting distance with the presence of a bank in the capital, the main effect of distance switches sign and turns positive. This implies that, after accounting for the effect of the bank branch, there is no longer a penalty associated with being far away from the provincial capital. This is quite in line with the discussion in section 4.1 - industrialists had little to gain from proximity to government services (which were rudimentary, and sometimes predatory) in the absence of Witte's credit policies. In fact, once we have accounted for the presence of a bank, the results suggest that factories located further from provincial capitals posted higher growth in revenues and productivity. Apart from a possible escape from government predation, the historical literature suggests two reasons for the benefits of geographical dispersion. Firstly, many industries were dependent on a steady supply of raw materials, the transport of which was costly given Russia's undependable infrastructure. In industries where freight costs for

Table 3: Explaining change in enterprise-level outcomes 1890-1908: **Benchmark**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Distance only	Distance with bank interaction	Including factory level controls	Distance only	Distance with bank interaction	Including factory level controls	Distance only	Distance with bank interaction	Including factory level controls
	Dep. Var.: Δ Output			Dep. Var.: Δ Machinery			Dep. Var.: Δ labor Productivity		
Distance to province capital × bank in capital		-0.0044***	-0.0041***		-0.1863**	-0.2048**		-0.0033***	-0.0029***
		(0.0017)	(0.0014)		(0.0876)	(0.0941)		(0.0008)	(0.0007)
Distance to province capital	-0.0012**	0.0030*	0.0027**	-0.1047**	0.0738	0.1167	-0.0009***	0.0022***	0.0018***
	(0.0006)	(0.0016)	(0.0013)	(0.0518)	(0.0727)	(0.0839)	(0.0003)	(0.0007)	(0.0007)
Output 1890	-0.5263***	-0.5270***	-0.6047***						
	(0.0272)	(0.0271)	(0.0267)						
Machinery 1890				0.2205	0.2292	0.1590			
				(0.3294)	(0.3303)	(0.3146)			
Productivity 1890							-0.8004***	-0.8044***	-0.8200***
							(0.0248)	(0.0243)	(0.0251)
Province F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Factory controls			✓			✓			✓
R2	0.33	0.33	0.42	0.13	0.13	0.21	0.50	0.50	0.53
Observations	2079	2079	2079	2490	2490	2490	2049	2049	2049

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (3): change in natural logarithm of factory-level output (in rubles); (4)-(6) change in horse power of installed machinery; (7)-(9) change natural logarithm of labor productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (418-480 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

inputs outweighed those for the finished product, locating close to raw material sources was beneficial (Spechler, 1980; Gregory, 2014).[21]

The most important reason for choosing a rural location was access to workers. In table E.1, we use growth in a factory's workforce as the dependent variable, and find that plants further from provincial centers experienced *larger* increases in employment once we account for the presence of a bank. This apparent paradox is well-established in Imperial Russian history. Much to the chagrin of Lenin and his comrades-in-arms, Russia's urban proletariat was small, and much industrial labor was provided by peasants. This work was often of a seasonal nature. Before its reform in 1906, the rural commune system also placed restrictions on the distance that peasants could travel to work in manufacturing. Moreover, few were willing to migrate permanently to cities were food costs were exceedingly high. Factory owners therefore had an incentive to choose rural sites close to their workforce (Spechler, 1980; Chernina et al., 2014; Gregg and Matiashvili, 2021). Although these location decisions reflected sound economic fundamentals at the time they were made, they proved costly once provincial centers became a lucrative source of finance in the 1890s. Factories close to capitals with a bank are able to expand their workforce at a faster rate.

Economic significance When evaluating the marginal effect of distance from the bank we therefore have to take into account two countervailing forces. First, there is the benefit from proximity to bank credit apparent in the interaction term. Working against this is the (numerically smaller) benefit from being close to rural inputs of raw materials and labor discussed above, expressed in the main effect of distance. Table 4 calculates the net effect. Counterfactually moving a factory one standard deviation away from the bank (86km) decreases the growth rate of output by 0.12 % - points (from a mean growth rate of 0.97). The effect for machinery is similar in size (a decrease of 7.6 horse powers from a mean growth of 58hp), while the effect for productivity is comparatively larger. Overall, this exercise suggests that the State Bank had a noticeable effect on factory outcomes.

This conclusion is reinforced in table 4 by the standardised β-coefficients of the interaction of distance and bank presence. A one standard deviation increase in distance to the bank decreases output and productivity growth by more than 0.2 standard deviations, a sizable effect. The effect of the bank on investment in machinery is smaller, at less than 0.08 standard deviations. This is not surprising if we consider the different funding in-

[21] We find support for this hypothesis when examining industries processing primary materials, such as minerals and forestry products. The output of these industries grows disproportionately if they are located far from provincial centers (as long as these did not have a bank). See table E.4.

Table 4: Marginal effects and economic significance

Outcome Variable	Mean of outcome	Unit of outcome	Average marginal effect of distance if bank present	Effect on outcome of 1 std. dev. increase in distance (86 km)	Standardised β coefficient on interaction
Δ Output	0.97	%-growth	-0.00141***	-0.121	**-0.211**
			(0.00054)		
Δ Machinery	58.2	horsepower	-0.08817*	-7.58	**-0.079**
		increase	(0.05205)		
Δ labor productivity	0.32	%-growth	-0.00105***	0.090	**-0.209**
			(0.00033)		

Coefficients and marginal effects of distance from benchmark regressions (3), (6) and (9) from table 3. Robust standard errors on marginal effects in parentheses: * p<0.10, ** p<0.05, *** p<0.01

struments available to entrepreneurs. Output could be increased by short-term advances that provided working capital. This could be provided both by industrial credit as well as by promissory notes. The purchase of machinery, on the other hand, constituted an investment that relied exclusively on long-term industrial loans (see section 3). In other words, the menu of financial instruments available for building up capital stock was more restricted. As funds for industrial credit were allocated by the center according to fixed allotments, this also implies that the total amount of credit that could be directed towards this type of investment was more limited (see section 2).[22]

Investigating the exclusion restriction We identify the causal effect of distance to a bank branch conditional on the restriction that the extent of geographic sorting by future factory outcomes does not differ between banked and unbanked locations. In section 4.1 we have already presented evidence that high-performing factories had not sorted closer to provincial capitals with a bank in 1890, before Witte's policy. However, if factory owners with better growth *potential* had anticipated the policy they could nonetheless have chosen to locate closer to a bank branch. This would have required a large degree of foresight on the part of entrepreneurs, which seems unrealistic given that Witte's policy broke with established monetary orthodoxy in Russia (Crisp, 1976). Nonetheless, if such sorting occurred, it would not be picked up by examining outcomes in 1890. In table D.1 we therefore examine the growth of factories that were already established in their location before

[22]Moreover, if loans were used for consumption rather than investment purposes by creditors (which may have occurred given the presence of insider lending and soft budget constraints) credit would show up as inflating revenues rather than contributing to fixed capital formation.

their provincial capital received a State Bank branch. The coefficient on output decreases slightly, the impact on machinery increases, and the effect on productivity is unchanged. In all cases, the coefficient on the interaction remains statistically significant. We go one step further by restricting the sample to factories established before 1860, when the idea of a State Bank was conceived. We again find similar results, albeit with a decreased degree of precision due to the diminishing number of observations.

In the same table D.1, we also control for any State Bank branches not located in the provincial capital. Their presence does not challenge the causal interpretation of distance between factory and banked capitals. However, if these other branches also supplied credit to factories, this would clearly decrease the importance of proximity to a branch in the capital. This would bias the coefficient on our interaction of interest downward. However, we find these coefficients to be unaffected when inserting a dummy for the presence of another State Bank branch in the province. This most likely reflects the small number of cases in which secondary towns were assigned a branch.[23]

Finally, we drop our existing exclusion restriction and adopt an alternative. We do this by restricting the sample to provinces with a banked capital. We then simply explore the effect of distance to the capital on the growth in factory outcomes in table D.5. As all capitals under consideration are now banked, distance will identify the causal effect of the bank under the assumption that there exist no other factors which increase the benefits of proximity to the capital between 1890 and 1908. As before, the results indicate proximity to be beneficial for growth in factory-level output, machine use and productivity. Of course, this alternative identifying assumption is more demanding than our benchmark formulation, and therefore less desirable. For example, population growth and urbanization could have increased the benefits of a central location. However, this exercise illustrates an important point: regardless of which assumption we adopt, the results support the role of the State Bank.

Robustness Our benchmark formulation controls for the effects of increasing urbanization in the provincial capital through the main effect of distance. However, levels of urbanization at the sub-provincial level could also have affected factory outcomes and therefore the precision of the estimates. Table D.2 controls for population in the factory's municipality, as well as dropping the Empire's dominant provinces of Moscow and St. Petersburg. The

[23] Note that the coefficient on other branches cannot be interpreted causally, as these branches were explicitly assigned to be close to prosperous areas. In any case, the coefficients are far from conventional levels of statistical significance.

results are qualitatively unaffected, despite large variations in sample composition in the latter case.[24]

A more pressing concern may be that our method of matching factories across the 1890 and 1908 census years induced sample selection bias. We have already presented two pieces of evidence that allay this concern. Firstly, 1908 factory characteristics are broadly balanced between the matched and unmatched group (section 3). Secondly, the results for predicting factory outcomes in 1908 are very similar when using either the matched sample or the full sample (table 2). We now experiment with alternative matching procedures. In table D.3, we replicate our results while omitting the manual check of the validity of matched pairs and unmatched factories. Fully automated matching limits researchers' discretion, but invariably induces a larger measurement error. We find smaller effects for machinery investment, but broadly similar results for output and productivity growth. As a further step, we allow for entrepreneurial dynasties by including factories that may have been split or merged between the census years, in table D.4. We again find slightly smaller coefficients across specifications, but no reason to revise the substance of our conclusions.

5.2 Effects by factory and region characteristics

The average effects reported in the benchmark regression tables mask substantial heterogeneity by factory and region characteristics. We now show that, once we factor in these differential effects, the effect of the State Bank turns out to be particularly large for factories lacking alternative sources of finance. This is especially true for investment in machinery, the outcome variable with the weakest average effect.

Factory characteristics We first investigate whether the effect of the State Bank differs by factory age and size in table 5. On the one hand, empirical research shows that smaller and newer firms benefit more from improved access to external finance, as they are not able to refinance themselves from retained earnings. On the other hand, the importance of business networks for obtaining credit might have given larger and more established firms an insider advantage (Beck et al., 2008). For ease of interpretation, we divide factories in two groups, and interact them with the treatment.[25] The results in the upper and middle

[24] The coefficient on population shows that larger populations in the location of a factory are beneficial for its output and productivity growth, most likely reflecting proximity to output markets. This does not contradict our earlier conclusion that remote locations were sometimes preferred by entrepreneurs to maximize rural labor input. Even when controlling for local population, the main effect of distance to provincial centers is still positive. Clearly, entrepreneurs that were close to either rural labor or urban output markets fared better than those that did not.

[25] For age, we split factories at the median according to their 1890 values. For size, where we are concerned with the presence of fat tails at the upper end of the distribution, we use the 75th percentile.

panels suggest that the benefits of incumbency do not outweigh the benefits that external finance accords to smaller and newer plants: there is little difference in the coefficients according to either size or age. Similarly, we find little evidence that access to banking has differential effects according to the social status or ethnicity of the factory owner (table E.2). Factories owned by nobles benefit as much from State Bank presence as others. Similarly, factories owned by entrepreneurs with a Russian name (rather than a name associated with ethnic minorities) do not benefit disproportionately from proximity to the bank.[26]

Although the social status of factory owners does not seem to matter, ownership structure does. We show this in the lower panel of table 5. Factories that have been incorporated as separate legal entities do not suffer from a penalty if they are located away from the bank. This is what we would expect: the purpose of incorporation was to raise capital, either by bringing in partners or by publicly issuing shares. These enterprises were therefore not dependent upon State Bank loans. For the majority of establishments, however, incorporation was too costly given the extraordinarily high administrative hurdles attached to the process – which often required the corporate charter to be signed by the Tsar himself (Gregg and Nafziger, 2019). Lacking alternative access to capital, these plants benefited from being close to a branch of the State Bank.

Region characteristics Gerschenkron's original conjecture and the literature on the Big Push emphasize that the role of state aid in industrialization should decrease with prior levels of development and market size. If markets were large and well-developed, there would be no role for intervention (Murphy et al., 1989). The historical literature on Russia agrees that "the main aim [of the Bank] was to increase credit to all branches of the economy were private credit was deficient" (Crisp, 1976, pp. 134, 155). What does the empirical evidence say? Table 6 provides a first glance by splitting the sample according to provinces below and above the median value of aggregate industrial output.[27] We find that being located far from a branch of the State Bank decreases growth in output, machinery use and productivity only in provinces with weakly developed industries. In those provinces already containing substantial industries, there is no penalty for lacking access

[26] This does not imply the absence of discrimination against non-Russians – there is ample evidence of stigmatization and violence against the Empire's Jewish, German or Polish commercial minorities (Grosfeld et al., 2020). What we find is that, conditional on having successfully established a factory, there is no difference in the effect of access to public banking between Russians and non-Russian owners. At that stage, minority entrepreneurs were possibly positively selected, and therefore comparatively successful. It should also be borne in mind that Witte's policy was attacked by Russian nativists precisely for *not* favouring ethnic Russian over minority entrepreneurs (Owen, 1995).

[27] We use aggregate 1897 output figures as compiled by the official statistical agencies, rather than aggregating output ourselves from factory-level data. This precludes the underestimation of province-level variables.

Table 5: Access to State Bank branch and factory characteristics: **Age, size and corporation status**

	(1) Factory age	(2) Factory workforce size	(3) Corporation status	(4) Factory age	(5) Factory workforce size	(6) Corporation status	(7) Factory age	(8) Factory workforce size	(9) Corporation status
	Dep. Var.: Δ Output			Dep. Var.: Δ Machinery			Dep. Var.: Δ labor Productivity		
bank × old (0) × distance	-0.0050***			-0.0980			-0.0052***		
	(0.0018)			(0.1046)			(0.0011)		
bank × old (1) × distance	-0.0043**			-0.0688			-0.0049***		
	(0.0018)			(0.1040)			(0.0011)		
bank × large (0) × distance		-0.0044***			-0.1311			-0.0034***	
		(0.0017)			(0.0895)			(0.0007)	
bank × large (1) × distance		-0.0038**			-0.0011			-0.0030***	
		(0.0017)			(0.1318)			(0.0008)	
bank × corporation (0) × distance			-0.0041***			-0.2096**			-0.0029***
			(0.0014)			(0.0981)			(0.0007)
bank × corporation (1) × distance			-0.0052			-1.4946			-0.0035
			(0.0046)			(1.4326)			(0.0028)
Distance to province capital	0.0034**	0.0028*	0.0027**	0.0449	0.0105	0.1295	0.0040***	0.0023***	0.0018***
	(0.0017)	(0.0016)	(0.0013)	(0.0942)	(0.0775)	(0.0892)	(0.0010)	(0.0007)	(0.0007)
Governorate F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.41	0.41	0.42	0.22	0.22	0.21	0.53	0.53	0.53
Observations	1925	2051	2079	2244	2415	2490	1904	2049	2049

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (3): change in natural logarithm of factory-level output (in rubles); (4)-(6) change in horse power of installed machinery; (7)-(9) change in natural logarithm of labor productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Factory characteristics are converted into indicator variables at the median. Base category for interactions: 0-value of respective indicator variable in provinces without a State Bank branch. 1-value of indicator in provinces without a branch omitted from table for brevity. Standard errors clustered at district (*uezd*) level (403-480 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

to the State Bank. We cannot pin down the exact mechanism in this table – industrialized provinces may offer better infrastructure, more developed credit or input markets, or a larger customer base. Yet these results are in line with the theory on late industrialization, which sees existing market size and government intervention as substitutes (Murphy et al., 1989).

Table 6: Access to State Bank branch and 1897 regional development: **Industrial output**

	(1) Regional output $<$ median	(2) Regional output $\geq$ median	(3) Regional output $<$ median	(4) Regional output $\geq$ median	(5) Regional output $<$ median	(6) Regional output $\geq$ median
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ labor Productivity	
Distance to province capital $\times$ bank in capital	-0.0044***	0.0152***	-0.1573**	0.4159	-0.0029***	0.0005
	(0.0013)	(0.0036)	(0.0744)	(0.6676)	(0.0008)	(0.0022)
Distance to province capital	0.0035***	-0.0177***	0.1075	-0.5771	0.0022***	-0.0021
	(0.0011)	(0.0034)	(0.0718)	(0.6745)	(0.0007)	(0.0020)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.46	0.41	0.32	0.23	0.59	0.50
Observations	887	1192	1174	1316	872	1177

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labor productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Regional output is industrial output (in rubles) at the governorate level according to the 1897 census. Standard errors clustered at district (*uezd*) level (132-332 clusters).
Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

We improve our insight into the relationship between access to state finance and prior development in table 7, where we split up market development into various components. We focus on machinery use as our dependent variable, where average effects in the benchmark regression were weakest. Columns (1) and (2) show the effect of the State Bank on factories without and with a commercial bank in their municipality respectively. For plants with a nearby commercial bank, there is no statistically significant penalty associated with remoteness from a branch of the public banking system. For plants not close to private banking establishments, there is a very large penalty for also being far removed

from public banking: the coefficient on the interaction of interest increases by a factor 3.5. This suggests that public capital did indeed substitute for private capital in Russia's industrialization.

Columns (3) and (4) proxy the strength of landed elites on the basis of land ownership data. We concentrate on the share of land in a district owned by the nobility - the segment of the Russian elite that often opposed industrialization.[28] Districts with extensive noble landownership had lower shares of merchants or townspeople owning land. In a society where land possession was still a mark of status and economic influence, these were therefore districts were mercantile elements held less power (Von Laue, 1968). The results indicate that proximity to the State Bank was important in regions where nobles were economically powerful and mercantile interests weakly developed. Once again, the size of the coefficient of interest indicates that proximity to the State Bank significantly eased machinery investment in areas where the landed nobility held sway.[29]

We now use a more direct measure of prior market development in columns (5) and (6), where we examine differential effects according to sales at market fairs in a province. Periodic fairs were the traditional means in Imperial Russia to market local produce, and fairs saw a large offering of agricultural products, raw materials and basic manufactured inputs. Places at which such fairs were held would therefore have had an ample supply of inputs for industry. Many fair locations later grew into prosperous industrial towns (Fitzpatrick, 1990). We use detailed data on the volume of sales (in rubles) at these fairs in 1834 as a measure of historic development of markets for industrial inputs.[30] The results suggest that the effect of public funds was larger in areas where turnover at these traditional markets were less voluminous, again suggesting that public credit was more important when private markets were less developed.

Finally, we explore heterogeneity in the development of markets for industrial outputs. Factories located close to customers will find it easier to market products, and therefore generate sales without government assistance (Donaldson and Hornbeck, 2016). We therefore compute a measure of market access for each district in the Russian Empire by calculating its distance to other districts, weighted by the size of the population in these districts. The results in columns (7) and (8) demonstrate that successful factories in districts with lower market potential were more dependent on funding from the State Bank. For those

[28] We use data from the 1877 land census rather than the more recent 1905 version, as landownership in 1905 might have shifted as a result of Witte's policy.

[29] This finding does not reflect a greater propensity by noble factory owners to receive credit - we saw in table E.2 that they did not.

[30] That particular year is due to the source material (MVD, 1834). It is nonetheless a suitable year, as it predates the founding date for 95% of factories for which we have data in 1890.

Table 7: Access to State Bank branch and investment in machinery: **Prior market development**

	(1) No commercial banks	(2) Commercial banks present	(3) Nobility landholding $<$ median	(4) Nobility landholding $\geq$ median	(5) Annual fairs sales $<$ median	(6) Annual fairs sales $\geq$ median	(7) Market potential $<$ median	(8) Market potential $\geq$ median
	Dep. Var.: Δ Machinery (horse power)							
Distance to province capital $\times$ bank in capital	-0.7233***	0.0923	-0.1984	-0.6215**	-0.3082*	-0.1482	-0.4686**	0.1800
	(0.2418)	(0.2930)	(0.1702)	(0.2641)	(0.1647)	(0.1583)	(0.2186)	(0.1498)
Distance to province capital	0.5342**	-0.0374	0.2471	0.3582	0.3119*	0.0024	0.3364	-0.1202
	(0.2146)	(0.2887)	(0.1606)	(0.2442)	(0.1657)	(0.1453)	(0.2059)	(0.1132)
Machinery 1890	0.4861**	-0.2153	0.7579***	-0.4622**	-0.0911	0.5771	0.8619***	-0.3336
	(0.2326)	(0.3053)	(0.2439)	(0.2188)	(0.4647)	(0.3703)	(0.2239)	(0.2273)
Province F.E.	✓	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓	✓	✓
R2	0.27	0.30	0.25	0.26	0.26	0.20	0.30	0.21
Observations	1549	941	971	939	965	1043	1214	1271

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var.: change in workforce at factory-level output (headcount). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Presence of commercial banks refers to a non-state bank in the municipality. Noble landholdings refers to the share of land held by nobles in a district in 1877. Annual fairs refers to the volume of goods sold during historical private annual fairs in a governorate in 1830. Market potential refers to a district's population-weighted distance to internal Russian markets. Standard errors clustered at district (*uezd*) level (160-449 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

factories located in districts close to the major population centers of the Empire, however, access to the State Bank seems not to have spurred growth.

In summary, these results suggest that the State Bank was particularly important in funding long-term industrial investment in areas where private financial and input markets were weakly developed, where outputs where harder to market, and where mercantile interests were politically weak. In other words, public capital substituted for private capital.

5.3 Limits on the State Bank

Although the State Bank seems to have been important in weakly developed regions, it was not the only driver of industrialization and it clearly could not have fashioned growth *ex nihilo*. The literature on the role of the state in late industrialization, which draws largely on East Asian experiences, emphasizes a number of preconditions for state intervention (Woo-Cumings, 1999; Kohli, 2004). We investigate two of these. Firstly, weak state institutions may limit the capacity of the state to intervene. State capacity is the outcome of prior historical investments expanding the presence of the state through tax collection, legal institutions and infrastructure (Besley et al., 2013). Secondly, there must exist a sufficiently large number of educated entrepreneurs and workers to successfully adopt new technologies (Galor and Weil, 2000). Both state capacity and human capital are given at the time of policy intervention. Both can be seen as complements, rather than substitutes, to Witte's policy of industrialization.

In order to capture the idea of state capacity as the result of a cumulative process of past investments, we calculate the historical presence of the Russian state in each province. The Russian Empire provides substantial variation in this regard, as it expanded outward from the small Grand Duchy of Moscow in the fourteenth century, gradually absorbing other territories by conquest or treaty. While some industrial areas, such as the Moscow textile region, had been part of that state for half a millennium, others, such as the light industrial areas of Congress Poland had only been firmly annexed after the end of the Napoleonic Wars in 1815.[31] The results in table 8 demonstrate that the State Bank mattered both in regions where the Russian state had become entrenched, as well as those where its presence was more recent. However, the coefficient on the interaction of interest is of an order of magnitude larger in provinces with a long history of Russian state presence. In provinces where state capacity was lower, access to the State Bank had a smaller effect on factory growth. Two features of this result are noteworthy. Firstly, it does not reflect

[31] We code historical Russian state presence in years, excluding any periods in which Russian presence was heavily contested. This is based on secondary sources and historical atlases of Russian imperial expansion (Kappeler, 2001; Breyfogle et al., 2007).

Table 8: Access to State Bank branch and state capacity: **Russian state presence**

	(1) State presence $<$ median	(2) State presence $\geq$ median	(3) State presence $<$ median	(4) State presence $\geq$ median	(5) State presence $<$ median	(6) State presence $\geq$ median
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ labor Productivity	
Distance to province capital $\times$ bank in capital	-0.0049***	-0.0136**	-0.1593*	-1.4712**	-0.0029***	-0.0152***
	(0.0015)	(0.0067)	(0.0874)	(0.5764)	(0.0008)	(0.0036)
Distance to province capital	0.0025*	0.0127*	0.1055	1.3673**	0.0013**	0.0146***
	(0.0013)	(0.0067)	(0.0796)	(0.5565)	(0.0007)	(0.0035)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.44	0.42	0.24	0.21	0.58	0.50
Observations	906	1168	1170	1315	893	1151

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labor productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). State presence refers to the historical presence of the Russian Empire or the Grand Duchy of Muscovy in a province (in years). Standard errors clustered at district (*uezd*) level (188-280 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

peripheral areas with worse commercial prospects being absorbed into the Empire at a later date. As we have shown in table 7, the State Bank had a *larger* effect in regions on the geographic periphery with restricted market potential.[32] Secondly, this result is unlikely to reflect the State Bank deliberately underinvesting in ethnically non-Russian areas. As demonstrated in table E.2, we do not detect a difference in factory outcomes according to the ethnicity of the owner. It is therefore likely that we are picking up the effect of the varying institutional presence of the state in these areas, in other words, state capacity.

We now turn to investment in human capital, which was fairly meager in Imperial Russia. According to the 1897 census, only 44 % of those aged 20-29 could read and write, with correspondingly lower shares for older cohorts. Yet there was substantial regional variation in illiteracy (Mironov, 1991). Table 9 divides the sample according to provinces with illiteracy below and above the mean, revealing a stark picture. We only find an effect of State Bank presence in provinces were illiteracy was low. On the other hand, in regions where the local population lacked basic literacy skills, access to State Bank credit does not seem to improve factory-level output, mechanization, or labor productivity. It is likely that this reflects the inability of the workforce to adapt to new modes of work and technology in these regions. This ties in with the fact that there seem to be no differential effects of State Bank presence by industrial sectors. In tables E.3 and E.4, we do not find that "modern" skill-intensive sectors, such as machine building and chemicals, benefited disproportionately from State Bank presence, despite the priority status of these sectors under Witte's policy. This may signify that there existed substantial barriers, such as a lack of human capital. Moreover, the historical overview in section 2 accentuated that the poor levels of education of State Bank employees in some regions hindered the execution of central policy. In this sense, poor human capital might also have restricted banking operations. In both cases, low levels of literacy may not have been conducive to Russia's industrialization. This much seems to have been (belatedly) realized by Witte himself in 1914, when he complained that the Russian authorities were collecting 1 billion worth of tax revenues from the vodka monopoly, while "[t]he government spends only 160 million rubles on the Ministry of Education."

[32] Results with geographic market potential and historical state capacity differ, because areas with inferior market potential were not necessarily absorbed at a later date into the Russian Empire. Most of the marginal lands of Siberia were annexed in the seventeenth century, while the much more developed areas of Poland and the Baltics followed more than a century later. The reason is that the Tsar could not pick territories at will – more desirable territories were also better defended by technologically advanced Western powers.

Table 9: Access to State Bank branch and 1897 illiteracy levels: **Human capital**

	(1) Illiteracy $<$ median	(2) Illiteracy $\geq$ median	(3) Illiteracy $<$ median	(4) Illiteracy $\geq$ median	(5) Illiteracy $<$ median	(6) Illiteracy $\geq$ median
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ labor Productivity	
Distance to province capital $\times$ bank in capital	-0.0080***	0.0043	-0.2350**	-0.3804	-0.0038***	-0.0042
	(0.0014)	(0.0079)	(0.1169)	(0.6474)	(0.0011)	(0.0045)
Distance to province capital	0.0031***	-0.0045	0.1157	0.2677	0.0014**	0.0041
	(0.0009)	(0.0079)	(0.0728)	(0.6445)	(0.0006)	(0.0045)
Population in municipality	0.0002	0.0017	-0.0448**	0.0507	0.0003***	0.0017**
	(0.0001)	(0.0018)	(0.0216)	(0.2952)	(0.0001)	(0.0008)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.42	0.44	0.24	0.24	0.54	0.54
Observations	1147	932	1299	1191	1129	920

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labor productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Illiteracy is the share of the population not able to read and write at the governorate level according to the 1897 census. Urban population counts the population in settlements over 500. Standard errors clustered at district (*uezd*) level (137-328 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

6 Conclusion

Although the State Bank clearly had limits set on its effectiveness by the political structure and education system of the Empire it was supplying with credit, our results are in line with a cautious Gerschenkronian view of the state in Imperial Russia. We find evidence that the presence of State Bank branches did raise the growth rate of output and labor productivity in nearby factories. The results on mechanization of production also suggest that public credit did not merely boost sales, but was also utilized for long-term investment. The latter was especially important in regions were local markets were smaller and private capital scarcer.

In a narrow sense, Witte's policy was successful. His stated aim was to spur Russia's industrial growth, and public credit did aid this goal. Whether industrialization was the "correct" objective is, of course, a different question. Future research should evaluate the distributional consequences of state-led industrialization more directly. The social cleavages of Imperial Russia and the violent upheavals they engendered in 1917 suggest this to be a pertinent question.

References

Allen, R. C. (2003). *Farm to factory: A reinterpretation of the Soviet industrial revolution*. Princeton University Press.

Allen, R. C. (2011). *Global economic history: a very short introduction*, Volume 282. Oxford University Press.

Ananich, B. (2006). The Russian economy and banking system. In *The Cambridge History of Russia Volume 2: Imperial Russia, 1689-1917*, pp. 394–426.

Barth, J. R., G. Caprio, and R. Levine (2008). *Rethinking bank regulation: Till angels govern*. Cambridge University Press.

Beck, T., A. Demirguc-Kunt, L. Laeven, and R. Levine (2008). Finance, firm size, and growth. *Journal of Money, Credit and Banking 40*(7), 1379–1405.

Bénétrix, A. S., K. H. O'Rourke, and J. G. Williamson (2015). The spread of manufacturing to the poor periphery 1870–2007. *Open Economies Review 26*(1), 1–37.

Berkowitz, D., M. Hoekstra, and K. Schoors (2012). Does finance cause growth? evidence from the origins of banking in Russia. Technical report, National Bureau of Economic Research.

Besley, T., E. Ilzetzki, and T. Persson (2013). Weak states and steady states: The dynamics of fiscal capacity. *American Economic Journal: Macroeconomics 5*(4), 205–35.

Boiko, P. A. (2011). Commercial banks and the real sector of the Russian economy from the end of the XIX to the start of the XX century (in Russian). *Economicheskiy Zhurnal* (22).

Breyfogle, N. B., A. Schrader, and W. Sunderland (2007). *Peopling the Russian periphery: Borderland colonization in Eurasian history*. London: Routledge.

Bugrov, A. V. (2012). *The State Bank, 1860-1917 (in Russian)*. Moscow: ZAO Interkrim Press.

Burgess, R. and R. Pande (2005). Do rural banks matter? evidence from the Indian social banking experiment. *American Economic Review 95*(3), 780–795.

Burhop, C. (2006). Did banks cause the German industrialization? *Explorations in Economic History 43*(1), 39–63.

Chaney, T. (2014). The network structure of international trade. *American Economic Review 104*(11), 3600–3634.

Cheremukhin, A., M. Golosov, S. Guriev, and A. Tsyvinski (2017). The industrialization and economic development of Russia through the lens of a neoclassical growth model. *The Review of Economic Studies 84*(2), 613–649.

Chernina, E., P. C. Dower, and A. Markevich (2014). Property rights, land liquidity, and internal migration. *Journal of Development Economics 110*, 191–215.

Crisp, O. (1976). *Studies in the Russian Economy before 1914*. Springer.

Dewatripont, M. and E. Maskin (1995). Credit and efficiency in centralized and decentralized economies. *The Review of Economic Studies 62*(4), 541–555.

Donaldson, D. and R. Hornbeck (2016). Railroads and american economic growth: A "market access" approach. *The Quarterly Journal of Economics 131*(2), 799–858.

Drummond, I. M. (1976). The Russian gold standard, 1897–1914. *The Journal of Economic History 36*(3), 663–688.

Fitzpatrick, A. L. (1990). *Great Russian Fair: Nizhnii Novgorod 1840-90*. Palgrave Macmillan.

Frenkel, O. I. (2017). The branch network of the state bank of the russian empire from 1860 to 1880: statistical and geoinformational analysis (in Russian). *Istoricheskaya Informatika* (1 (19)).

Galor, O. and D. N. Weil (2000). Population, technology, and growth: From malthusian stagnation to the demographic transition and beyond. *American economic review 90*(4), 806–828.

Garvy, G. (1972). Banking under the Tsars and the Soviets. *The Journal of Economic History 32*(4), 869–893.

Gerschenkron, A. (1962). Economic backwardness in historical perspective: a book of essays. Technical report, Belknap Press of Harvard University Press.

Gindin, I. (1960). Gosudarstvennyj bank i ekonomicheskaya politika carskogo pravitel'stva (1861—nachalo 1892) [State Bank and economic policy of the Tsarist Government (1861—early 1892)]. *Moscow: Gosfinizdat [in Russian]*.

Gomez, E. T. and K. Jomo (1999). *Malaysia's political economy: Politics, patronage and profits*. CUP Archive.

Gregg, A. and T. Matiashvili (2021). Modernization in progress: Part-year operation, capital accumulation, and labor force composition in Late Imperial Russia. *Journal of Economic History*.

Gregg, A. and S. Nafziger (2019). Capital structure and corporate performance in late imperial russia. *European Review of Economic History 23*(4), 446–481.

Gregg, A. G. (2015). *Factory productivity, firm organization, and corporation reform in late Imperial Russia*. Doctoral Dissertation, Yale University.

Gregg, A. G. (2020). Factory productivity and the concession system of incorporation in late Imperial Russia, 1894–1908. *American Economic Review 110*(2), 401–27.

Gregg, A. G. and S. Nafziger (2020). The births, lives, and deaths of corporations in late Imperial Russia. *BOFIT Discussion Paper*.

Gregory, P. R. (2014). *Before command*. Princeton University Press.

Grosfeld, I., S. O. Sakalli, and E. Zhuravskaya (2020). Middleman minorities and ethnic violence: anti-Jewish pogroms in the Russian empire. *The Review of Economic Studies 87*(1), 289–342.

Guiso, L., P. Sapienza, and L. Zingales (2004). Does local financial development matter? *The Quarterly Journal of Economics 119*(3), 929–969.

Heblich, S. and A. Trew (2019). Banking and industrialization. *Journal of the European Economic Association 17*(6), 1753–1796.

Hillmann, H. and B. L. Aven (2011). Fragmented networks and entrepreneurship in late Imperial Russia. *American Journal of Sociology 117*(2), 484–538.

Ishkinina, A. A. (2010). Deyatelnost ufimskogo otdelenia Gosudarstvennogo Bank Rossiiskoj Imperii vo vtoroi polovine XIX veka – nachala XX veka [activity by the ufa branch of the State Bank of the Russian Empire from the second half of the XIX century to the start of the XX century]. *Doctoral Dissertation, Bashkir University Ufa [in Russian]*.

Jayaratne, J. and P. E. Strahan (1996). The finance-growth nexus: Evidence from bank branch deregulation. *The Quarterly Journal of Economics 111*(3), 639–670.

Kahan, A. (1989). *Russian economic history: the nineteenth century*. University of Chicago Press.

Kappeler, A. (2001). *The Russian Empire: A Multiethnic History*. New York: Pearson.

Kessler, G. and A. Markevich (2020). Electronic repository of Russian historical statistics, 18th - 21st centuries. *https://ristat.org/*.

King, R. G. and R. Levine (1993). Finance and growth: Schumpeter might be right. *The quarterly journal of economics 108*(3), 717–737.

Kohli, A. (2004). *State-directed development: political power and industrialization in the global periphery*. Cambridge University Press.

La Porta, R., F. Lopez-de Silanes, and A. Shleifer (2002). Government ownership of banks. *The Journal of Finance 57*(1), 265–301.

Lane, N. (2021). Manufacturing revolutions: Industrial policy and industrialization in South Korea. *Available at SSRN 3890311*.

Lehmann-Hasemeyer, S. and F. Wahl (2021). The german bank–growth nexus revisited: savings banks and economic growth in Prussia. *The Economic History Review 74*(1), 204–222.

Levine, R., N. Loayza, and T. Beck (2000). Financial intermediation and growth: Causality and causes. *Journal of monetary Economics 46*(1), 31–77.

Lychakov, N. (2018). Government-made bank distress: Industrialisation policies and the Russian financial crisis of 1899-1902. Technical report, QUCEH Working Paper Series.

Malik, H. (2018). *Bankers and Bolsheviks*. Princeton University Press.

Markevich, A. and S. Nafziger (2017). State and market in Russian industrialization, 1870-2010. *The Spread of Modern Industry to the Periphery since 1871*.

Markevich, A. and E. Zhuravskaya (2018). The economic effects of the abolition of serfdom: Evidence from the Russian Empire. *American Economic Review 108*(4-5), 1074–1117.

Mironov, B. N. (1991). The development of literacy in Russia and the USSR from the Tenth to the Twentieth centuries. *History of Education Quarterly 31*(2), 229–252.

Murphy, K. M., A. Shleifer, and R. W. Vishny (1989). Industrialization and the Big Push. *Journal of Political Economy 97*(5), 1003–1026.

Musacchio, A., S. Lazzarini, P. Makhoul, and E. Simmons (2017). The role and impact of development banks. *World Bank Working Paper*.

MVD (1834). *List of active fairs in the Russian Empire (in Russian)*. St. Petersburg.

Owen, T. C. (1995). *Russian corporate capitalism from Peter the Great to perestroika*. Oxford University Press.

Pascali, L. (2016). Banks and development: Jewish communities in the Italian Renaissance and current economic performance. *Review of Economics and Statistics 98*(1), 140–158.

Rousseau, P. L. and R. Sylla (2005). Emerging financial markets and early US growth. *Explorations in Economic History 42*(1), 1–26.

Salomatina, S. (2014a). Data reconstruction in historical statistics: Commercial banks' branches of the Russian Empire in 1897. *Vestnik Permskogo Universiteta 26*(3), 87–98.

Salomatina, S. (2014b). Investment banking in Russia, 1890–1917: From pioneering finance to universal banking. *Investment Banking History: National and Comparative Issues (19th–21st Centuries)*, 347–80.

Salomatina, S. (2015). Beyond the gerschenkrons paradigm: Russian banking market integration in world comparative perspective, 1874-1897. *XVII World Economic History Congress, Kyoto*.

Salomatina, S. (2018). Bank credit in the Russian Empire in 1860-1914: contemporary concepts and new data. *Rossiiskaya Istoriya* (4), 170–187.

Spechler, M. C. (1980). The regional concentration of industry in Imperial Russia 1854-1917. *Journal of European Economic History 9*(2), 401.

Tugan-Baranovsky, M. ([1898]1970). *The Russian Factory in the 19th Century*. American Economic Association.

Von Laue, T. H. (1968). *Sergei Witte and the industrialization of Russia*, Volume 141. Holiday House.

Wcislo, F. W. (2011). *Tales of Imperial Russia: the life and times of Sergei Witte, 1849-1915*. OUP Oxford.

Woo, J.-e. (1991). *Race to the swift: State and finance in Korean industrialization*. Columbia University Press.

Woo-Cumings, M. (1999). *The developmental state*. Cornell University Press.

Appendix to 'Financing Late Industrialization: Evidence from the State Bank of the Russian Empire'

A. Summary Statistics
B. Maps
C. Figures
D. Robustness
E. Additional Results

A Summary Statistics

Table A.1: Administrative divisions of the Russian Empire present in analysis samples

Sample #	Province ("Governorate")	District ("Uezd")	Municipality ("Volost")	Municipalities per province
Entire Empire	80	710	13,398	167
Geocoded factory sample 1908	80	651	4,068	51
Handmatched factory sample 1890-1908	74	480	1135	15

Administrative divisions are as used in the empirical analysis, and reflect status of 1913. Autonomous regions of Central Asia and Finland are excluded. Handmatched sample excludes merged or split factories.

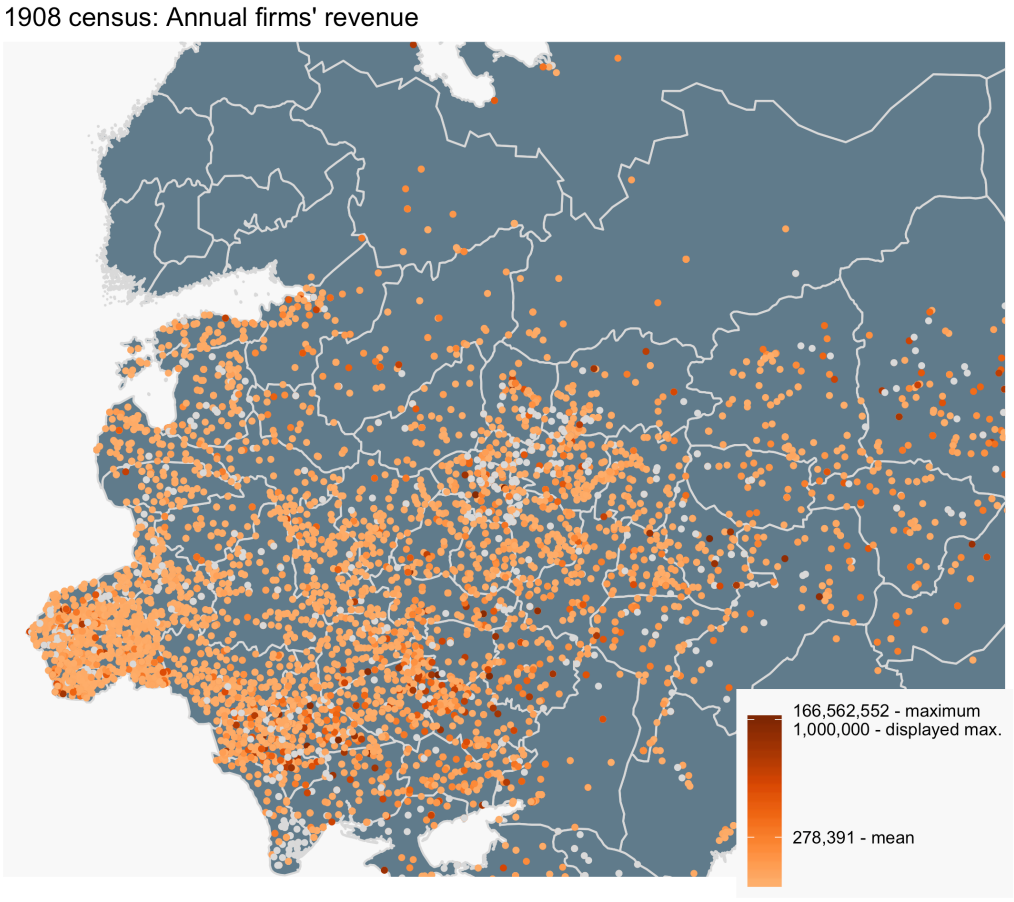
Table A.2: Summary statistics: 1890-1908, matched enterprises

Variable	Obs	Mean	Std. Dev.	Min	Max
Δ log output	2079	.97	1.611	-6.325	7.415
output in 1890 ('000 rub)	2087	82.3	261.39	2	4800
Δ machinery (horsepower)	2490	58.2	225.42	-992	4165
machinery in 1890 (horsepower)	2490	13.613	58.016	0	1300
Δ labour productivity	2049	.319	1.136	-6.988	5.052
labour prod. 1890 (ruble per worker)	2059	1558.229	2534.137	34.884	37000
Δ workers	2885	61.223	392.454	-4435	13489
workers 1890 (headcount)	2598	56.88	169.945	2	4571
distance to province capital (km.)	2677	79.066	87.76	0	1032.346
bank in province capital	2677	.933	.25	0	1
other State Bank branch present	2677	.412	.492	0	1
industrial credit 1893-1908 by branch	2270	1523.966	5409.877	0	23519.08
promissory notes 1896-1900 by branch	2639	32202.54	51806.8	0	161777
factory founding year	2498	1871.39	10.889	1860	1895
incidental revenues	2677	.15	.357	0	1
corporation	2677	.016	.124	0	1
Russian owner	2677	.563	.496	0	1
merchant owner	2677	.242	.428	0	1
noble owner	2677	.118	.322	0	1
citizen owner	2677	.069	.253	0	1
townsman owner	2677	.094	.292	0	1
retail	2677	.029	.167	0	1
craftshop	2677	.018	.133	0	1
workshop	2677	.234	.424	0	1
factory	2677	.632	.482	0	1
rail connection	2677	.006	.075	0	1
river connection	2677	.014	.117	0	1
post connection	2677	.416	.493	0	1
phone connection	2677	.124	.329	0	1
commercial banks (count)	2677	2.026	4.002	0	15
illiteracy in pop. (share)	2997	.692	.17	.201	.952
nobility landholding share 1877	2078	.335	.154	0	.705
urban population ('000)	2677	164.17	345.453	0	1264.92
state presence (years)	2672	248.31	180.225	26	590
provincial industry output (rubles)	2677	9.72e+07	1.14e+08	971171.9	3.34e+08
market fairs sales (rubles)	2177	6459980	1.74e+07	0	1.16e+08
market potential	2672	73019.4	36051.23	7101.149	247685.6

B Maps

Figure B.1: **Location of factories and their annual output, 1908, entire Russian Empire.**.

Figure B.2: **Location of factories and their annual output, 1908, western part of Russian Empire.**.



C Additional figures

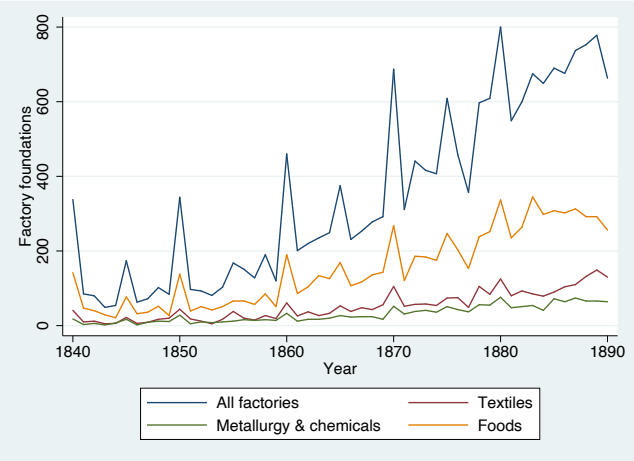


Figure C.1: Factory foundations (total and individual industries) according to 1890 factory census, Russian Empire

D Robustness

Table D.1: Controlling for State Bank branch age and presence of other branches 1890-1908: **Robustness**

	(1) Factories founded < 1860	(2) Factories founded $<$ bank branch	(3) Including other State Bank branches	(4) Factories founded $<$ bank branch	(5) Including other State Bank branches	(6) Factories founded $<$ bank branch	(7) Including other State Bank branches
	Dep. Var.: Δ Output			Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
Distance to province capital $\times$ bank in capital	-0.0050**	-0.0033**	-0.0041***	-0.2511**	-0.2048**	-0.0026***	-0.0029***
	(0.0025)	(0.0015)	(0.0014)	(0.1083)	(0.0941)	(0.0009)	(0.0007)
Distance to province capital	0.0059***	0.0031**	0.0027**	0.1654**	0.1167	0.0019***	0.0018***
	(0.0023)	(0.0012)	(0.0013)	(0.0789)	(0.0839)	(0.0007)	(0.0007)
Other State Bank branches			-0.4539		-7.9662		-0.0874
			(0.3141)		(50.4351)		(0.2042)
Province F.E.	✓	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓	✓
R2	0.54	0.46	0.42	0.29	0.21	0.55	0.53
N	375	879	2079	1077	2490	867	2049

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (3): change in natural logarithm of factory-level output (in rubles); (4)-(5) change in horse power of installed machinery; (6)-(7) change natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. All regressions control for initial level of output, machinery and productivity. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (174-480 clusters).
Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table D.2: Access to State Bank branch and urbanisation controls: **Robustness**

	(1) Urban population	(2) Excluding Moscow & St. Petersburg	(3) Urban population	(4) Excluding Moscow & St. Petersburg	(5) Urban population	(6) Excluding Moscow & St. Petersburg
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
Distance to province capital × bank in capital	-0.0037***	-0.0038***	-0.2412**	-0.2225**	-0.0025***	-0.0026***
	(0.0014)	(0.0014)	(0.0967)	(0.0880)	(0.0007)	(0.0007)
Distance to province capital	0.0026*	0.0028**	0.1226	0.1183	0.0018***	0.0018***
	(0.0013)	(0.0013)	(0.0850)	(0.0762)	(0.0007)	(0.0006)
Population in municipality	0.0004***		-0.0518***		0.0004***	
	(0.0001)		(0.0180)		(0.0001)	
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.42	0.41	0.21	0.22	0.53	0.53
Observations	2079	1675	2490	2082	2049	1649

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Urban population at municipal level. Standard errors clustered at district (*uezd*) level (403-480 clusters).
Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table D.3: Fully automated matching between factories across 1890-1908: **Robustness**

	(1) Distance with bank interaction	(2) Including factory level controls	(3) Distance with bank interaction	(4) Including factory level controls	(5) Distance with bank interaction	(6) Including factory level controls
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
Distance to province capital $\times$ bank in capital	-0.0040***	-0.0034***	-0.1520**	-0.1285	-0.0025***	-0.0021**
	(0.0010)	(0.0010)	(0.0703)	(0.1000)	(0.0009)	(0.0008)
Distance to province capital	0.0025***	0.0021**	0.0586	0.0802	0.0014*	0.0011
	(0.0010)	(0.0009)	(0.0616)	(0.0948)	(0.0009)	(0.0008)
Province F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.34	0.43	0.09	0.19	0.48	0.51
N	2083	2083	2694	2694	2055	2055

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. All regressions control for initial level of output, machinery and productivity. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (424-499 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table D.4: Allowing for merged and split factories across 1890-1908: **Robustness**

	(1)	(2)	(3)	(4)	(5)
	Distance only	Distance with bank interaction	Including factory level controls	Including other State Bank branches	Distance to other bank > distance to capital
	Dep. Var.: Δ Output				
Distance to province capital × bank in capital		-0.0032**	-0.0029**	-0.0029**	-0.0067*
		(0.0015)	(0.0015)	(0.0015)	(0.0036)
Distance to province capital	-0.0009**	0.0023	0.0019	0.0019	0.0050
	(0.0004)	(0.0014)	(0.0014)	(0.0014)	(0.0035)
Other State Bank branches				-0.9303***	
				(0.2729)	
Province F.E.	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓
R2	0.31	0.31	0.39	0.39	0.40
Observations	3228	3228	3228	3228	2496

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var.: change in natural logarithm of factory-level output (in rubles). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All regressions control for initial level of output, as well as incidental revenues. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (411-497 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table D.5: Access to provincial capital: **Banked provinces only**

	(1)	(2)	(3)	(4)	(5)	(6)
	basic	Factory level controls	basic	Factory level controls	basic	Factory level controls
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
Distance to province capital	-0.0015**	-0.0015***	-0.1154**	-0.0914*	-0.0011***	-0.0010***
	(0.0006)	(0.0005)	(0.0538)	(0.0523)	(0.0004)	(0.0003)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls		✓		✓		✓
R2	0.33	0.41	0.13	0.21	0.50	0.52
Observations	1959	1959	2322	2322	1931	1931

Sample: governorates of the Russian Empire with a branch of the State Bank in the capital, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (380-435 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

E Additional Results

Table E.1: Additional dependent variable: **Workforce**

	(1)	(2)	(3)	(4)	(5)	(6)
	Distance only	Distance with bank interaction	Including factory level controls	Factories founded $<$ bank branch	Including other State Bank branches	Automated Matching
	Dep. Var.: Δ Workforce					
Distance to province capital $\times$ bank in capital		-0.2335	-0.2849**	-0.3601**	-0.2849**	-0.1768*
		(0.1425)	(0.1223)	(0.1623)	(0.1223)	(0.1020)
Distance to province capital	-0.0800	0.1434	0.2297**	0.3185***	0.2297**	0.1603*
	(0.0639)	(0.1253)	(0.1079)	(0.1182)	(0.1079)	(0.0946)
Workforce 1890	-0.4094*	-0.4095*	-0.4869**	-0.7107***	-0.4869**	-0.0566
	(0.2350)	(0.2350)	(0.2166)	(0.2077)	(0.2166)	(0.0983)
Other State Bank branches					-72.4448	
					(53.2136)	
Province F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.13	0.13	0.22	0.35	0.22	0.20
Observations	2595	2595	2595	1136	2595	2619

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var.: change in workforce at factory-level output (headcount). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Standard errors clustered at district (*uezd*) level (351-496 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table E.2: Access to State Bank branch and factory characteristics: **Ownership status**

	(1) Russian owner	(2) Noble owner	(3) Russian owner	(4) Noble owner	(5) Russian owner	(6) Noble owner
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
bank × Russian (0) × distance	-0.0052***		-0.1779		-0.0035***	
	(0.0016)		(0.1120)		(0.0008)	
bank × Russian (1) × distance	-0.0037**		-0.2093*		-0.0029***	
	(0.0015)		(0.1206)		(0.0008)	
bank × noble (0) × distance		-0.0043***		-0.2266**		-0.0027***
		(0.0014)		(0.1045)		(0.0008)
bank × noble (1) × distance		-0.0037**		-0.2361**		-0.0025**
		(0.0017)		(0.1007)		(0.0011)
Distance to province capital	0.0028*	0.0028**	0.1122	0.1394	0.0020***	0.0017**
	(0.0014)	(0.0013)	(0.1055)	(0.0931)	(0.0007)	(0.0007)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.42	0.42	0.21	0.21	0.53	0.53
Observations	2079	2079	2490	2490	2049	2049

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Owners' characteristics are measured at the factory level and converted into indicator variables at the median. Base category for interactions: 0-value of respective indicator variable in provinces without a State Bank branch. 1-value of indicator in provinces without a branch omitted from table for brevity. Standard errors clustered at district (*uezd*) level (403-480 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table E.3: Access to State Bank branch and industry characteristics: **Modern industries**

	(1) Textiles	(2) Machinery & chemicals	(3) Textiles	(4) Machinery & chemicals	(5) Textiles	(6) Machinery & chemicals
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
bank × textiles (0) × distance	-0.0039***		-0.1970**		-0.0027***	
	(0.0014)		(0.0927)		(0.0007)	
bank × textiles (1) × distance	-0.0061***		-0.3102		-0.0049***	
	(0.0018)		(0.2838)		(0.0011)	
bank × machines & chem (0) × distance		-0.0041**		-0.1899*		-0.0034***
		(0.0018)		(0.1086)		(0.0012)
bank × machines & chem (1) × distance		-0.0044**		-0.1870		-0.0047***
		(0.0020)		(0.1972)		(0.0013)
Distance to province capital	0.0027**	0.0027	0.1159	0.1013	0.0018***	0.0025**
	(0.0013)	(0.0017)	(0.0840)	(0.1025)	(0.0007)	(0.0012)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.42	0.42	0.21	0.21	0.53	0.53
Observations	2079	2079	2490	2490	2049	2049

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Categorization of factories into industries as per 1908 factory census. Machinery & chemicals includes steel, machinery, equipment and chemical products. Textiles encompass woolen, linen, cotton, furs and silk. Base category for interactions: 0-value of respective indicator variable in provinces without a State Bank branch. 1-value of indicator in provinces without a branch omitted from table for brevity. Standard errors clustered at district (*uezd*) level (403-480 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Table E.4: Access to State Bank branch and industry characteristics: **Traditional industries**

	(1)	(2)	(3)	(4)	(5)	(6)
	Foods	Primary industries	Foods	Primary industries	Foods	Primary industries
	Dep. Var.: Δ Output		Dep. Var.: Δ Machinery		Dep. Var.: Δ Labour Productivity	
bank × foods (0) × distance	-0.0062***		-0.4685***		-0.0022**	
	(0.0015)		(0.1483)		(0.0010)	
bank × foods (1) × distance	-0.0047***		-0.3843**		-0.0013	
	(0.0018)		(0.1502)		(0.0011)	
NO bank × primary (1) × distance		0.0061**		0.8082***		-0.0002
		(0.0026)		(0.2811)		(0.0019)
bank × primary (0) × distance		-0.0031**		-0.0951		-0.0030***
		(0.0015)		(0.0811)		(0.0007)
bank × primary (1) × distance		-0.0039**		-0.1565		-0.0025***
		(0.0016)		(0.1172)		(0.0009)
Distance to province capital	0.0039**	0.0018	0.3236**	0.0172	0.0006	0.0019***
	(0.0015)	(0.0015)	(0.1334)	(0.0714)	(0.0010)	(0.0006)
Governorate F.E.	✓	✓	✓	✓	✓	✓
Industry F.E.	✓	✓	✓	✓	✓	✓
Factory controls	✓	✓	✓	✓	✓	✓
R2	0.42	0.42	0.21	0.21	0.53	0.53
Observations	2079	2079	2490	2490	2049	2049

Sample: governorates of the Russian Empire, excluding Central Asia and Finland, 1890-1908. Dep. Var. (1) - (2): change in natural logarithm of factory-level output (in rubles); (3)-(4) change in horse power of installed machinery; (5)-(6) change in natural logarithm of labour productivity (output per worker). All regressions are Ordinary Least Squares, with fixed effects at the level of industry and governorate. Factory-level controls include dummies for ownership categories (noble, merchant, townsman, citizen), owner ethnicity (Russian or otherwise), corporation type (public, cooperative, shareholding, partnership), factory type (workshop, retail establishment, factory, craft shop), and infrastructure availability (rail, river, post office, telegraph). All output regressions control for incidental revenues. Regressions control for output, machinery and productivity in 1890. Distances measured in kilometers. Bank in capital refers to the presence of a branch of the State Bank in a governorate's capital prior to 1908. Factory location defined as the factory's municipality (*volost*). Categorization of factories into industries as per 1908 factory census. Primary industries encompass manufacture of paper, wood, minerals and other mining products. Foods encompass vegetable and plants based foods, including other animal products and alcohols. Omitted category for interactions: 0-value of respective indicator variable in provinces without a State Bank branch. Standard errors clustered at district (*uezd*) level (403-480 clusters).

Standard errors in parentheses: * p<0.10, ** p<0.05, *** p<0.01

Dr. Armin Grünbacher

"Politics of pragmatism": The Kreditanstalt für Wiederaufbau as a bridge between the state and private banks and businesses during West Germany's reconstruction period, 1948–1961

Contents

Abstract	1
Introduction	2
1.	2
2.	5
3.	6
4.	9
5.	13

Dr Armin Grünbacher is Senior Lecturer in Modern History at the University of Birmingham.

Address: University of Birmingham, Edgbaston, Birmingham B15 2TT, UK

E–Mail: a.gruenbacher@bham.ac.uk

Abstract

Although it was initiated by the Allies as a kind of compromise in an Anglo–American dispute over banking policy in occupied Germany, and was thus an Allied creation, the Kreditanstalt für Wiederaufbau (KfW) was soon to be called 'a characteristic German institution'. This was because of the composition of its supervisory board, which fits the description of what Werner Abelshauser has called 'the corporate state', and because of its used by the government to support the reconstruction process from late 1948 onward. The KfW became the link between businesses and the state, not least because of the role and personality of Hermann Josef Abs. Not only did Abs contribute significantly to the German drafting of the KfW law, he also became the dominant figure within the bank. Within the bank, Abs was the driving force for a number of vital loan programmes to industry, while at the same time he acted as unofficial governmental advisor in Chancellor Adenauer's 'kitchen cabinet' and helped to guide industry through the reconstruction period via the two dozen or so supervisory board memberships and chairmanships he held. Because of his various roles and positions, Abs was the pivotal link between business and the state but while it can be argued that he acted for the greater good of the reconstruction, he never lost sight of the long–term interests of the private banking sector, in particular his 'home bank', Deutsche Bank.

Introduction

State banks had been nothing new in Germany, the Preussische Seehandelsgesellschaft or, in the first part of the 20th century, the Reichskreditgesellschaft were key examples. None of them achieved the importance and size of the Kreditanstalt für Wiederaufbau (KfW), which developed from a very tiny organization of a few dozen staff at the time of its foundation in November 1948 into one of Germanys top three banks by the turn of the millennium. Unbeknown to most contemporaries at the time, the Kreditanstalt für Wiederaufbau played a vital role in the long-term financing of reconstruction projects in the first decade or so of the Federal Republic by channelling Marshall Plan counterpart funds into the economy. Not least because of this role the work of the KfW was extremely political, as it sat at the crossroads between state policy and private banking and businesses, which at times caused significant frictions, for example when members of its supervisory body, the Verwaltungsrat had to be appointed, or when the interests of groups represented by Verwaltungsrat members clashed with wider reconstruction goals.

This paper will argue the following five points:

Firstly, although the KfW is referred to in some Anglo-Saxon literature as a 'characteristic German' institution (A. Shonfield)[1], its inception came about due to Allied policy. Secondly, it was the composition of its supervisory body, the Verwaltungsrat which made the KfW the first example of the 'corporate society'. Points three and four overlap, looking at the role of Herman Josef Abs within the bank and his influence in the wider economy, but it is here where 'the politics of pragmatism' is most visible. The term is meant to describe a situation in which the banks' long-term business interests were safeguarded while in the short- to medium-term the most effective reconstruction finance could be provided for the greatest benefit of the national economy and at the same time enabling the government to keep the appearance to follow a free market policy. The paper argues that it was the combination of the KfW's set up and the personality of Abs which made this policy so successful. Finally, although the KfW is a state bank, it operated with the government in close consultations that went both ways. Two examples will show that Alleingänge, or unilateral decisions, from either side were met with strong reactions by the other side.

1.

As Heinrich Harries, former KfW Vorstand member (Board of Managers) states in the bank's official history, it is a legend that the KfW was the brainchild of Herman Josef Abs, a claim made, presumably on Abs' instigation, by Manfred Pohl.[2] Lothar Gall, too, rejects the claim as a typical 'Abs Legende', a legend created by Abs himself.[3] Rather, the KfW was the result of inter-Allied disputes between the British and the Americans about the future of Germany's banking structure. In the first instance, however, there were very contradictory opinions within the US

[1] Andrew Shonfield, *Modern Capitalism. The Changing Balance of Public and Private Power*, London 1965.
[2] Heinrich Harries, *Wiederaufbau, Welt und Wende. Die KfW - eine Bank mit öffentlichem Auftrag*, Frankfurt/M. 1998, p. 11. Manfred Pohl, *Wiederaufbau. Kunst und Technik der Finanzierung, 1947-1953. Die ersten Jahre der Kreditanstalt für Wiederaufbau*, Frankfurt/M. 1973, pp. 21 ff.
[3] Lothar Gall, *Der Bankier Hermann Josef Abs. Eine Biographie*. München 2004, p.145.

Occupation authorities themselves on how to deal with the German economy. As early as May 1946, the Colm–Dodge–Goldsmith plan for 'the financial rehabilitation of Germany', including a currency reform, had been devised.[4] The Reconstruction Finance Corporation, or RFC, a creation from the early days of Franklin D. Roosevelt's New Deal policy would have been used as a template for reconstruction finance within the Colm–Dodge–Goldsmith plan. However, those ideas were scuttled at the time by the so–called 'Morgenthau boys', hardliners within the US Military Government, who were opposed to any form of economic reconstruction of Germany.[5]

Eventually, it was the British who first proposed the creation of a 'Corporation for Reconstruction Loans' during a meeting of the Bipartite Control Office in July 1947, so that long–term reconstruction finance for the Ruhr could become available. The British proposal has to be seen as a two–pronged attack. Ultimately, it was an attempt by cash–strapped Britain to create an agency, which could help the reconstruction of the Ruhr. However, the proposal was phrased in such a way that the creation of the Corporation was a British precondition to accept the establishment of a decentralized German central banking system, something the Americans were eager to do. In other words, the British planned to mitigate or even fully bypass some of the American ideas, which they saw as detrimental to their occupation policy in Germany. In terms of timing, it is important to note that the British made their proposal two months before Abs was to meet with Richard Whitehead, President Truman's special representative for German reconstruction, and Richard Merton to discuss the German economic situation; according to Gall it is possible that Whitehead saw Abs as a potential head for such a reconstruction vehicle.[6] Yet the Americans did not accept the British package deal and a 10–month stalemate ensued during which time the corporation was not mentioned again in the meetings of the Military Governors but behind the scenes officials on both sides fought vehemently over details. It was then the Americans who in late spring 1948 took the initiative again, most likely to curtail more sweeping British ideas.[7] On 2 June 1948, the Allied Bipartite Board, the body in which the two Military Governors met regularly, eventually agreed the 'Principles for a Reconstruction Loan Corporation' after lengthy discussions and initial British resistance. The 'Principles' were then handed to the German Executive Council (*Verwaltungsrat des Vereinigten Wirtschaftsgebietes*) who was given the task to draft the legislation to set up the Corporation. The fairly strict parameters that were given to the Germans emphasised the American decentralised federalist approach.[8]

Within four weeks, the *Wirtschaftsrat* or Economic Council, the pre–parliamentary body the Allies had allowed the Germans to set up to enact German legislation, had passed the bill. It would take the Germans administration until October to deal with alteration requests from the second chamber, the *Länderrat*, to complete the legislative process. Other than the relative speed by which the *Wirtschaftsrat* had passed the bill, there were two remarkable things about the legislative process the Germans carried out over the next four months or so:[9] the first and most

[4] University of Birmingham, OMGUS Files, Shipment 3, box 176–3 folder13, 'A plan for the liquidation of war finance and the financial rehabilitation of Germany', 20 May 1946 (henceforth OMGUS files and file number).
[5] Armin Grünbacher, *Reconstruction and Cold War in Germany. The Kreditanstalt für Wiederaufbau 1948–1961*, Aldershot 2004, pp. 15 f.
[6] Gall, *Abs*, pp. 130, 144.
[7] Grünbacher, *Reconstruction*, pp. 16–20. Harries, *Wiederaufbau*, p. 12.
[8] Grünbacher, *Reconstruction*, p. 20.
[9] For the following see *Akten zur Vorgeschichte der Bundesrepublik Deutschland, 1945–1949*, eds. Bundesarchiv und Institut für Zeitgeschichte, edited by Christoph Weisz et al., 5 vol., München 1983 (AVBRD); and *Wörtliche Berichte und Drucksachen des Wirtschaftsrates des Vereinigten Wirtschaftsgebietes 1947–1949*, eds Institut für Zeitgeschichte und Deutscher Bundestag,

remarkable issue was that although the Allies had given the instructions to the *Wirtschaftsrat* to set up the KfW, this was in contradiction to and violation of previous Allied legislation. Although in June 1947, the Military Governors had given authority to the Germans to deal with financial and banking matters, this authority had been revoked in February 1948.[10] Because this withdrawal of consent, the Allies blocked the creation of the Rentenbank Kreditanstalt and the Deutsche Industrie Bank, two institutions the Germans had seen as essential for reconstruction finance. In other words, the KfW was indeed a rather special creation. The most likely reason for the Allies to contradict their own rules has to be the above mentioned intra-Allied disagreements: with the establishment of the new institutions, the Americans could deflect any further going British demands while the British did get a vehicle which could help to finance the reconstruction of the Ruhr they so desperately needed. By allowing the KfW's creation despite the deviation from the guidelines, British could be pacified; on the other hand, the Americans would have been aware that Abs was involved in the drawing up in its construction, something Whitehead would have encouraged. In contrast, it is not likely that the emerging Marshall Plan, which certainly had played a role in the establishment of the Bank deutsche Länder in March 1948, had anything to do with the exceptional treatment for the KfW legislation process. The 'Principles' which the Allies had forwarded to the Germans did not mention or foresee a refinancing of the new bank from the counterpart funds, this clause was introduced only during the German legislative process. This leads straight to the other remarkable issue, the relative ease by which the Germans had altered or outright ignored parts of the 'Principles' handed to them. This confirms John Gimbel's view that once the Allies had decided on German reconstruction, they could less and less afford to ignore German ideas and in fact, became more and more dependent on German cooperation, which, of course, gave more leeway to German wishes and alterations.[11] Farsighted Germans such as Hermann Josef Abs had also realized that in negotiations with the Allies, time was on their side and that they could push their ideas further and further and would be able to get away with it. Seen in this light, it is not surprising that the German legislation went way beyond Allied ideas. Most importantly, the *Wirtschaftsrat's* draft bill stipulated that the supervision of the new institutions should lie with German authorities and not with the Allies, as the latter had stipulated. The sheer fact that the Military Government accepted this significant change apparently without much resistance confirms Gimbel's point. Another important amendment the *Wirtschaftsrat* made was that the new bank could draw on the Marshall Plan Counterpart funds to refinance its own lending. This change proved vital in the KfW's work: Counterpart funds, including repayments and interest payments thereof would remain the largest source of refinance until 1960, when it was finally replaced as the KfW's main source of funding by money raised through KfW bonds.[12]

On 1 November 1948, the Bipartite Control Office granted the permission to publish the KfW legislation in the Bizone's Legal Gazette without having questioned the German changes, in what seemed to have been a rather deliberate oversight. With its issue on 5 November and its subsequent publication in the *Gesetzblatt der Verwaltung*

Wissenschaftliche Dienste, edited by Christoph Weisz und Hans Woller, 6 vols., München 1977. A summary of the legislative process and the stages of the bill's reading in Grünbacher, R*econstruction*, pp. 21–26.

[10] The Allied proclamations reprinted in Tilman Pünder, *Das Bizonale Interregnum. Die Geschichte des Vereinigten Wirtschaftsgebiets 1946–1949*, Waiblingen 1966, pp. 370–372; 377–383.

[11] John Gimbel, 'Amerikanische Besatzungspolitik und deutsche Tradition', in Ludolf Herbst (ed.) *Westdeutschland 1945–1955, Unterwerfung, Kontrolle, Integration*, München 1986, pp. 147–150.

[12] Harries, *Wiederaufbau*, p. 51 Grünbacher, *Reconstruction*, pp. 88–94, esp. 94.

des Vereinigten Wirtschaftsgebietes on 18 November, the bill became law and the Kreditanstalt für Wiederaufbau was created.[13] It remains (West) Germany's oldest post–war institution, predating the Federal Republic itself. This claim can be made since another institution, the Bank deutscher Länder, which preceded the KfW by some eight months, underwent significant transformation and a name change when it became the Deutsche Bundesbank in 1957.

2.

The actual set–up process of the KfW is by now well documented.[14] Nevertheless, it is worth pointing out several peculiarities in the KfW law which were unusual for an organisation with its task. Its capital stock of DM 1 million was relatively small to start with. That this capital was initially provided in equal shares by both the *Länder* and the *Verwaltungsrat des Vereinigten Wirtschaftsgebietes*, the bizonal Executive Council, the predecessor to the federal government, was perhaps more a sign of the times and American wishes than then intentional German policy. The Americans had insisted on a strong federal say and at least in the early years of the bank's operation much of the reconstruction was carried out by the Länder, so it was almost natural that they would have a significant input during this period. The true novelty was the supervisory body, the *Verwaltungsrat*, and its make–up. Other than representatives from the bizonal (later federal) administration and the same number of *Länder* representatives, all sectors relevant to the economic reconstruction had at least one seat – including the trade unions, which made the KfW one of the first protagonists of what Werner Abelshauser has called the 'corporate state'. Here, too, did the Germans deviate from the Allied 'Principles', stipulating eventually 20 board members instead of only eight proposed by the Allies. Following amendments to the KfW Law, membership increased to 27 as early as 1951.[15]

The bizonal Executive Committee appointed the *Verwaltungsrat* chairman and a deputy chairman who had to be both 'persons experienced in banking'. They were joined, *ex officio*, by the 'Directors' (later ministers) for Finance; Economics; and Food and Agriculture; and, in order to keep the federal balance, three representatives of the Länder, who also needed experience in banking and were appointed by the *Länderrat*; the central bank appointed and send their own representative. Had it been for these members only, the KfW would not have been a 'characteristic German institution'. The remaining eleven members represented different branches of the banking industry (four in total), one each for industry, agriculture, craft trades (*Handwerk*) and the housing industry, as well as three men appointed by the trade unions to represent workers.[16]

In the Preface and the Introduction to *Das Bizonal Interregnum*, both Ludwig Erhard and former Chairman of the Executive Committee, Hermann Pünder write about the '*beglückenden kollegialen Zusammenarbeit*' (favourable collegial cooperation) away from party politics which existed in the Executive Council, and, by implication, in other agencies prior to the creation of the Federal Republic.[17] Considering the highly political nature of the reconstruction

[13] *Gesetzblatt der Verwaltung des Vereinigten Wirtschaftsgebietes*, 18 November 1948, reprinted in Pohl, *Wiederaufbau*, pp. 160–165.
[14] See Pohl, *Wiederaufbau*; Harries, *Wiederaufbau*; Grünbacher, *Reconstruction*; Gall, *Abs*.
[15] Harries, *Wiederaufbau*, p. 14; *Bundesgesetzblatt* 1951 (I), 6 Dezember 1951.
[16] *Gesetzblatt der Verwaltung des Vereinigten Wirtschaftsgebiets*, see FN 10.
[17] Pünder, *Interregnum*, pp. 9; 12.

process, this is, to say the least, a bold statement and certainly untrue for the appointment of several KfW supervisory board members. The case in point here was the appointment of the representative for the housing industry, which turned into an ideological battle between advocates of social housing and those of the believers in the private rental market. The dispute was settled only after the establishment of the Federal Republic by Chancellor Adenauer in favour of the private landlords' candidate.[18] This decision must have been seen as one of political pragmatism since the appointee, Johannes Handschumacher, was closer to Adenauer's own political persuasion then the candidate for the social housing association, who was the otherwise preferred candidate. On an earlier occasion, it had been Adenauer who nearly threw a spanner in the works in regards to the appointment of the *Verwaltungsrat* chairman. Instead of the designated candidate Otto Schniewind, he had proposed Erich Köhler, president of the Economic Council, for the role, despite Schiewind's much better qualification.[19] This was, in all likelihood, an attempt by Adenauer to get a potential political rival for the future chancellorship out of the way.[20]

3.

During the first year of its operation, the KfW *Verwaltungsrat* met monthly, during the second year every second month. When looking at the minutes of the *Verwaltungsrat* meetings, it is striking that despite significant political and ideological differences between its members, the work seemed to have been very harmonious overall and decisions were taken almost always unanimously.[21] The only exception concerned the issuing of the KfW's own debentures, which was strongly opposed by the banking representatives on the board.[22] The reason for this can be seen as two-fold: first, it was the sheer economic need at the time which made board members work together for 'the common good', even if they may have had different opinion on what was the common good. Secondly, it will have been due to the towering personality of Herman Josef Abs, who had been appointed deputy chairman of the supervisory board and who was, perhaps even by a long distance, the KfW's 'alpha-male'; he remained the KfW's dominant personality during the first 20 years of its existence. Without a doubt, Abs became much more than a 'primus inter pares' within the Kreditanstalt. The exalted role he played in the Anstalt's early years is highlighted again in the obituary the KfW gave after his death: '*Er schuf die Grundlage für die Kreditanstalt, die ; nach seinen Vorstellungen gegründet wurde*.'[23] Harries, furthermore, hints at a major involvement of Abs in the drafting of the KfW bill, speaking of his '*Mitregie*' (co-directorship). Gall also claims that Abs was involved in the German response to the Allied's 'Principles for a Reconstruction Loan Corporation' right from the beginning.[24] Officially, it was Herbert Martini who was in charge of the draft bill. He held a high-ranking post in the Office of the Chairman of the Executive Council (*Direktorialkanzlei*) and was the deputy to the Advisor for the Marshall Plan, Otto Schniewind, soon-to-be KfW supervisory board chairman. From 1 January 1950, Martini was appointed to the KfW's Board of Managers, or

[18] Grünbacher, *Reconstruction*, pp. 27 ff.
[19] AVBRD, vol. 4, p. 957, FN 30.
[20] Grünbacher, *Reconstruction*, p. 29.
[21] Kreditanstalt für Wiederaufbau, Historisches Archiv (KfW HA) Prot 10-1, passim.
[22] Grünbacher, *Reconstruction*, p. 89.
[23] Kreditanstalt für Wiederaufbau, Jahresbericht 1993, Obituary (no page number). 'He created the foundation for the Kreditanstalt, ; which was established according to his ideas.'
[24] Harries, *Wiederaufbau*, p. 11; Gall, *Abs*, p. 148.

Vorstand, the only person without a banking background to get to this position.[25] Although no direct source evidence could be found to corroborate this for sure, it is highly likely that it was Abs who added the Marshall Plan Counterpart Funds as a source for the KfW's borrowing; and it was most certainly him who came up with the tenet that the Supervisory Board could delegate one of their members into the Board of Managers.[26]

How strong his position was already in the KfW's first year becomes clear by the fact that he breached the legislation right after the KfW's governing bodies had been established. The law stipulated that a member of the Board of Directors had to suspend his roles on the director's board if he was delegated into the *Vorstand*. In a very clear breach of this rule, Abs took over the chairmanship of four, and deputy chairmanship of a further two, BoD standing committees.[27] In his capacity as deputy chairman of the supervisory board, Abs was able to appoint former high-ranking Deutsche Bank managers onto the *Vorstand*. Walter Tron, formerly Deutsche Bank senior vice president (*stellvertretendes Vorstandsmitglied*) and head of the Leipzig branch was intended as an interim solution until the designated candidate, Otto Neubaur, could join the board. Tron left the *Vorstand* in March 1951 but moved onto the supervisory board as a representative for the credit banks.[28] Tron was replaced by another former Deutsche Bank man, Richard Gdynia, the former head of the Kattowitz branch, who stayed on until his retirement in 1956. Harries succinctly notes that Abs used this kind of personnel swap '; definitively to the advantage of Deutsche Bank.'[29]

The appointment of Abs, and for that matter, Otto Schniewind, to the position of deputy chairman and chairman, respectively, of the KfW Board of Directors was in itself a highly political appointment. In March 1948 they had been elected president of the Central Bank Council (Schniewind) and president of the Directorate of the new Bank deutscher Länder (Abs), but these appointments did not come about, the reasons for this not being quite clear. According to Harries, they were rejected by the Allies because they had made demands which the Allies were unwilling to accept.[30] However, it is possible that the rejection came neither from the British nor the Americans. When the American Finance Advisor told the Germans that Abs '; was not acceptable for various reasons', it is likely that the rejection came because Abs was not acceptable to the French.[31] Finally, Gall argues that Abs saw the KfW as a much more important task (and he may have been briefed by Whitehead during their September 1947 meeting about the gestation of the bank) than the one at the central bank.[32] Thus the demands cited by Harries and Pohl may have only been a deflection or excuse not to take on the post as it appears that they made their demands only after the American had already voiced their opposition to Abs. Gall bases his claim on Abs' determination to act for the common good and to 'keep and or restore order' when it had been lost.[33] It is quite possible that Abs thought that he could achieve more for the reconstruction process within the KfW, where he would have been directly

[25] Grünbacher, *Reconstruction*, p. 45. In the older literature this date is set earlier, however, it is most likely that Martini stayed at the *Direktorialkanzlei* during its winding up process at the end of 1949.
[26] Gesetz über die Kreditanstalt für Wiederaufbau, Article 6 (2), reprinted in Pohl, *Wiederaufbau*, p. 162.
[27] Grünbacher, *Reconstruction*, p. 31.
[28] Grünbacher, *Reconstruction*, pp. 32; 44.
[29] Harries, *Wiederaufbau*, p. 26.
[30] Harries, *Wiederaufbau*, p. 20; see also Pohl, *Wiederaufbau*, pp. 21 f.
[31] Deutsche Bundesbank, Historisches Archiv, B330/1, Protokoll der 3. Sitzung des Zentralbankrats, 2.4.1948.
[32] Gall, *Abs*, p. 148.
[33] DBB HA B 330/1, letter by Abs and Schniewind, 9.4. 1948; Gall, *Abs*, p. 250 f and passim.

involved in reconstruction finance, than at the helm of the central bank, which was restricted in very different ways. Considering Abs' overall attitude, in particular the attitude 'to fulfil his duty', this is quite possible. And, of course, at the helm of the KfW Abs would have been able to act as the pivot between the government's reconstruction efforts and the private banks and make sure that the latter did not lose out on their traditional positions and roles in the long run. He certainly was in a position central to the reconstruction, according to Harries, Abs received 750 visitors from all sectors of the economy during the first four months of the KfW's operation.[34]

Abs' role within the KfW was not limited to dealing with his German colleagues or German authorities. The way he responded to Allied requests for supervision of, or at least participation in, supervisory board meetings is also telling – he flatly refused them. Legally he could point to the KfW law, which the Allies had passed although it stipulated German supervision, but it was nevertheless a bold move to reject American requests to sit in on the meetings.[35] Similarly, when in February 1949 BiCO demanded minutes of all committee meetings as well as of the Management Board, this was refused once again and repeatedly so. Eventually, in April 1949, Abs and Schniewind explained that they could not hand over BoM minutes as no such meeting had taken place – a claim that seems highly unlikely, to say the least. The supervisory board minutes, on the other hand, were written in such a way that they contained very little useful information for an outsider.[36] Eventually the Americans were appeased by receiving information from within the BoD, though the source is not named. Contrary to Pohl's claim, it is quite possible that it had been Abs himself who had given the briefings, as this would have been seen as a gesture of good-will on his part.[37]

Abs' involvement in the drafting of the KfW bill also had significant implications for its business model. For one, he could prevent that the KfW could become a direct competitor to the traditional banking sector institutions in the way the Reichskreditanstalt had been. To preclude such a development, the law stipulated that loans had to be made via the existing financial institutions.[38] The implication and justification of this clause had been raised already during the reading of the bill in the Economic Council.[39] However, the law provided an exception to this rule as well, which allowed the KfW to indeed give direct loans, but this could happen 'only in exceptional cases and with the agreement of the Board of Directors. In contrast and irrespective of the clause, during 1949–1950, the KfW did provide almost half of its total lending as direct loans without the inclusion of private banks. The beneficiaries of these credits were the basic industries, in particular to the coal mines of the Ruhr. In 1949 and 1950, unsecured KfW loans constituted 47 per cent and 40 per cent respectively of all investments in the sector.[40] Since the pits had been expropriated by the British Military Government and were faced with a looming ownership re-organisation, they could not provide any proper securities for the required loans; at the same time, in the face of the existing capital shortage, the banks would have found it difficult to provide further large amounts of money for long-term finance into a sector with low

[34] Harries, *Wiederaufbau*, p. 28.
[35] KfW HA, Prot 10-1, Protokoll der 1. Sitzung, TOP 1.
[36] Grünbacher, *Reconstruction*, p. 33.
[37] OMGUS 2/154/7, memorandum by Holgate, 1 March 1949; Pohl, *Wiederaufbau*, p. 47.
[38] Harries, *Wiederaufbau*, p. 20; Gesetz über die Kreditanstalt für Wiederaufbau, Article 3.
[39] *Wörtliche Berichte*, vol. 2, p. 772.
[40] Harries, *Wiederaufbau*, pp. 40 f. Egon Baumgart, *Investitionen und ERP Finanziering*. Berlin 1961, pp. 122 f.; see also Grünbacher, *Reconstruction*, pp. 123–145.

rate of return. Banks could make faster profits by providing loans to the consumer goods and light industry, sectors favoured by Erhard. This contrasted sharply with the desperate need for increased coal output to keep the German, as well as the European recovery going. The flaw of Erhard's economic policy became visible to all with the outbreak of the Korean War and the following 'Korea Crisis' when the lack of coal caused a huge bottleneck which severe negative impacts on all other economic sectors. The KfW had to act as a corrective to a market which did not work. In KfW letters to clients at the time, they spoke bluntly of '*Kreditzuteilung*' (loan allocation), and Abs called the bank's activities '*Investionslenkung*' (directing investments).[41] In its first Annual Report, Abs criticised the 'mis-direction of capital funds' which meant the KfW had to counterbalance this detrimental development through the '*planmäßige*' (planned) allocation of counterpart fund loans.[42] In other words, even the bankers within the KfW, and here first and foremost Abs, were willing to apply ways of operation which were not market conform in order to get the reconstruction process going. The KfW law provided ample scope to do so, and the pragmatic Abs was willing to support the reconstruction an any way possible.

4.

In June 1960, John Budinger, senior vice president of Bankers Trust highlighted Abs' extraordinary relevance within the German economy. He stated that together with Bundesbank President Blessing 'the two apparently dominate the whole financial show in Germany.' Amazingly, some 30 years later, in 1993 Abs was still called 'the most powerful man in Germany by some distance' by *Forbes* magazine.[43] The argument can be made that his role in and work with the Kreditanstalt did help to create the position which lead to these remarkable statements. In turn, Abs' position within the German economy made him the ideal candidate for his top role in the KfW, where he had a significant influence on the relationship between the state bank and both private businesses and private banks on the one hand and government policies on the other.

Without a doubt, Abs would have made his way and career under almost any other circumstances during Germany's reconstruction period and beyond. The sheer number of supervisory board memberships he held after 1945 as well as his official and unofficial posts and roles he held or was at least nominated for, (including those in Adenauer's government and, most famously, as the head of the German delegation for the 1953 London Debt Conference), were the visible expression of his extraordinary abilities.[44]

Although his core loyalty remained always with Deutsche Bank (before 1945 and then again during the process of the bank's re-forming during the 1950s), he carried out any role he took on to the best of his abilities and to the benefit of his clients, including Trade Unions, which nominated him several times, as he himself pointed out repeatedly, as the 'neutral' man on supervisory boards of companies under co-determination rule.[45] Lothar Gall sees him as 'a kind of spokesman for "Deutschland AG"' during the 1950s and 60s.[46] All this would have increased

[41] Harries, *Wiederaufbau*, p. 37.
[42] Kreditanstalt für Wiederaufbau, *Jahresbericht 1949*, p. 16.
[43] Gall, *Abs*, pp. 141; 8 and 437.
[44] For some of the posts and positions he held see Gall, Abs, passim but esp. pp. 228 f.; and Grünbacher, *Reconstruction*, pp. 29-32.
[45] Gall, *Abs*, p. 250.
[46] Gall, *Abs*, p. 233.

his reputation within business and banking circles even further. That Abs seemed to have been involved in the drafting of the KfW law, in particular the clause which called for loans to be channelled through the established house banks, who receive 0.5 to 1 per cent of the overall interest charged on the loans, would certainly not have done any damage to his reputation in business and banking circles.[47] It made sure that the traditional house banks would not lose their old customers, as they had to carry out all the relevant credit checks. The flipside here is that with a staff of less than 150, including drivers and secretaries, the KfW would not have been able to deal with thousands of credit requests.[48] His role as 'primus inter pares' at the decentralised Deutsche Bank as well as his numerous supervisory board memberships meant that he had an extensive insight into what was going on in different sectors of the German economy, while at the same time he was able to move things in the most beneficial direction for the national economy (and sometimes some companies) as a whole. It was his 'sitting in the centre of the spider's web' that was the basis of his knowledge and thus influence; his work at the KfW benefitted from it and at the same time tis work there would enhance his overall standing amongst politicians and his peers in business. This can be demonstrated by three examples: In the case of Carl Zeiss Optical company, it had been Herman Josef Abs in his capacity as KfW *Vorstand* who provided a counterpart fund loan for the company. Originally based at Jena, the Americans, who had liberated the town in April 1945 took leading personnel, industrial files and drawings and some machinery with when they handed the town over to the Soviets later that summer. Once out of Soviet reach they literally dumped the Jena staff and some of their little equipment in the middle of nowhere, in the tiny village of Oberkochen. Although the company had still a world–famous reputation, they had no commercial security and thus no bank was prepared to give them any significant loans needed for their proper resettlement and restarting productions. It was only after Abs, who already before the war had been on the company's supervisory board, organised a DM 4.8 million KfW loan that other banks were prepared to step in and provide significant additional funds.[49] This example shows how a KfW credit was seen by other banks as a guarantee for a company's viability, in particular in times of insufficient funds.

The next example shows that while on the one hand Abs was able to protect private banks' businesses, he was also able to 'call in' favours from them. In 1949, the Marshall Plan Administration in Germany were not willing to release Counterpart Funds without some financial contributions from the Germans as well and had thus been pressing for a significant bond issue.[50] German experts did not believe that this was possible. Less than a year after the currency reform, which had cut more than 90 per cent of money supply, they argued, there were just no funds available in the economy to purchase any bonds. The banking representative on the KfW *Verwaltungsrat* were outright opposed to the bond issue for another reason: they feared that due to its privileged position, a KfW bond issue would absorb the little liquidity available on the market, to the detriment of the banks. The fierce debate on the board on whether or not to issue bonds was followed by a vote, which turned out to be the only one which did not produce a unanimous result. As a matter of fact, one part of the bond issue was almost voted down. Without a doubt, there were political

[47] For the interests charged on the KfW loans and the ways they were handled see Grünbacher, *Reconstruction*, pp. 47–49.
[48] Harries, *Wiederaufbau*, p. 27.
[49] Armin Hermann, *Nur der Name war geblieben. Die abenteuerliche Geschichte der Firma Carl Zeiss*, Stuttgart 1989, p. 57, which also highlight the lack of proper securities for these loans.
[50] For details on the following see Grünbacher, *Reconstruction*, pp. 89–91.

motives at play as well, with the KfW being able to demonstrate to the Americans that the German capital market was still not functional. Despite some lucrative tax concessions or complete tax exemption for the bonds, the result of open market sales was called 'measly' in the KfW Supervisory board minutes. Instead of hoped for DM 300 million, by the end of 1949, only DM 8 million of the 3.5% tax exempt bonds (intended for housing construction) were sold. Of the 5.5% tax reduced (general purpose) bonds DM 50 million were sold. However, only DM 22 million had been placed on the open market. Aware of the market situation and expecting a bad result, Abs had negotiated with the business banks a guaranteed bond purchase of DM 50 million. In other words, the banks had to buy bonds to the tune of DM 28 million, more than half of the total amount, to fulfil their guarantee.

While it had been in the first place Abs' influence which brought about the purchase guarantee, even he faced his limits the following year: with the outbreak of the Korean War, the value of the bonds, which had been just received acceptance as collateral (*Lombardfähigkeit*), nose-dived and the KfW had to release the banks from their obligation to hold the bonds; instead, the KfW had to spend millions to keep their par value.[51]

The last example is interesting not least because it had an important role in a topic which is close to German hearts, namely export finance. Here again is a good example of how Abs used the KfW to plug a '*volkswirtschafliche Lücke* (gap in the national economy) at a time when the traditional banks were unwilling to step forward; but that when they eventually did, the Kreditanstalt left the standard export finance to the banks while it kept some of the much riskier political loans. Traditionally, Germany has been a country that had to import most of its raw material and a significant proportion of its foodstuffs and export high value manufacturing products to pay for those imports. The loss of its agricultural heartlands following the Potsdam Conference and the division of the country significantly worsened the food supply situation. At the same time, the war and its aftermath had completely interrupted German exports. The resulting balance of payment deficit not only delayed the reconstruction process but was also simply not sustainable in the long term. For West Germany in the late 1940s and early 1950s, it was 'export or bust' in economic terms, and for political reasons – overcoming the Nazi past and regaining the trust of other countries again – West Germany had to use its exports as a political and diplomatic tool.[52] Hermann Josef Abs knew better than most about the importance of German exports having made his formative experiences in the banking trade in the currency trading and export sectors.[53]. It is, once again, interesting to note that the KfW began export finance before it had the legal authority to do so; only in December 1951, with the second change of the KfW law was export finance listed as one of the bank's tasks.[54] By that time, the Kreditanstalt had been involved in export finance for over a year. As part of a work creation scheme the Federal Government had to initiate under Allied pressure after unemployment had surpassed the 10 per cent mark in early 1950, the KfW received, as a first step, a special credit line of DM 100 million from the Bank deutscher Länder. Against the backdrop of West Germany's balance of payment deficit at the time, which almost lead to the country's insolvency, it is not surprising that the KfW called this export

[51] Harries, *Wiederaufbau*, pp. 35 f called the bond issue an 'unavoidable failure'.
[52] Grünbacher, *Reconstruction*, pp. 207–218; for a general description see Christoph Buchheim, *Die Wiedereingliederung Westdeutschlands in die Weltwirtschaft 1945–1958*, München 1990.
[53] Gall, *Abs*, pp. 23–35.
[54] *Bundesgesetzblatt 1951 I*, 6.12.1951, reprinted in Pohl, *Wiederaufbau*, pp. 168–172.

finance programme in their annual report 'one of the most valuable for the national economy'.[55] While the banking industry vehemently opposed the idea of KfW export finance out of fear it could establish itself as a permanent institution in the field, they had to admit grudgingly that they lacked the necessary funds and could not really carry the risk of a big export deal turning bad. This could have led to a situation where one affected bank infected others, and similar to the 1931 banking crisis, dragged the whole economy down. However, the KfW – that is, most likely Abs himself – insisted that they would hand over the task as soon as a proper export finance bank was established. Within three years, from 1949 to late 1951, the KfW had provided a significant amount of money to finance exports, some DM 824 million in total.[56] These loans were usually given in order to allow the exporting companies a longer period in which to receive payments from their customers, with these extended payment lines helping to improve German competitiveness on the international markets.

By autumn 1951 it become obvious that the Federal Republic's overall export situation and the balance of payment situation, which had been near fatal at the start of the year had significantly improved, and discussions began to hand over general export finance to a private bank. For this reason, a banking consortium under the leadership of one of the Deutsche Bank successor institutions established the Ausfuhr Kredit AG (AKA). Export financing by the KfW in 1950–51 is therefore a good example of how the bank took on tasks which were of great importance for the national economy at times when the traditional banks could not or (as in the case of the coalmines mentioned above) would not provide loans. It shows, at the same time, that Abs always kept an eye out for the business interests of the private banks, in particular Deutsche Bank.

However, handing over the export finance loans to the AKA did not end the KfW's involvement in this field of business altogether, it only made it more political. In actual fact, the KfW's export credit line was split in two. Some DM 600 million were handed over to the AKA, but a line of DM 126 million consisting of loans to Yugoslavia remained with the Kreditanstalt. These loans were seen as being close to default and since the banks had no interest in these dodgy loans, they had to be carried forward by the KfW, irrespective of the risk, for political reasons. Here for the first time, the Kreditanstalt got involved in loans that were not reconstruction–related but entirely political in nature. The government would have seen the benefit of the KfW as an instrument of further 'political' business and therefore this episode also helps to explain why the KfW – considering its name – was not wound up in the mid– 1950 after the problem of the immediate reconstruction finance had been solved. Harries highlights this when he states that in 1954, the KfW gave loans of less than DM 500 million, marking the bank's worst performance ever.[57] Companied could now find other sources of finance and the bank could have been wound up after having successfully completed its reconstruction task. Instead, the bank continued to operate but its focus began to shift away from mere reconstruction to more political politically motivated investments, whether these were the ongoing loans to Yugoslavia and then those to India from 1957 onward; or the financing of structural policy within the Federal Republic, including *Mittelstandsförderung*, the typically German support for small and medium–sized enterprises from the late 1950s onward; or the ongoing aid to West Berlin are cases in point for the KfW's second decade of

[55] *Jahresberichte*, 1950, p. 28. For the scale of the payment crisis see Volker Hentschel, 'Die Europäische Zahlungsunion und die deutsche Devisenkrise 1950/51', in *Vierteljahrshefte für Zeitgeschichte*, 37 no. 4 (Oct 1989), pp. 715–758.
[56] Grünbacher, *Reconstruction*, p. 212–13; *Jahresberichte* 1951, p. 68.
[57] Harries, *Wiederaufbau*, p. 49.

operation.[58] The bank had proved not only its economic, but also its political value and would continue to do so especially in a climate where the foreign policy was dominated by the Cold War. Little surprise that by the late 1950s, the KfW was praised by one *Staatssekretär* as '*die wirtschaftspolitische Feuerwehr ded Bundes*' (the federal government's fire brigade for economic matters).[59]

5.

Finally, although the KfW is a state bank, it could operate in its own responsibility and agency and was not, strictly speaking, bound by government instructions, unless ministers on the supervisory board were able to demand a particular action, but Abs would have possibly 'managed' any of their demands in a practical way. Only once did the government not respect the KfW's autonomy but the KfW's response made it clear that they would not stand for it. In summer 1952, under severe pressure from the Americans to extend the loan to keep Yugoslavia economically afloat, the Federal Government extended the KfW's Yugoslavia loan (which had been split off the AKA's export loan) by some DM 38 million. The Bank deutscher Länder provided a special credit line of DM 31 million (some 80 per cent of the total) to the KfW, which was to provide the remaining DM 8 million from their own funds. For the Americans, keeping Tito in power was a simple way to spite the Soviet Union and the US itself could stay out of the spotlight by using West Germany to provide the loans. Yet since Yugoslavia still held German soldiers as prisoners of war, Adenauer would have found it difficult to provide the funds through the normal budget which would have needed parliamentary approval. Subsequently, KfW staff heard about the deal only from a BdL member. The government's unilateral action would have challenged Abs' authority within the bank and he wrote to Otto Neubaur, his successor as the KfW's spokesman. Abs expressed his surprise about the way the loan extension had come about without having informed them beforehand; he also expressed his wish '; *sicherzustellen, dass sich ein solches Vorgehen nicht wiederholt.*'[60] Writing on behalf of the Board of Managers, Herbert Martini passed on the message, making it absolutely clear to the Economics Ministry that the KfW was an agency which could act in its sovereignty and would refuse to comply with similar requests in the future and that the KfW was complying this time only for the sake of public appearances.[61] Thereafter, the government seemed to have consulted with the KfW before any controversial loans were made (as, for example, in 1988, when the KfW gave a loan to Jordan that was classed as 'development aid' but in fact was used for the purchase of Tornado fighter jets, the deal had to be cancelled after the deal had been leaked to the press)[62].

The flipside here is that the KfW *was* a state bank and that 'solo efforts' by the KfW that were not previously discussed with government ministries received a similar frosty response. Klaus Dohrn, *Vorstand* member since 1954 eventually resigned in 1960 after several such solo efforts in particular in export finance and development aid projects. Called 'a very colourful personality' by Harries, it appears that Abs had instrumentalised Dohrn to expand the KfW's foreign credit business. Gall speculates that while Abs initially encouraged him to expand foreign lending,

[58] See Grünbacher, *Reconstruction*, pp.221–241; 195–206.
[59] KfW HA–BA Sch102, letter by Staatssekretär Wandersleb to KfW, 16.5.1958, cited in Grünbacher, *Reconstruction*, p. 190.
[60] Gall, *Abs*, p. 157. '; make sure that such a course of action is not repeated.'
[61] KfW HA–VS 29, subfile 'Jugoslawienkredit', letter Martini to Economics Ministry, 21.6.1952.
[62] Grünbacher, *Reconstruction*, p. 256.

he withdrew his support once he realised that the KfW was intruding into private banks' export business but also because the ministerial bureaucracy, annoyed by Dohrn's initiatives, which were not agreed by the Economics Ministry, began to question the KfW's independence in order to stop the unauthorised activities and deals.[63] When he eventually announced that he would leave the KfW, officials in the Economics Ministry expressed their outright delight about his upcoming departure.[64]

The first 20 or so years of the KfW's work determined its role as a bridge between supporting state tasks and the private economy or to fill the gap the private banks could or would not take because of political risks. Some of the examples mentioned above, the financing of the crucial coal mine investments in 1949–50; the politically desirable export finance; and, since 1957 but officially only from 1961, when the KfW also became the Federal Republic's development aid bank) development aid, which was crucial in a foreign policy environment where the aid was first and foremost driven by Cold War considerations, are testament to its expanding task. While the role of the Board of Directors declined once the economic situation stabilised and then normalised, Herman Josef Abs still remained the bank's central figure. His position at the KfW must be seen to the mutual benefit for both him and the bank, with his outside knowledge strengthening the KfW's political cloud while he would have benefitted from the increased flow of information he was able to receive via the BoD's work.

The KfW's role and the position of Abs were first and foremost driven by the economic and political necessities of the reconstruction process; and only with pragmatism free of ideological restraints could the best results be achieved. This is what defined the Kreditanstalt's particular role at the crossroads between state and private economy. When rules were broken in this period, i.e. Abs not resting his supervisory board functions when delegated to the *Vorstand*, nobody challenged this. The reconstruction process in the first place was driven by pragmatism.

[63] Harries, *Wiederaufbau*, p. 25 f.; Gall, *Abs*, pp. 162 f.
[64] Grünbacher, *Reconstruction*, p. 46.

Zeliha Sayar

The State–owned Banks in Turkey after the Second World War: Crowding Out or Supplementary Role?

Contents

Abstract	1
1. Introduction	2
2. The Second Post–War (1947–1980)	4
3. Empirical Part	9
3.1. The Model	9
3.2. The Result	10
4. Conclusion	20
References	22

Marmara University, SBE, PhD candidate student, Istanbul,Turkey.

E–Mail: zelihasayar@marun.edu.tr

Abstract

This study aims to clarify the influences of state banks on the private banks for Turkey after the second world war. The literature on state banks emphasizes the adverse impact of state, namely the crowding–out effect. On the other hand, state–owned banks arose as a result of development policy associated with the birth of the modern state and play a decisive role in realizing industrialization in countries where private banking and financial markets do not exist. Examining how state banks in Turkey affect private banking requires to portray a picture of state banks' place in the banking system and their role in development policy during the second post–war period. Firstly, to examine the function of public banks, monthly and quarterly statistical bulletins of CBRT, the data of banks' publications and term–end balances of the Turkish Banking Association between 1945 and 1980 were employed in the paper. Then I adopted two different ARDL models to scrutiny the private deposits and loans and interaction with state banks deposits and loans. Consequently, historical perspective portrays that state banks carry out an essential and dominant role in the successful establishment and financing of state economic enterprises (KİTs) such as textile, electricity, dam, and mining areas, and providing the credit needs of agriculture. The empirical estimation results support the evidence of the beneficial contribution of state banks. Briefly, rather than crowding out the private sector, they have contributed to the development of the private sector via resource transfer.

1. Introduction

The establishment of the modern state in the 19th century had led to significant alterations in the fiscal and economic function of the state as well as political and administrative structure of the state. While state–owned banks in Europe fulfill new functions of the modern state such as public finance and fiscal policy, state banks in developing countries such as Russia have reshaped to generate investment and provide credit. State banks, which are entirely financed by the government, satisfy the financial needs of development policies in developing countries where private markets are unable to meet rising credit and money demand. State banks, in other words, are the result of the modern state playing a role in development strategy.

The reasons for countries to pursue such a policy to ensure economic development are insufficient capital accumulation, traditional uses of capital such as agriculture and trade, and the financial infrastructure and institutions that will provide financial support to entrepreneurs operating in the industry are still unestablished or underdeveloped.

Turkey, like other late–industrializing countries, has established public and investment banks in order to gain access to developed markets. The origins of modern banking can be traced back to the Ottoman era. Modern banking in the Ottoman Empire began in the nineteenth century with foreign banks and Galata district bankers. Because of religion's negative attitude toward interest rates, foreigners dominated the Ottoman Empire's banking system. In the wake of the independence war, the goal of the government was to establish a new economic order to ensure national sovereignty. Since the young republic could not achieve economic development and independence with a foreign–weighted and local–single branch banking structure, it took steps in the 1920s to develop national banking. Isbank was established as a main commercial bank, supported local banks, and began to establish a central bank in order to develop national banking. Notwithstanding, sufficient savings for industrialization did not occur.

The deficiency of capital and credits prompted the government to rearrange the banking sector in the 1930s. In response to the effects of the Great Depression, the government implemented statist policies; besides that, as a result of sound money and balanced budget policies, public banks were formed as a solution to the problem of how to finance investments.

State investment banks have been established to finance and manage large–scale investments. As a result, many public banks with specializations in various fields have been created to overcome the credit needs of municipal services, tradespeople, the construction sector, and the commercial sector, as well as to realize city infrastructure services. While these public banks enabled the formation of state–owned enterprises and their funding requirements, they also benefited the economy in the long run by encouraging the public to save and building trust in national banks. While state banks played a major role in financing rising defense expenditures during World War II, they were also vital parts of the Import Substitution Industrialization Strategy's postwar implementation.

The main discussion and critiques focusing on the establishment of public banks primarily addressed the fact that they hampered the development of the private sector. However, the question behind why state banks are needed, how they contribute to the economic and financial system, and whether they play a role in economic development

remains a critical one that must be addressed in−depth in order to understand how they impact private banks. Although public banks differ based on the country's economic and social structures, they were established to solve development problems, support the private sector, and provide the conditions for the development of private banking.

In Turkey, a growing body of research focuses on the role of the banking sector, while the role of state banks remains unknown. Some of these works discuss private and state banks on a micro−level, focusing on their functions and organizational structures, for example (see Sak et al, 2001). Furthermore, the studies focused on the performance of state banks or private banks in a qualitative or historical perspective (Koraltürk &Arolat, 1996; Erdogan, & Kapci (2018); Sahinkaya, (1998)).

In other words, to comprehend the contribution of the state bank, the topic of how the state bank influences the evolution of private banks must be clarified. This study aims to fill that gap by incorporating empirical and historical methods.

For this reason, in this study, the effects of deposits, loans, and affiliates of public banks on private banks will be analyzed for the second post−war period. To analyze the role of public banks, monthly and quarterly statistical bulletins of CBRT, the data from banks publications and term−end balances of the Turkish Banking Association were used in the study. In the second part, the post−war period will be divided into two separate sub−periods, and the role of public banks and private banks in the banking system, as well as their role in development policies, will be discussed. Employing two different ARDL models will be estimated the determinants of private banks' deposits and loans in the third part. In the concluding part, the results obtained will be evaluated.

2. The Second Post-War (1947-1980)

In the post-war period, as the world moves into a new world order both economically and politically, political changes in Turkey have led to salient innovations in terms of economic policy. To put it differently, the political turbulence of the transition to a multi-party system was experienced, development policy was also affected by political fluctuations. Following the war, liberal economic policies were first implemented; however, when this policy became stagnant, an import substitution industrialization policy was attempted with the financial support of public banks. In the late 1950s, the Democratic Party has been deposed by a military coup. Between 1960 and 1980, the import substitution industrialization policy has implemented within the scope of development plans. In other words, it has been intended to complete the industrialization phase via performing the mixed economy model. Therefore, it is necessary to decompose into two sub-periods to examine how public banks affected private banks in this period. The activities of public banks and their effects on private banking in two sub-periods, 1946-1960 and 1960-1980 will be analyzed.

2.1. Between 1945-1960

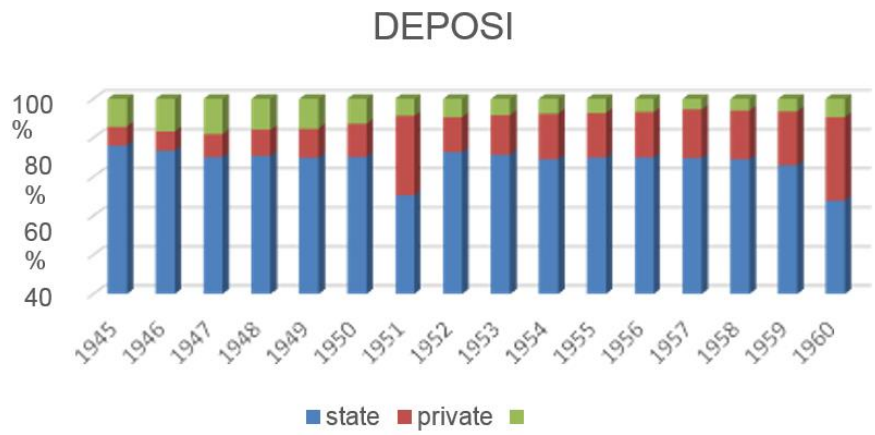
Due to both external and internal factors, it was not possible to continue the statist policies after the war. Once the multi-party system was adopted, the Democratic Party defended liberalism by opposing the statist policy. Hence, the CHP reluctantly abandoned the statist in the 1947 party congress to join the new world order under the effects of variations in domestic politics. At the economic congress held in 1948 in Turkey, commercial and agricultural bourgeoisie has weighed on economic policy. Despite the importance of industrialization, congress's main criticism was the agricultural sector's neglect.

By the 1950s, the strategy, which focuses on agriculture has had a dynamic effect on the economics of Turkey. Populist economic policies resulted in a bottleneck in a short time. DP (Democrat Party) did not hesitate to resort to statist policies and come close to the Soviets to sustain growth in the first crisis. Turkey implemented an import substitution industrialization strategy in 1954. As DP ironically became developmental and statist, the political opposition to state intervention on market was replaced by how to exploit the public resources for the realization of the growth target.

In 1947, the first law encouraging foreign capital investment was enacted. To provide the credit needs of the private sector to guide foreign capital, the Industrial Development Bank of Turkey was founded in 1950. The bank directly funded 3500 projects. He established partnerships with 100 companies. In this respect, the bank, which has valuable contributions to the development of the private sector, has also been effective in managing the commercial capital of the industrial sector in the 1950s. In parallel with the recovery of economic activities after the war, banking activities also increased. Especially after 1950, the prominence of private enterprises, the increase in foreign loans, the enactment of the Foreign Capital Incentive Law in 1954, and excessively rapid economic growth between 1950 and 1954, the fact that the interest rates remained constant while inflation increased, the increasing savings in the country effectively contributed to the development of private banks.

Between 1946 and 1958, 27 new banks were established, bringing the total number of banks to 62, 56 of which were national and 6 of which were foreign. Branch banking gradually spread, and the rapid growth that began in 1945 continued in the following years. The total number of national bank branches rose from 369 in 1945 to 1699 in 1960.

Figure 1: The Deposits of State, Private and Foreign Banks (1945–1960)



Source: Statistical Bulletin of the Central Bank of the Republic of Turkey (1945–1960).

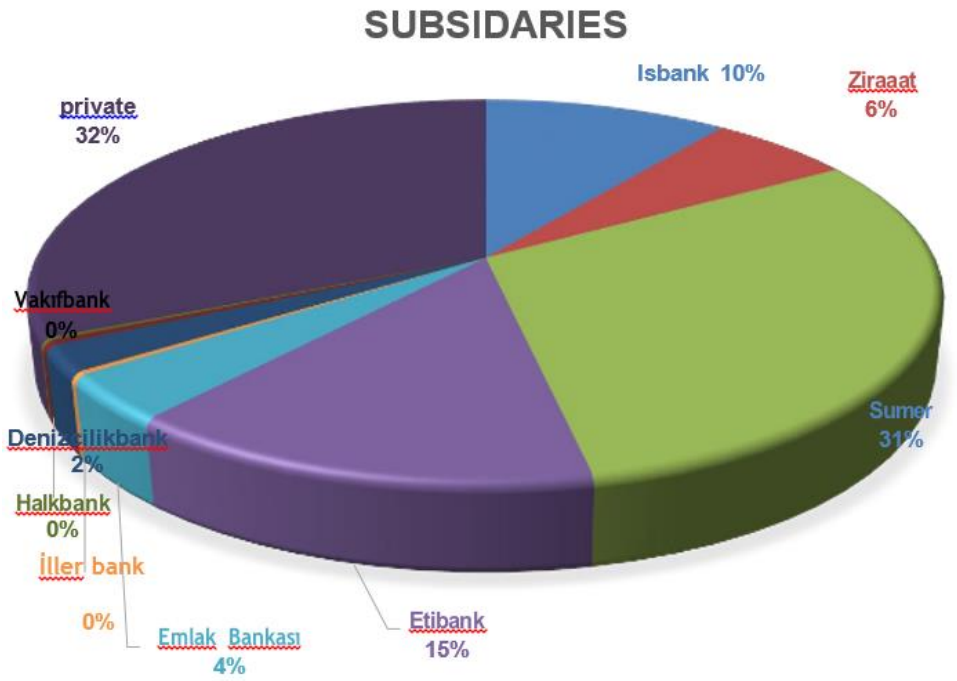
While the growth model based on agriculture was implemented during the 1950s, private banking started to develop, the share of public banks in total maintained its importance. At the start of the period, public banks held 76 percent of the deposits, which fell to 49 percent by 1951. Although its share was higher in 1952 than the previous year, the deposit rate, which was below 80% in the 1950s due to the influence of private banking competition, was only 50% at the end of the period.

Figure 2: The Loans of State, Private and Foreign Banks (1946–1960)

Source: Statistical Bulletin of the Central Bank of the Republic of Turkey (1945–1960)

The share of public banks, which had a large share of loans at the beginning of the period (80%), demonstrates that, given the fact that private banking was still in its early stages, it maintained its dominant position among national banks at the end of the period.

Figure 3: The Subsidiaries of Private and Public Banks (1946–1960)



Source: Statistical Bulletin of the Central Bank of the Republic of Turkey (1945–1960), The balance sheet of Sumerbank, Etibank and Isbank, Autor's calculator.

Figure 3 demonstrates the share of state–owned banks and private banks in total affiliates during the period. According to figure 3, while the percentage of the private banks in total is %32, the sate– owned banks' rate is 68. It is marked that the applied financial and economic policies are determinant in the noticeable increase of private banking investments despite private banks having recently developed.

During this time, the total share of two state–owned banks, Sumerbank (textiles) and Etibank (mines and electricity), in total subsidiaries reached 45 percent. Despite their minor contribution in comparison to the other two banks, Sumerbank and Etibank, Isbank's 10% and Ziraat Bank's 6% have the highest rates after Sumerbank and Etibank. Since the deposits and credits of Sumerbank and Etibank are low, increasing investments in this period were financed outside of banking economic activities. The Central Bank allocated Sumerbank a budget of 64 million and Etibank a budget of 55 million at the end of 1946; in addition, these two banks borrowed 96 million treasury guaranteed bonds and 70 million secondary bonds. Sumerbank, only 249 million TL from its reserve and depreciation funds were set aside for investment from its inception to 1949. In 1950, this organization had 22 factories and 25 retail stores. Furthermore, approximately 27,000 people were employed as a result of the bank's activities during this period of time. It oversaw industries such as textiles, leather, shoes, paper, iron and steel, and construction materials.

In 1950, although Etibank had not nonetheless carried out significant steps in electricity generation, it employed 38,000 workers in its six major mining companies. Firms under its control were producing bituminous coal, lignite, chrome, copper, and sulfur.

2.2. Between 1960–1980

In Turkey, problems as a result of economic instability such as the inability to transfer capital industry have led to a widespread belief that the hybrid model, namely the model of a planned economy, will solve these issues. The import substitution industrialization strategy began to be implemented within the framework of the plans in the 1960s as a result of these discussions. The 1960s and 1970s, when the import substitution accumulation model was effectively implemented, are an almost perfect example of national developmentalism, according to Keyder.

Table 1: The Shares of State, Private and Foreign Banks in Banking System (1960–1980)

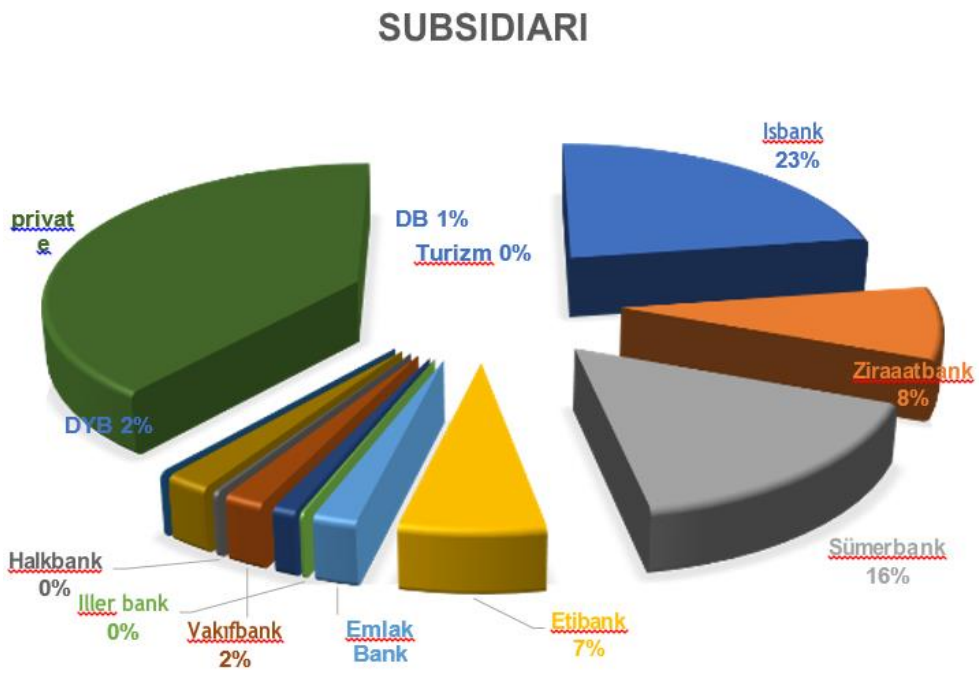
Year	State			Private			Foreign		
	Deposit	Loans	Subsidiaries	Deposits	Loans	Subsidiaries	Deposits	Loans	Subsidiaries
1961	68	79	68	27	16	27	5	5	6
1962	68	78	68	27	17	26	5	5	5
1963	68	75	68	27	20	27	5	5	5
1964	71	70	71	24	27	24	5	3	5
1965	69	66	69	26	31	26	5	3	5
1966	65	71	65	30	26	30	5	3	5
1967	67	82	67	28	16	28	5	3	5
1968	66	80	66	30	17	30	4	3	4
1969	63	77	63	33	21	33	4	3	4
1970	62	76	62	34	22	34	4	2	4
1971	61	73	61	34	25	34	4	3	4
1972	59	69	59	37	28	37	4	3	4
1973	59	70	59	37	27	37	3	3	3
1974	58	75	58	38	23	38	3	2	3
1975	59	74	59	37	23	37	3	2	3
1976	56	75	56	41	23	41	3	2	3
1977	56	75	56	41	24	41	2	2	2
1978	55	70	55	43	23	43	2	7	2
1979	56	68	42	42	31	56	6	2	2

Source: Statistical Bulletin of the Central Bank of the Republic of Turkey (1960–1980), The Banks Association of Turkey. End of Period Balance Sheet Profit and Loss Accounts of Our Banks (1960–1980).

The table indicates that the share of deposits, loans, and affiliates decreased in 1979 as a result of small fluctuations, but substantially modest decreases. The percentage of foreign banks in the system increased slightly, and the share of private banks led to a decrease in the share of public banks. In addition, state–owned banks were adversely affected by the crisis in the 1970s and shrank. Although the share of public banks' loans and deposits in

the banking system decreased, their dominant position continued. On the other hand, their share in subsidiaries fell below 50%. As a result of group banking, the share of private banks' subsidiaries has increased.

Figure 4: The Total Subsidiaries of Private and State Banks (1960–1980)



Source: Statistical Bulletin of the Central Bank of the Republic of Turkey (1960–1980), The Banks Association of Turkey. End of Period Balance Sheet Profit and Loss Accounts of Our Banks (1960–1980), The balance sheet of Sümerbank, Etibank and Isbank, Autor's calculator.

The figure demonstrates the share of state–owned banks and private banks in total affiliates during the period. It is observed that the share of private banks, which was 32% in the previous period, increased to approximately 40% despite implementing a mixed economy model. In fact, the investments of public banks have a positive contribution to the investments of private banks. Among the subsidiaries, it is seen that Işbank left its mark on the period. During this period, Işbank invested as part of the conglomerate process by approximately 56 billion TL in its subsidiaries. It is seen that Sumerbank also has a high rate of 16%. Especially with the capital accumulation and agricultural development in the 1950s, the increase in cotton production continued in the planned period. Sumerbank increased its subsidiaries in weaving and carpet weaving during this period. In 1972, a total of 41 thousand people, including more than 36 thousand workers and more than 5 thousand civil servants, were working within the bank. In 1973, the contribution of the bank to the country's economy reached 2 billion TL.

The reason for the increase in the share of Etibank is the realization of the projects with high social benefits but costly in development plans. Apart from the subsidiaries, there are also investments that are not reflected in the bank's balance sheets. Etibank invested nearly 4.8 billion pounds in mines and power plants in the period 1965–1970 as a result of the state's activities such as chemistry and metallurgy within the framework of the Development Plans and made a total of 12 billion investments in the fields of mining, metallurgy, and chemistry in the 1971–

1978 period. The Third Development Plan envisaged an investment of 6.5 billion in oil and coal exploration activities and 16.3 billion in mines and enterprises between 1973–1977.

It is marked that the share of DBY (State Investment Bank) in subsidiaries is remarkably small. The main reason why the State Investment Bank distributes the highest number of loans among public banks, while its share in subsidiaries represents 2%; it shows that the bank substantially follows a policy towards meeting the credit needs of the public sector and the industrial sector.

Although the Tourism Bank was rearranged to make sufficient investment in tourism, it displayed an inadequate performance since tourism was expensive compared to other countries as the outcomes of the excessive value of money. As a result of the loosening of control over tourism expenditures and the overvalued TL, the tourism balance had a deficit of 27 and 64 million dollars, respectively, in 1976–1977.

3. Empirical Part

3.1. The Model

The ARDL model is employed in this paper to illuminate the determinants of private banks' deposit and loans. Autoregressive distributed lag (ARDL) models have been used for decades, but they have recently been shown to be a very valuable tool for testing the presence of long–run relationships between economic time series. Pesaran (1997), Pesaran and Shin (1999), and Pesaran et al. (2000) constructed the ARDL cointegration approach (2001).

The generalized ARDL (p,q) model is specified as: $Y_t = \gamma_{oi} + \sum_{i=1}^{p} \delta_i Y_{t-i} + \sum_{i=0}^{q} \beta_i' X_{t-i} + \varepsilon_{it}$. Where Y_t' is a vector and the variables in $(X_t')'$ are allowed to be purely I(0) or I(1) or cointegrated; $\beta \; and \; \delta$ are coefficients: $\gamma \; is \; the \; constant$: $i = 1, \ldots, k$; p,q are optimal lag orders; ε_{it} is a vector of the error terms–unobservable zero–mean white noise vector process (serially uncorrelated or independent).

The dependent variable is a function of its lagged values, the current and lagged values of other exogenous variables in the model. The lag lengths for p,q, may not necessarily be the same; p lags are used for the dependent variables and q lags for the exogenous variables. The model is autoregressive because is explained by its lagged values itself. It also has a distributed lag component, in the form of successive lags of the explanatory variable. The ARDL *(p,q)* model can be estimated by applying the OLS method.

The first equation, as indicated below, assumes that private banks' deposit is a function of the current and lag values of GDP, interest rate, and state banks' deposit, as well as the lag of itself.

$$\Delta pridep_t = \beta_0 + \sum_{i=1}^{m_1} \beta_{it} \Delta pridep_{t-i} + \sum_{i=1}^{m_2} \beta_{it} \Delta gdp_{i,t-i} + \sum_{i=1}^{m_3} \beta_{it} \Delta int_{i,t-i} + \sum_{i=1}^{m_4} \beta_{it} \Delta stadep_{i,t-i} + b_{1i} pridep_{t-1} + b_{2i} gdp_{t-1} + b_{3i} int_{t-1} + b_{4i} stadep_{t-1} + \varepsilon_{it}.$$

In the second equation, I presumed that there is a linkage between the loans of private banks and the current and lag values of private banks' subsidiaries, the state banks' loans, the deposit of private banks and GDP alongside the lag of private banks' loans.

$$\Delta priloan_t = \beta_0 + \sum_{i=1}^{m_1} \beta_{it} \Delta priloan_{t-i} + \sum_{i=1}^{m_2} \beta_{it} \Delta prisub_{i,t-i} + \sum_{i=1}^{m_3} \beta_{it} \Delta stateloan_{i,t-i} + \sum_{i=1}^{m_4} \beta_{it} \Delta pridep_{i,t-i} + \sum_{i=1}^{m_5} \Delta gdp_{i,t-i} + b_{1i} priloan_{t-1} + b_{2i} prisub_{t-1} + b_{3i} stateloan_{t-1} + b_{4i} pridep_{t-1} + b_{5i} gdp_{t-1} + \varepsilon_{it}.$$

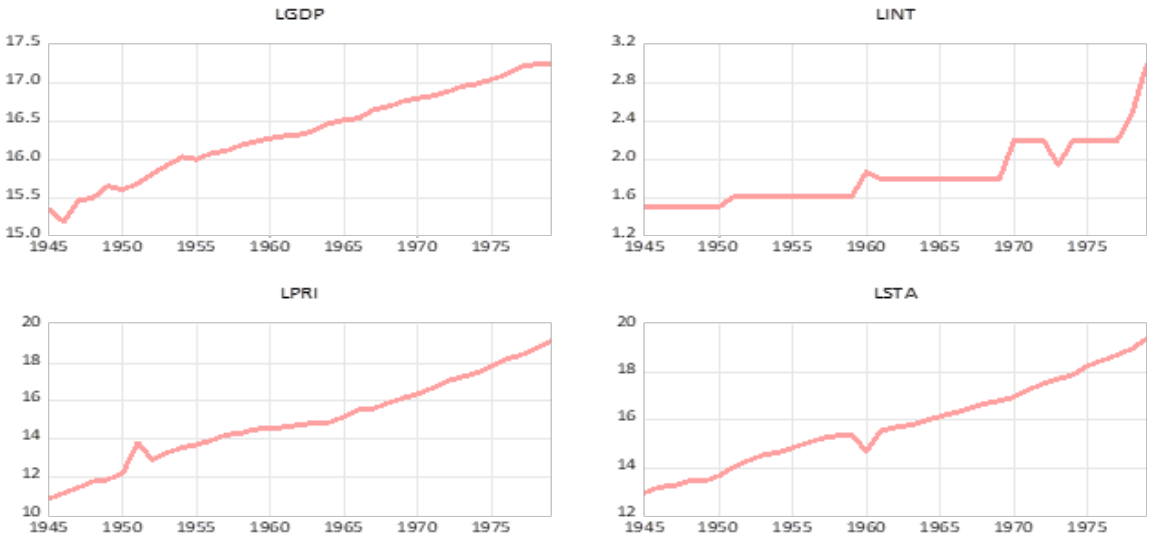
The signs of the coefficients of state banks' deposits and loans can provide insight into how state banks influence private banks, namely whether they are complementary or crowding out.

3.2. The Result

3.2.1. The Private Banks' Deposit

Figure 5 depicts the logarithm of the data series utilized in the study. This paper used annual data from 1945 to 1979.

Figure 5: Data



The descriptive statistics for all variables are shown in Table 2.

Table 2: Descriptive Statistics

	LGDP	LINT	LPRI	LSTA
Mean	16.34641	1.837548	14.95344	15.86022
Median	16.32530	1.791759	14.74963	15.70651
Maximum	17.26130	2.995732	19.14185	19.42927
Minimum	15.18418	1.504077	10.90656	12.97834
Std. Dev.	0.584090	0.335776	2.239120	1.807738
Observations	35	35	35	35

Table 3 indicates the results of the unit roots of the time−series data on LGDP (the logarithm of gross domestic product), LINT (the logarithm of interest rate), LPRI (the logarithm of private banks' deposits), and LSTA (the logarithm of state banks' deposits) based on ADF and PP unit root tests. The LGDP, LINT, LPRI and LSTA are nonstationary at level but stationary at first difference according to ADF and PP unit root tests. The ARDL can be applied even if the variables under study are not integrated in the same order.

Table 3: Results of Unit Root Tests

	ADF				PP			
	LEVEL		FIRST DIFFERENCE		LEVEL		FIRST DIFFERENCE	
Variable	Constant& Trend	Constant	Constant& Trend	Constant	Constant& Trend	constant	Constant& trend	Constant
LGDP	−3.438	−0.697	−6.154	−5.735	−3.3168	−1.197	−11.944	−10.984
	(0.063)	(0.834)	(0.0001)	(0.000)	(0.081)	(0.665)	(0.000)	(0.000)
LINT	2.187	3.845	−4.725	−4.330	0.327	5.996	−4.2963	−4.004
	(1.000)	(1.000)	(0.003)	(0.002)	(0.998)	(1.000)	(0.009)	(0.004)
LPRI	−2.881	−0.291	−8.677	−8.815	−2.858	−0.133	−9.369	−9.526
	(0.181)	(0.916)	(0.000)	(0.000)	(0.188)	(0.938)	(0.000)	(0.000)
LSTA	−1.959	1.162	−7.706	−7.513	−1.749	1.745	−8.279	−7.749
	(0.602)	(0.997)	(0.000)	(0.000)	(0.707)	(0.9995)	(0.000)	(0.000)

Notes: ADF= Augmented Dickey−Fuller−Fisher PP=Philips−Perron−Fisher. Statistical value in parentheses () is p−value.

Table 4: Bound Test Results

BOUND TEST RESULTS							
F−statistic	K	Critical values F−statistic					
6.029627	3	Significant level (10%)		Significant level (5%)		Significant level (1%)	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
		2.958	4.1	3.615	4.913	5.198	6.845
t−statistic	K	Critical values t−statistic					
−4.833832	3	Significant level (10%)		Significant level (5%)		Significant level (1%)	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
		−2.57	3.46	−2.86	−3.78	−3.43	−4.37

Notes: k represents the number of independent variables. N=35

I compare the bounds testing results of the F−statistic model with the Pesaran critical values of 1.0%, 5.0%, and 10.0%. The bound test results show that F−statistic (6.03) is well beyond the critical values of upper bounds (4.11, and 4.913) at 10% and 5% significance levels, respectively, which strictly implies the presence of a long−run relationship among the variables. Moreover, the null hypothesis, namely no level relationship, is rejected at all levels of significance in the t−bounds testing.

Table 5 summarizes the long-run and short run estimation results. The models fulfill the assumptions of normality, autoregressive conditional heteroscedasticity (ARCH), the stability of parameters, and serial correlation of models. Given that the estimated ARDL model is valid and reliable, we can further discuss the long run relationship between private banks deposit and explanatory variables.

Table 5: ARDL (1,2,0,1) Long Run and Short Run Estimation Results

LONG-RUN/LEVEL COEFFICIENTS			SHORT-RUN COEFFICIENTS		
Variable	Coefficient	t-statistic	Variable	coefficient	t-value
LGDP	-0.1	-0.1	D(LGDP)	-1.175	-1.095
		(0.93)			(1.072)
LINT	0.264	0.703	D (LGDP (-1))	-2.963**	-2.76
		(0.376)			(1.07)
LSTA	1.157***	3.580	D(LSTA)	0.647***	3.019
		(0.32)			(0.214)
R-squared	Adjusted R-squared	F-STATISTICS	INTERCEPT	-1.870***	-3.871
					(0.48)
0.63	0.56	8.57	EC (-1)	-0.94***	-5.24
					(0.179)

DIAGNOSTIC TEST				
LM TEST	ARCH	JARQUE-BERA	CUSUM	CUSUM-SQUARE
0.368	0.758	0.612	YES	YES

Notes: The values in parentheses are standard deviation. The *, **, and *** indicate 10%,5% and1% significance level, respectively.

According to estimation results, the long-run coefficients of GDP and interest rate are statistically insignificant. During this period, the nominal interest rate for deposits remained the same in order to provide cheaper credit to investors, and the real interest rate was commonly negative due to a higher inflation rate. For this reason, banks increased their branches number to collect more deposits. Increasing the deposits was unrelated to the interest rate, therefore, we expected this result that there is no long-run linkage between deposits and interest rate.

On the other hand, the coefficient of GDP, as contrary to our expected, represent that not having relation with the deposit of private banks in the long run. Bank campaigns such as coupons and lottery, as well as the

tendency to keep money safely, were more beneficial in increasing deposits than economic growth. Furthermore, the lack of various financial instruments in which money can be invested swayed the increase in deposits.

The deposit coefficient of state banks is statistically significant at 1% and has a positive long–run relationship. A one–percentage–point increase in state bank deposits corresponds to a 1.16–percentage–point rising in private bank deposits. It can be considered as a complementary link between two variables. To put it another way, the increased activities of public banks contributed to the advancement of private banks.

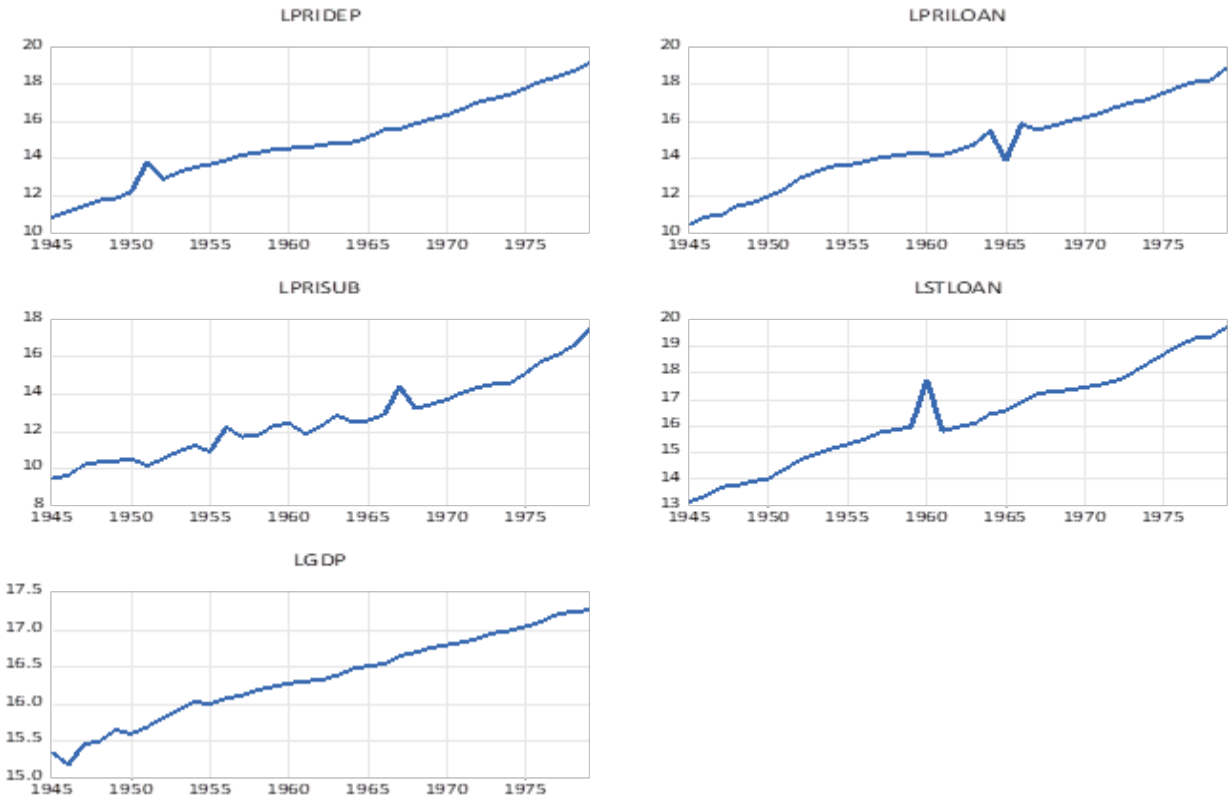
The sign and the magnitude of the lagged error correction coefficient [EC (–1)] should be regarded to comprehend the short–term adaptation process. The error correction coefficient is negative (– 0.94), as required, and is significant at a 1% confidence level, thus confirming the existence of a robust correction mechanism whenever deviations from the long run equilibrium occurs. It demonstrates that any deviation from the long–run equilibrium among variables is corrected by approximately 94 percent until the next period. The higher values demonstrate that only 6% percent of is the disequilibrium transmitted from one year to the next.

There is no relationship between interest and deposit in the short–run as mentioned above. On the other hand, the results implied that an adverse effect of the first lag of GDP on the deposits. Deposit, as an indicator of savings, should rise in tandem with income. As a result of increased consumption in a small, closed economy based on domestic demand, that is, as a result of internal factors, rising GDP has a negative effect on deposits. Moreover, positive relationships with state banks' deposits continue in the short run. This effect is smaller than the long–run effect.

3.3.2. The Private Banks' Loans

Figure 6 depicts the data used in the study. This paper used yearly time series data collected from the CBRT's monthly and quarterly statistical bulletins, bank publications, and Turkish Banking Association term–end balances between 1945 and 1979.

Figure 6: Data



The descriptive statistics for all variables are shown in Table 6 and the results of unit root test illustrate in the table 7.

Table 6: Descriptive Statistics

	LPRIDEP	LPRILOAN	LPRISUB	LSTLOAN	LGDP
Mean	14.95344	14.71956	12.68784	16.36143	16.34641
Median	14.74963	14.31364	12.44292	16.09553	16.32530
Maximum	19.14185	18.92519	17.54481	19.72331	17.26130
Minimum	10.90656	10.52232	9.505767	13.17587	15.18418
Std. Dev.	2.239120	2.271959	2.077888	1.838751	0.584090
Observations	35	35	35	35	35

Table 7 represents the results of the unit roots of the time−series data on LGDP (the logarithm of gross domestic product), LPRIDEP (the logarithm of private banks' deposits), LPRILOAN (the logarithm of private banks' loans), LPRISUB (the logarithm of private banks' subsidiaries) and LSTALOAN (the logarithm of state banks' loans) based on ADF and PP unit root tests. All variables are nonstationary at level but stationary at first difference according to ADF and PP unit root tests. The main benefit of the ARDL model is that it can be employed even if the variables under study are not integrated in the same order.

Table 7: The Unit Root Test Results

	ADF				**PP**			
	LEVEL		**FIRST DIFFERENCE**		**LEVEL**		**FIRST DIFFERENCE**	
Variable	Constant& Trend	Constant	Constant& trend	Constant	Constant& Trend	constant	Constant& trend	Constant
LPRILOAN	−2.159	−0.503	−6.487	−6.594	−4.52194	−0.3197	−13.77	−14.01
	(0.496)	(0.878)	(0.000)	(0.000)	(0.005)	(0.912)	(0.000)	(0.000)
LPRISUB	−2.450	1.899	−6.408	−7.814	−2.261	2.355	−9.589	−8.502
	(0.349)	(0.999)	(0.000)	(0.000)	(0.443)	(0.999)	(0.000)	(0.000)
LSTALOAN	−4.224	−0.306	−8.985	−9.129	−4.246	−0.146	−12.591	−12.826
	(0.011)	(0.914)	(0.000)	(0.000)	(0.010)	(0.936)	(0.000)	(0.000)
LPRIDEP	−2.880	−0.290	−8.677	−8.815	−2.858	−0.133	−9.369	−9.526
	(0.181)	(0.916)	(0.0000)	(0.000)	(0.188)	(0.938)	(0.000)	(0.000)
LGDP	−3.438	−0.697	−6.154	−5.735	−3.317	−1.197	−11.944	−10.984
	(0.063)	**(0.834)**	**(0.0001)**	**(0.000)**	**(0.081)**	**(0.665)**	**(0.000)**	**(0.000)**

Notes: ADF= Augmented Dickey−Fuller−Fisher PP=Philips−Perron−Fisher. Statistical value in parentheses () is p−value.

Table 8: Bound Test Results

F−statistic	K	Critical values F−statistic					
7.588	4	Significant level (10%)		Significant level (5%)		Significant level (1%)	
		I(0)	I(1)	I(0)	I(1)	I(0)	(1)
		2.696	3.898	3.276	4.63	4.59	6.368
t−statistic	K	Critical values t−statistic					
−3.682	4	Significant level (10%)		Significant level (5%)		Significant level (1%)	
		I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
		−2.57	3.66	−2.86	−3.99	−3.43	−4.6

Notes: k represents the number of independent variables. N=35

The bound testing results of the F−statistic model are compared to the Pesaran critical values of 1.0%, 5.0%, and 10.0%. The bound test results show that F−statistic (7.588) is well beyond the critical values of upper bounds (3.898, 4.63, and 6.368) at 10%, 5%, and 1% significance levels, respectively, which strictly implies the presence of a long−run relationship among the variables. Moreover, the null hypothesis, namely the no level relationship, is rejected at a 10% significance level in the t−bounds testing.

Table 9 summarizes the results of the long−run and short−run estimations. The outcomes of the diagnostic tests obviously demonstrate that the residuals of the equation are not affected by serial correlation or heteroscedasticity, and the Jarque−Bera test indicates that they have a tendency toward a normal distribution. The CUSUM and CUSUMSQ plots are within the 5% critical bounds, denoting that the estimated coefficients are stable.

Table 9: ARDL (4,3,1,2,4) Long Run and Short Run Estimation Results

LONG-RUN/LEVEL COEFFICIENTS			SHORT-RUN COEFFICIENTS		
Variable	Coefficient	t-statistic	Variable	coefficient	**t-value**
LPRISUB	-0.074	-0.306	D(LPRILOAN(-1))	-0.944***	-6.625
		(0.241)			(0.142)
LSTALOAN	-0.936**	-2.367	D(LPRILOAN(-2))	-0.906***	-4.381
		(0.395)			(0.207)
LPRIDEP	1.903***	4.677	D(LPRILOAN(-3))	-0.218	-1.388
		(0.407)			(0.157)
LGDP	0.136	1.225	D(LPRISUB)	-0.387***	-3.308
		(0.111)			(0.117)
			D(LPRISUB(-1))	0.358***	3.626
					(0.098)
INTERCEPT	-14.114***	-7.126	D(LPRISUB(-2))	0.248**	2.469
		(1.981)			(0.100)
EC(-1)	-0.856***	5.994	D(LSTLOAN)	-0.197**	-2.310
		(0.121)			(0.0854)
			D(LPRIDEP)	-0.039	-0.242
					(0.162)
R-SQUARED	ADJ. R-SQUARED		D(LPRIDEP(-1))	-1.114***	-4.915
					(0.227)
0.93	0.87		D(LGDP)	8.066***	6.874
					(1.173)
DIAGNOSTIC TEST			D(LGDP(-1))	0.770	0.577
					(1.334)
LM TEST	ARCH	Jarque-Berra	D(LGDP(-2))	5.157***	4.818
					(1.071)
0.1294	0.923	1.405	D(LGDP(-3))	6.558***	5.994
					(1.094)
CUSUM	CUSUM-Square				
YES	YES				

Notes: The values in parentheses are standard deviation. The *, **, and *** indicate 10%,5% and 1% significance level, respectively.

The long−run coefficients of GDP and private bank subsidiaries are statistically insignificant, according to estimation results. Since the share of private bank subsidiaries is lower than that of public banks, the insignificant result with private subsidiaries is consistent with our expectations in light of the roles of public banks in the hybrid/planned economy model discussed in the previous section.

Given factors such as governments' desire to maintain growth policies regardless of the consequences, the goal of achieving planned targets during the mixed economy model period, and the effects of elections, it's not surprising that there is no significant relationship between growth and credit.

The coefficient of private banks' deposit is statistically significant at a 1% level and has a positive relation in the long run. A one−percent increase in state banks deposits is associated with a 1.9 percent change in private banks' deposits. Bank loans are rising in response to rising in deposits. The negative coefficient of state banks' loans supports that the view of higher contributions of state banks to the industrialization process of Turkey during the whole period. State banks bankrolled large investments such as infrastructure, energy production, transportation, and dam construction.

It is possible to imagine a complementary link between two variables.

The sign and the magnitude of the error correction coefficient [ECM (−1)] should be regarded to comprehend the short−term adaptation process. The error correction coefficient is negative (− 0.86), as required, and is significant at a 1% confidence level. It demonstrates that any deviation from the long−run equilibrium among variables is corrected by approximately 86 percent until the next period.

In the short run, the negative coefficients of the first and second lagged private bank loans addressed the fact that private banks are adversely affected by credit increases from the previous period. The first and foremost factor is the resource constraint that framed the banking sectors. Coşar (2010) describes banking in the 1960s sector as mainly deposit banking and short−term loans. The second factor is the alteration in the structure of short−term loans. Private banks' loans were predominantly provided to the services sector in the 1950s, due to the high profit margins. Banking activities were carried out under industrialization policies based on selective credit policies during the planned development period of 1960−1980 (Kepenek,(2012), p.239).

Although the effect of the current value is diminishing in the short run, remarkably, the lagged values are effective in loan increases due to the increasing financing requirements of private bank subsidiaries.

While obtaining a positive relation with deposits in the long run, the outcomes highlight the adverse impact of the first lagged of deposits in the short run. The main reason could be that private banks' structure loans specific to the requirements of the private sector rather than an increase in deposits.

Although there is no long−run meaningful relationship between variables, it does demonstrate that an increase in GDP increases loans in the short run, i.e., growth push. Even though the economy was overheating, governments maintained their growth policies. In a nutshell, the findings indicated that non−market−oriented

growth is stimulated by governments' development policies during periods of negative real interest rates by providing cheap loans; therefore, banks are an important tool for financing development policy.

Since public banks are critical to achieving both short and long–term development goals, rising public bank loans lead to a decrease in private bank loans. As a result, a favorable environment for the expansion of private banks has been created.

4. Conclusion

State–owned banks in Turkey have emerged as a result of changes in the government's fiscal structure and national requirements, namely economic development, as they appear to have done in Europe and many developing countries in the nineteenth century. It has been intended by this model to create and support the industrial bourgeoisie.

On the other hand, the public banks, which have contributed greatly to the creation of the industrial bourgeoisie, the development of industrialization, and the modernization of agriculture, have also built a powerful relation between the industrialist and politicians. To put it differently, it caused the financing of industrialization to become dependent on the relationship between the state and the industrialist. Therefore, state and public banks have played crucial roles in supporting the private sector and the evolution of private banks. Despite numerous studies focusing on the performance of the banks, private banks, public banks, investment, and development banks, it remains unclear what role state banks play in the generation and growth of private banks, such as crowding out or complementing.

This study aims to clarify the interaction between state banks and private banks during the second postwar period by incorporating a historical perspective and an empirical method. To begin, the roles of state and private banks during the post–war period, which was divided into two distinct sub–periods, were analyzed utilizing the data of deposits, loans, and subsidiaries of state and private banks.

The postwar years witnessed economic growth accelerate, and private banks grew in tandem with the private sector's increasing capital accumulation. Government programs focused on infrastructure investments due to economic expansion and increasing urbanization. Banks, particularly state–owned banks, have become a driven factor in economic development and plans as the industrialization process increased both the private and public sector's financing needs. The sustained growth has been achieved precisely through guaranteed Central Bank loans, foreign aid, foreign loans and especially the increasing loans of state banks. While the state–owned banks actively played a role in the economic modernization of agriculture and the construction of highways in the 1950s, they undertook the infrastructure investments as a result of the development plans in the 1960s and contributed to the development of the private sector by generating positive externalities. Furthermore, it has become widespread since the 1950s to sustain growth, supply the credit needs of the private sector, and ensure development goals by financing an increase in public expenditures through state banks. State banks carry out an essential and dominant role in the successful establishment and financing of state economic enterprises (KİTs) such as textile, electricity, dam, and mining areas, and providing the credit needs of agriculture.

In the empirical part, I assumed two different ARDL models to scrutiny the private deposits and loans and interaction with state banks deposits and loans. The first model searched that whether the level relationship among private deposits, GDP, interest rate, and state banks' deposits. In the long run, private banks' deposit has a positive relationship with state banks' deposits, namely, complementary linkage, however, not obtain significant relation with GDP and interest rate. In the short run, the positive linkage with state banks' deposits remains. Moreover, the first lagged value of GDP has an adverse impact on deposits.

The second model assumed that the dependent variable, private bank loans, is a function of the current and lagged value of private bank subsidiaries, GDP, state bank loans, and private bank deposits, as well as their lagged value. Long−run determinants of private bank loans are state bank loans and private bank deposits. The literature tends to support the positive effect of private bank deposits. The adverse influence of state banks' loans demonstrated that state banks contribute to funding large investments. This policy fostered an environment conducive to the advancement of private banks. In the short run, findings indicate the adverse effect of state banks' loans, the current value of private banks' subsidiaries, and the lagged value of private banks' loans, on the other hand, the positive relationships with private banks loans, the lagged value of private banks' subsidiaries, private banks deposits, current and lagged value of GDP.

There are some potential limitations to this study. Some state banks were unable to remain in business after being privatized. As a result, the data we used in this study are constrained because of not accessing the archives of these banks. Despite these limitations, the historical perspective and the empirical method in this study provide evidences that, rather than crowding out the private sector, they contributed to the development of the private sector through resource transfer. In addition to the development of the private sector, state−owned banks played a pivotal role in the financing of investments, in the formation of national banking, and in the implementation of development policies.

References

Akgüç, Ö. (1987). 100 Soruda Türkiye'de Bankacılık, İstanbul.

Coşar, N. (2010). Türkiye'de Bankacılığın Tarihsel Gelişimi, Tarihi, Siyasi, Sosyal Gelişmelerin Işığında Türkiye Ekonomisi, 1908–2008, Ekin, Editör:Nevin Coşar ve Melike Bildirici, 2010.

Coşar, N. (2013), Lottery and Savings, European Association of the Banking History Bulletin, 6(1), 27–33.

Coşar, N., & Yalçınkaya, Y. (2015). Management of Public Credit: Amortization and Credit Fund. 1st Annual International Conference on Social Sciences (AICSS), 1(1).

Buyst, E., & Franaszek,P. (2010), Sectoral developments, 1914-1945 in The Cambridge Economic History of Modern Europe Volume 2, 1870 to the Present edited by Stephen Broadberry and Kevin H.O'Rourke, Cambridge.

State Industrial and Workers Investment Bank (DESİYAB) (1976), Activity Reports.

State Industrial and Workers Investment Bank (DESİYAB) (1978), Activity Reports.

State Industrial and Workers Investment Bank (DESİYAB) (1979), Activity Reports.

State Industrial and Workers Investment Bank (DESİYAB) (1980), Activity Reports.

Erdoğan, A. & Kapcı, Z. (2018). İkinci dünya savaşı sırasında Sümerbank, Erciyes Üniversitesi Sosyal Bilimler Enstitüsü Dergisi XLV, 2018/2, 83–108.

Feinstein, C., Temin, P. & Toniolo, G. (2008), The World Economy Between The World Wars, Oxford.

Floranta, J. & Harrison, M. (2010), War and disintegration, 1914-1950 in The Cambridge Economic History of Modern Europe Volume 2, 1870 to the Present edited by Stephen Broadberry and Kevin H.O'Rourke, Cambridge.

Gaevy, G. (1977), the origin and evolution of the Soviet banking system: a historical perspective, NBER.

Gerschenkron, A. (1962), Economic Backwardness in Historical perspective. http://isites.harvard.edu/fs/docs/.../ Gerschenkron.pdf [21.04.2016].

Görmez, Y. (2008), "Banking in Turkey: History and Evolution, Bank of Greece, Eurosystem," Working Paper, no. 83.

Grossman, R. (2010), The Emergence of Central Banks and Banking Supervision Comparative Perspective∗ in State Financial Systems in Europe and the USA Historical Perspectives on Regulation and Supervision in the Nineteenth and Twentieth Centuries, Stefano Battilossi and Jaime Reis, Ashgate.

İş Bankası. **İş Bankası 50. Yıl**, 1974.

Kepenek, Y. (2012). Türkiye Ekonomisi. 28.bs. İstanbul: Remzi Kitabevi.

Keyder, Ç. (2014). Türkiye'de Devlet ve Sınıflar. 4.bs. İletişim Yayınları.

Koraltürk, M.& Arolat,O. (1996) ,Türkiye ekonomisinde bir öncü: Sümerbank.Sümerbank yayınları

Kuruç, B. (2012), Mustafa Kemal döneminde Ekonomi, Bilgi, Istanbul.

Pamuk, Ş. (1999). Osmanlı İmparatorluğu'nda Paranın Tarihi, Tarih Vakfı, Istanbul.

Parasız, İ. (2011).Türkiye'de ve Dünya'da Bankacılık, Bursa.

Quennouëlle–Corre, L.& Straus, A. (2010), The State in the French Financial System during the Twentieth Century: A Specific Case in Stefano Battilossi and Jaime Reis State and Financial Systems in Europe and the USA Historical Perspectives on Regulation and Supervision in the Nineteenth and Twentieth Centuries, Ashgate.

Singer, M. (1984), "The Economic Performance of the Turkish Republic." Middle Eastern Studies 20. Sümerbank. Ankara: Z. Basımevi, 1946.

Toprak, Z. (2012) .Turkiye'de Milli Iktisat, Istanbul

Tezel, Y. (1986), Cumhuriyet Döneminin İktisadi Tarihi (1923–1950), Yurt, Ankara.

Tarih Vakfı, Turkiye Isbankası Tarihi, İstanbul, (2000).

The Banks Association of Turkey (1961–1980). End of Period Balance Sheet Profit and Loss Accounts of Our Banks.

The Central Bank of the Republic of Turkey (1946–1980). Statistical Bulletin, Ankara.

Dr. Ilaria Pasotti

The role of the Istituto Mobiliare Italiano at the service of the Italian government's economic policy. Research suggestions from the Intesa Sanpaolo Group Historical Archives*

Contents

Abstract	1
1. Introduction	2
2. The institutional model: a credit institution conceived at the centre of the industrial credit system	3
3. The activity (1931–1960s): from the periphery to the centre of the industrial credit system.	7
4. A case study. The IMI loans to the Pignone (then Nuovo Pignone)	15
Conclusion	22
Archives	23
Bibliographical references	23

** This work was financially supported by the Intesa Sanpaolo Group Historical Archives. The author would like to thank especially Barbara Costa (Head of the Archives) and Matilde Capasso (curator of the IMI Heritage) for their assistance in the archival research; as well as the participants of the conference organized by the Institute for Banking and Financial History and the Leibniz Institute for Financial Research for their comments. The usual restrictions apply.*

Ilaria Pasotti is a researcher. Currently she is a consultant for the Intesa Sanpaolo Group Historical Archive and the Fondazione Istituto Einaudi. She has a Ph.D. in History of Economic Thought from the University of Florence. From 2009 to 2014 she was a researcher at the Catholic University of Milan. She has been a visiting researcher at the National Bank of Belgium, the Université Catholique de Louvain and Cambridge University. Her research interest are in the history of economic thought and the international monetary system; among her recent publications, the collaboration with Ivo Maes, Robert Triffin. A Life, Oxford University Press, New York, 2021).

E–Mail: pasotti.ilaria@gmail.com

Abstract

The paper deals with the role played by the Istituto Mobiliare Italiano, a public credit institution created in 1931 to finance industrial investment, as an instrument for the State intervention in the Italian economy, especially in the 25 years after the World War II. In particular, the IMI was broadly involved in the provision of subsidized credit which constituted the main instrument of economic policy to support industry from the end of the 1950s and throughout the 1960s. Various scholars have emphasised that this involvement caused selective inefficiencies in the approach and the operating procedures in the whole range of the Institute's activity, thus explaining also the difficulties the Institute experienced at the end of the 1970s. Without disputing the validity of these arguments, we argue that in fulfilling its function as a public credit institution, the IMI tried to combine the support of industry within the framework of the policy pursued by the Government, with the application of rigorous criteria in assessing the creditworthiness of industrial initiatives to be financed, as well as it pointed out to the Government authorities the negative spillovers of the subsidized credit. This effort emerges clearly in the examination of the loans granted to Pignone (then Nuovo Pignone), a Florence–based company in the mechanical sector.

1. Introduction

The paper deals with the role played by the Istituto Mobiliare Italiano as an instrument for the State intervention in the Italian economy, especially in the 25 years after the World War II.

Created in 1931 as a public credit institution to finance industrial investments, the IMI was conceived by the government authorities at the center of the reformed credit system that was designed after the 1929 Great Crisis. However, until the post–WWII the Institute did not fulfill entirely the functions that were assigned to it. It was in fact in the years of the post–WWII reconstruction, with the management of the funds allocated by the Italian government and those lent by the United States (as part of the loans granted by the Export Import Bank and the European Recovery Program), that the Institute performed a prominent role in the industrial credit system. In these years the foundations were also laid for its function as the Government's "privileged interlocutor in the provision of subsidized credit" (Zamagni V., 2008: 780), which constituted the main instrument of economic policy to support industry from the end of the 1950s and throughout the 1960s.

The broad involvement of the IMI in subsidized credit has been critically examined by various scholars (De Cecco M., Ferri G., 1996: 120–42; Piluso G., 1999: 520–21; Zamagni V., 2008: 780–783). It was considered by some of them as the main cause to explain both the failures incurred by the Institute in the management of some funds entrusted exclusively to it by the State (for instance the Fund for the mechanical industry in 1947) and, above all, the difficulties it experienced at the end of the 1970s, following the crisis of the chemical and petrochemical industries that were strongly financed by the Institute since the mid–1960s.

In particular, some scholars have pointed out the rigidity and selective inefficiencies in the lending procedures of the IMI when managing subsidized credit (Piluso G., 1999). They argued that the access to State financial resources or guarantees was a source of deresponsibility in the choices of credit allocation and a disincentive to develop dialectical relationships with the borrowing companies that are the basis of the financial supervision capacity by a credit institution. Furthermore, on the side of the companies, the access to credit on favourable credit terms led to moral hazard practice; they often expanded their indebtdness through the legal fragmentation of the company into multiple autonomous companies coinciding with single plants, as they believe to obtain bailouts in case of industrial failure, according to the principle of the 'too big to fail'.

Other scholars have also emphasised that the involvement in subsidized credit had influenced the approach and the operating procedures in the whole range of the Institute's activity (De Cecco M., Ferri G., 1996: 134–136). Until the 1970s, the IMI preferred criteria such as the capitalization of the borrowing company, except in cases in which a State guarantee was provided, and it followed the model of land credit, with mortgages as the guarantees required. Moreover, as concerns the evaluation of the loan application, the IMI was criticized for having reserved a privileged consideration to large and/or State–owned industrial companies.

Without disputing the validity of these arguments, it must be recognized that the Institute, in fulfilling its function as a public credit institution, tried to combine the support of industry within the framework of the policy pursued by the Government, with the application of rigorous criteria in assessing the creditworthiness of industrial

initiatives to be financed, as well as it pointed out to the Government authorities the negative spillovers of the subsidized credit.

The paper is organized as follows. Section 2 illustrates the IMI's institutional model, with the main innovations that were adopted in the decades that are here examined. Section 3 traces the evolution of the Institute's activity, focusing on the years between the end of the WWII and the 1960s. Section 4 illustrates a case study that demonstrates how the IMI interpreted the role of "privileged interlocutor" of the State to support industry with the rigorous assessment of creditworthiness by considering the loans granted to Pignone (then Nuovo Pignone), a Florence–based company in the mechanical sector; the section is based on original archive research, as yet unpublished the IMI records, now preserved in the Historical Archives of the Intesa Sanpaolo Group. Finally, some conclusive remarks are proposed.

2. The institutional model: a credit institution conceived at the centre of the industrial credit system

The IMI had its origins in the intervention of the State to tackle the 1929 crisis which had affected the largest industrial groups as well as the major Italian universal banks, that were lenders to and at the same time controlled those groups (Galea P., 2008).[1] It was the first step towards an overall reform of the banking system which was completed in 1936 and was essentially based on the separation between the bank and the industry, on the one hand, and on the functional and operational specialization of intermediaries, on the other (Piluso G., 1999: 513).[2]

In particular, the IMI was assigned the task to "facilitate bank disinvestment in every possible way, while trying to ensure more adequate forms of financing for the functioning and development of industries of recognized vitality".[3]

The Institute was shaped according to a project by Alberto Beneduce (Cesarini F., 1985). Economist and politician with important roles in the financial field, he had already designed the first public institutes for industrial credit.[4] In 1914 he collaborated with Bonaldo Stringher (managing director of the Bank of Italy) in the creation of the Consorzio per Sovvenzioni sui Valori Industriali (CSVI) whose purpose was to support the industry during the war (De Simone E., 2008: 505). In the first postwar years, he developed two credit institutions, then known as Beneduce Institutes, whose aims were to raise resources – acting as a 'buffer' between savings and investments

1 Royal decree no. 1398, November 13, 1931 (converted into law no. 1581, December 15, 1932).

2 In fact, the reform of the financial system began in the 1920s, when the monetary authorities intervened with the aim to mitigate or at least contain the pro–cyclical nature of the 'universal banks' and to improve the underdeveloped interbanking markets. New instruments were introduced with the 1926 law on the protection of savings (which included, among other things, restrictions on liquidity and risk concentration of the banks) and the first industrial credit institutions were created, without however affecting the operational structure of the 'universal bank' (Piluso G., 1999: 509–511). The increasing governmental influence on the credit systems (in terms of both legislation and creation of specialized banks) was a dominant structural feature in the evolution of the banking systems in most European countries and the United States after the WWI (Born K.E., 1983: 231–232).

3 Law no. 1581, December 15, 1932, quoted in Galea P., 2009: 555–556 (authors' translation of the original Italian text).

4 For a biographical account on Beneduce see Bonelli F., 1984, while for his contribution to the creation of the industrial credit institutions, AA.VV., 1985.

(Piluso G., 1999: 510) – by issuing bonds guaranteed by the State in order to finance investments for enhancing plants to produce electricity and modernizing transport and communication infrastructures. They were the Consorzio di Credito per le Opere Pubbliche (CREDIOP) for the construction of large infrastructures (1919) and the Istituto di credito per le imprese di pubblica utilità (ICIPU) for public utilities (1924).[5] They were followed by the creation of the Istituto di credito navale (ICN) for the financing of shipbuilding (1928).

IMI had three aspects in common with the so-called Beneduce Institutes:

- First, being an institution of public law, the weight of Government (or Government-controlled) entities was predominant in both the ownership structure and the composition of the management bodies. As regards the ownership structure, at its inception it was established by 43 shareholders (Lombardo G., 1998). They were entities that were not affected by the 1929 crisis or had actually been strengthened from it (Cesarini, 1982). The largest share was held by a State-controlled bank, the Cassa Depositi e Prestiti:[6] while its share was around 45% in the first fifteen years, it grew to about 50% after World War II. The remaining quota was distributed among: 1. a group of social security and insurance institutions, with the largest share held by public law institutions such as the Cassa nazionale delle assicurazioni sociali (then Istituto nazionale di previdenza sociale) and the Istituto nazionale delle assicurazioni, whose percentages remained almost unchanged over time (respectively, around 10% and 9,3%); 2. a number of public-law banks (Banco di Napoli, Banco di Sicilia, Istituto Bancario San Paolo and Monte dei Paschi di Siena), with a total quota of 10,3%; 3. a large group of savings banks and pawnshops, each holding a percentage share of less than 1, for a total of 4,6%; 4. two private institutions, Assicurazioni Generali (6,2%) and Bastogi, a financial institution whose chairman was Beneduce (less than 1%). In the post-war years, the ownership structure did not undergo substantial changes. The shareholders increased to 44 in 1945 and then stood at 45 from 1949 until the end of the 1970s. In the distribution of the shares, the most significant changes occurred in the percentage held by the group of savings banks and pawnshops, which increased to 8,9% in 1945 and then stood at 11,2% in the following years (Lombardo G., Zamagni V., 2009: 120). As concerns its management bodies, the chairman was appointed, on ministerial proposal, by a decree of the Head of the Government. The members of the Board of Directors were partly designated by the General Assembly – in which the representatives of the State entities prevailed – and by the Government. The auditors were chosen by the Government.
- Second, the kind of instruments to fund its provision. In addition to drawing on its capital, the IMI was entitled to issue bonds, while it was precluded to collect savings and current account deposits. Issuing bonds carried special fiscal and legal privileges (Lombardo G., 1998).
- Third, the slenderness of the organizational structure. The IMI was shaped according to criteria of efficiency and administrative flexibility, and contained in the size of the people employed (less than 20 at

5 De Simone E., 2008: 512-515 (on CREDIOP and ICIPU) and 523-524 (on ICN). On CREDIOP, see especially, Asso P.F., De Cecco M., 1994.

6 Established in 1850 for collecting deposits from savers and put under the control of the Treasury in 1898, it had, among its main functions, the granting of long-term loans for public investments and local finance (De Cecco M., Toniolo G., 2000).

the start of the activity) (Lombardo G., 1998).

However, the IMI differed from the so-called Beneduce Institutes for the broader range of functions it had. In addition to granting loans to Italian enterprises – with a maximum duration of 10 years, secured by mortgages or other collateral guarantees – it could underwrite equity in the same enterprises or in financial companies for the placement and management of its own or third entities' securities. Therefore the IMI was designed as an investment bank, based on the model of Anglo-Saxon experiences (Lombardo G., Zamagni V., 2009: 7-10).

The functions of the IMI, compared to the other industrial credit institutions, were strengthened in 1936. With the promulgation of the new banking law (Royal decree no. 375, March 12, 1936), it was also issued a decree that aimed at "extending the ability and the organization of the Istituto Mobiliare Italiano and [at] establishing it as the highest body for the industrial credit" (Royal decree no. 376, March 12 1936, converted into law no. 169, January 18, 1938).

In particular, new regulations concerning the activities of the IMI were set:

- Firstly, the maximum duration of the loans was extended to 20 years.
- Secondly, the CSVI became an autonomous Section of the Institute. As Cesarini (1982) remarked, the measure aimed to rationalise the decision-making processes of the two institutions which, albeit with different techniques and instruments, would have been able to collaborate in funding their provision and in granting their loans.
- Thirdly, the IMI could establish offices and branches and/or underwrite equity in entities already established or to be established in regional or provincial capital cities.

Finally, the governor of the Bank of Italy was designated as chairman of the Institute and confirmed chairman of the CSVI. Thanks to the new banking law, the governor took up also the head of the Ispettorato per la Difesa del Risparmio e l'Esercizio del Credito.[7] As argued by some scholars (Cesarini, 1982: 108; Farese, 2009: 122-123), the personal union of the chiarmanships should be considered, on the one hand, as an expedient to preserve the autonomy of the chairmanship of the Institute from the political power of the fascist regime; and, on the other, as a means to achieve a unified governance in the management of the financial resources.[8] It actually entailed an overlapping in the organizational structure of the IMI and the Bank of Italy (Lombardo G., Zamagni V., 2009). The figure of the vice-chairman was abolished and replaced with an alternate chairman appointed by the governor-chairman, who did not exercised any power in the presence of the chairman and, on the contrary, could assumed all powers in the event of his absence. Furthermore, it was established that the IMI cash service was entrusted to the Bank of Italy and the Institute could use the departments of the central bank for "doing its business".

The autonomy from the top management of the Bank of Italy was restored shortly before the end of the WWII, in January 1945, also coinciding with the return of the CSVI under the control of the central bank (Lieutenant

7 Created with the 1936 banking law, its mission was: to supervise the performance of the credit institutions, to exercise extensive regulatory powers over them, and to carry out technical and legal controls on them. It was suppressed in 1944 and its functions were first entrusted to the Minister of the Treasury and, then, to the Bank of Italy.

8 Since 1940, the governor of the Bank of Italy took up also the chairmanship of the CREDIOP and ICIPU.

legislative decree no. 1, January 4, 1945). However, a strong connection with the Bank of Italy was preserved in practice, with the recognition of the deputy chairman position of the IMI to the general director of the central bank. Therefore, as the deputy chairman was a member of the Board of Directors and, as such, also of the Executive Committee of the Institute, any significant decision on the activities and organization of the IMI was taken with the involvement of the top management of the Bank of Italy.

On June 2, 1946, the same day in which the referendum sanctioned the republican form of the State, the Institute's decision–making and operational autonomy was re–established (Royal decree law no. 491, June 2 1946).[9] The decree included, among other things, two relevant innovations for the governance of the Institute: the chairman's mandate without time limit; the increase in number of the members of the management bodies appointed by the Government compared to those designated by the General Assembly.

In the following two decades, the Institute's character of the governance as well as the operative potentialities "became clearer in performing its activities and took shape in practice before than in the Statutes" (Lombardo G., Zamagni V., 2009: 118). As a matter of fact a first reform of the statute was approved only in 1955, with only few changes followed in 1957, and a new statute adopted in 1962. In the latter it was acknowledged the development of "a different vision of public interest" (Lombardo G., Zamagni V., 2009 : 133) that the Institute came to pursue after the WWII, with relating changes in its operational areas and instruments. The Institute's mission was formulated as follows: "to contribute to the development and strengthening of the Italian economy by carrying out credit and financial operations in general".[10]

Consequently, all the limitations in the duration and forms of lending were overcome and, to a large extent, in those of funding its provision (with the exception of collecting savings and current account deposits); as well as all nationalistic distinctions fell as regards the currency – no longer only the Italian lira –, the territorial area – no longer restricted to Italy –, and the beneficiaries – no longer limited to Italian companies.

9 The IMI was deprived of its decision–making and operational autonomy, like other public institutions, in August 1943 and was put under the guidance of an extraordinary commissioner (Lombardo G., 2000: 43–46).

10 Historical Archives of Intesa Sanpaolo (HAI), IMI, Minutes of the Board of Directors, February 14, 1962 (vol. no. 9: 21).

3. The activity (1931–1960s): from the periphery to the centre of the industrial credit system.

Until the post–WWII, the IMI was far from achieving the goals that were assigned to it.[11] In the first four financial years (1931–1935), under the chairmanship of Teodoro Mayer,[12] the IMI's operational development was held back by various decisions of the management. From the first financial year, the underwriting of equity was excluded from the field of the IMI's activity. A choice that was kept unchanged until the 1970s.

Rescue operations of the companies that were heavily involved with the 'universal banks' in crisis were also excluded. Accordingly, the IMI did not given any significant contribution to the problem of relieving large banks and it was therefore necessary a further public intervention in 1933 with the creation of the Istituto per la Ricostruzione Industriale (IRI). The IRI took the control of the major universal banks, the Banca Commerciale Italiana and Credito Italiano (and later the Banco di Roma) in order to undertake the urgent task of their financial restructuring. The IRI, coinceived as a temporary institution, became permanent in 1937 (Castronovo V. (ed.), 2014).

The IMI management choose to finance more debt restructuring operations rather than investments for new industrial initiatives. In 1931–1935, 707 out of 927 million of lire of loans were granted to companies to convert their short–term debts to the banks into medium and long–term loans; while 11,6% of the total lending was for enhancing industrial plants and only 1,8% to fund new industrial initiatives (Lombardo G., Zamagni V., 2009: 37).

The approach in granting loans was characterized, on the one hand, by the adoption of rigorous criteria in the selection of borrowers and in defining the financial clauses and the amount of the guarantees (usually mortgages), with the consequence to restrict the number of companies that were able to meet these criteria; on the other hand, by the propensity to favor investment opportunities that had low risk and ensured profits. The aim was to both insure the savers' confidence in its issuing bonds and strengthen the capital base which was deemed not commensurate with the risks to which the companies were exposed at that time.

The first credit operations concerned loans to public utility companies in the electricity sector (Tridentina, Cisalpina, Isarco), with guarantees by the Ministry of Public Works (11 loans equal to about 47% of the total amount of financial resources granted), and export credits for the supply of capital goods to Russia, which were carried out with the guarantees of the Istituto Nazionale delle Assicurazioni (in the first financial year, 71 operations out of the 96 financed in the four financial years, corresponding to approximately 14% of the credit granted) (Cesarini F., 1982: 24–5 and 51–2).

The displacement effect suffered by two entities, the Sezione Finanziamenti Industriali (SFI) of the IRI and the CSVI, also contributed to limit the activity of the IMI in these early years.

11 The evolution of the IMI's activity from its foundation to 1945 is widely recostructed in Lombardo G., 1998.

12 At the time of his designation, Mayer was a senator with the charge of the vice–chairmanship of the Senate Finance Commission. He was also a member of the Board of Directors of the Assicurazioni Generali, that was a shareholder of the IMI. For a biographical account, Lombardo G., Zamagni V., 2009: 457–458.

The SFI played the role of the IRI's hausbank, providing loans for both the restructuring of the debts of many companies to the banks controlled by the Institute and the companies' investment operations. Compared to the IMI, the SFI had an undoubted privileged position. On the side of funding its provision, in addition to issuing bonds, the SFI had the access to financial resources at less costly conditions, as they came from the divestment of banking investments carried out by the other Section of the IRI, the Sezione Smobilizzi. On the lending side, it could grant loans with a maximum duration of 20 years (compared to the 10 years set for the IMI) and with "suitable guarantees" either personal or mortagages (compared to mortagages usually required by the IMI). In less than three years of its activity (it was dissolved in 1936), the SFI carried out 152 financial operations for a total amount of 1.125 million lire, compared to about forty operations for 369 million of lire carried out by the IMI (Cesarini F., 1982: 80) and the loans granted by the SFI in 1936 were about twice the amount of those lent by the IMI (see table 1).

In those years the CSVI was increasingly involved in the disinvestment of the portfolio of industrial shares of the IRI (Lombardo G., Zamagni V., 2009: 27 and 30). The 1936 reform of the Institute was only partially implemented.

The chairmanship of Vincenzo Azzolini[13] restricted its operational autonomy and held back its territorial decentralization. The opening of branches was declared premature and it was decided to delegate the stipulation of the loans to the peripheral offices of the Bank of Italy.[14] Moreover, when the IMI was pressed to consider also the credit demand from the small and medium−sized industries — a dynamic segment of the Italian economy which had been excluded from the Institute lending because of its stringent creditworthy criteria —, it opted for a collaboration with the major banks; however, with unatisfactory results. Even the project of setting up an autonomous section for the financing of small industry was set aside in 1940 (Cesarini, 1982). With the exception of the opening of an office in Milan in 1938, the IMI carried out its decentralization in the country only after the WWII (in 1949 it opened a office in Turin, in 1950 in Genoa, Venice and Florence and in 1960 in Padua and Bari).

In contrast, the personal union of the chaimanship of the IMI with the governorship of the central bank benefited the Institute on the side of the funding of its provision (Lombardo, Zamagni, 2009: 51−6). The IMI (as well as the CREDIOP and the ICIPU) was given a priority in the authorization of the issuing bonds and in the placement of bonds. It was an important advantage starting from 1940 when, with the war emergency, the difficulties for the credit institutions to fund their provision increased.

Even without reaching a pivotal position in the industrial credit system, between the mid−1930s and the first half of the 1940s, the share of the IMI progressively increased on the consistency of the loans granted by the industrial credit institutions, from 7% in 1936 to 32,5% in 1945 (see table 1). The loans with financial purposes gradually gave way to those supporting the demand for investments aimed to enhance and build new industrial plants in the framework of the autarchic and, then, the warmongering policy.

13 He was governor of the Bank of Italy since 1931. For a biographical profile see Lombardo G., Zamagni V., 2009: 452−453.

14 HAI, IMI, Minutes of the Executive Committee, October 30, 1936.

A significant move in the publicistic sphere occurred in 1939–1940 when the Institute was entrusted by the Government with the exclusive management of the special funds for autarchy (Farese G., 2009). The IMI was authorized to issue State guaranteed bonds to finance investments connected with the implementation of the autarchic policy or it could recover from any losses in the financing of pre–existing industrial autarchic initiatives, by drawing on a fund created by the Bank of Italy with the CSVI.

In this decade, loans to industrial groups and large–size companies (an average of 90%) of the steel, mechanical and electricity generation sectors prevailed, with the IRI absorbing the largest share of lending (38,6%), as it controlled the majority of the enterprises of these sectors that were the backbone of the fascist regime's economic policy. Furthermore, from 1940–41, with the absorption of the ICN, the first loans (generally of a large amount) were also granted to the shipping industry (Lombardo G., Zamagni V., 2009: 90–97).

Table 1: Amount of loans granted by institutes of industrial credit (at the end of the year, in millions of lire)

Year	Totale ICM	IMI	ICN	Crediop	Icipu	IRI-SFI	CSVI
1932	4.677	532 (9,8%)	366	2.394	1.384		777
1933	7.862	627 (7,1%)	536	4.947	1.345	407	917
1934	8.090	621 (6,7%)	493	5.064	1.263	649	1.139
1935	8.112	535 (5,8%)	450	4.979	1.123	1.025	1.091
1936	7.000	565 (7,0%)	407	4.960	1.068		1.421
1937	7.670	712 (8,2%)	364	5.490	1.104		1.623
1938	8.644	1.048 (10,8%)	321	6.148	1.086		1.729
1939	9.250	1.457 (14,6%)	351	6.203	1.133		2.802
1940	9.431	1.818 (22,2%)	459	5.969	1.098		4.019
1941	9.925	2.550 (27,7%)	432	5.726	1.083		7.055
1942	12.188	3.879 (32,7%)	377	6.511	1.244		22.000
1943	12.241	3.806 (29,6%)	326	6.465	1.453		44.343
1944	11.983	3.504 (30,0%)	291	6.184	1.802		44.462
1945	17.306	5.702 (32,5%)	662	7.456	3.113		45.039

* It included: until 1937, IMI, ICN, CREDIOP, ICIPU; from 1938, also, the special industrial sections of the Banco di Sicilia and of the Banca Nazionale del Lavoro; from 1939 also the Istituto per lo Sviluppo Economico dell'Italia Meridionale (ISVEIMER).

Source: Lombardo G., Zamagni V., 2009: 28.

Starting from the post–war period,[15] the IMI, under the dynamic chairmanship of Stefano Siglienti,[16] was able to hold a prominent position in the industrial credit system. For over thirty years, the Institute managed about one third of the total loans granted by the industrial credit institutions (see table 2), which

15 In October, 1943, the Italian Social Republic's Fascist government placed the IMI under the temporary administration of Angelo Tarchi, and its headquarters were moved to Meina (Novara). After the liberation of Rome in June, 1944, the legitimate Italian government appointed Paride Formentini – who had previously worked at the IMI as a manager from 1931 to 1932 and then as Vice–General Director in 1933 – as Extraordinary Commissioner (August, 1944–February, 1945).

16 Siglienti was chairman from 1946 to 1971. During these years he was also chairman of the Finmare (IRI's holding company operating in the maritime service sector) (1945–1970) and chairman of the Associazione Bancaria Italiana (1945–1971). He held also positions in public institutions such as the Instituto per il Commercio Estero and the Consiglio Nazionale dell'Economia e del Lavoro. At international level he was in the Board of Directors of the European Investment Bank (1958–1971) and the European Federation of the Banking Associations. In 1962 he joined the Commission for the economic planning headed by Ugo La Malfa. For a more detailed biographical profile see Lombardo G., Zamagni V., 2009: 462–463.

in the meantime had increased in number.[17]

Table 2: Loans granted by industrial credit institutions, Mediobanca, IMI, Crediop–Icipu and Mediocredito lombardo (billions of lire, current value, 1947–1980)

Year	a)	b)	c)	d)	e)	f) (%)	g) (%)	h) (%)
1947	98	1	13	12	-	13,3	1,0	12,4
1950	431	10	141	36	-	32,7	2,3	8,3
1955	1.064	36	258	111	6	24,2	3,3	10,4
1960	2.160	96	724	364	18	33,5	4,4	16,9
1965	5.090	305	1.516	719	105	29,8	6,0	14,1
1970	10.186	993	3.372	975	224	33,1	9,7	9,6
1975	24.563	2.408	8.054	4.589	560	32,8	9,8	18,7
1980	43.943	3.552	14.864	15.447	1.354	33,8	8,1	35,2

a) Credit to industry (and public works), b) Mediobanca, c) IMI, d) Crediop and Icipu, e) Mediocredito Lombardo, f) IMI/industrial credit, g) Mediobanca/industrial credit, h) Crediop–Icipu/industrial credit,
Source: De Cecco M., Ferri G., 1996, tab. 9.

Immediately after the war, the IMI was involved in the financial policy adopted by the Government for the reconstruction of the industry.

Between 1944 and 1946 financial resources in the form of subsidiary guarantees and contributions to the payment of interest on advances were made available to companies.[18] In addition to have the access to these resources on a par with other credit institutions, the IMI was exclusively entrusted with the management of funds to "reactivate and reconvert" industrial companies "of general interest or of particular economic and social utility" (Lieutenant legislative decree no. 449/1946). It has been emphasised (Asso P.F., Raitano G., 1999: 466–70) that in managing these resources the Institute, while recognizing the exceptional situation to which the credit had to respond (i.e. uncertainty about the profitability of the companies and the ban of firing), applied rigorous criteria in the assessment of loan applications, subordinating the lending to conditions that affected the organizational structure and management choices of the companies, especially when their outstanding debts were excessive or the social purposes of the loans prevailed.

The management of the Fondo per l'industria meccanica (FIM), also entrusted exclusively to the IMI, was more difficult. The fund had the purpose to "support the Italian mechanical companies in their financial liquidity problems, and in their orderly development and increase of production also from the standpoint of the employment and the exports". Few companies were able to fully repay their loans.[19] Most of the loans were granted to companies that were scarcely productive because of the pressures received from representatives of local administrations who feared the closure of factories and collective dismissal. In fact, while the IMI was responsible for the assessment of the loan applications and the disbursement of the credit, the responsibility for the resolution on granting the loans

17 In the first post–WWII decade, some private industrial credit insitutions were created (Mediobanca, Efibanca and Centrobanca) as well as the first and most important regional institution (Mediocredito Lombardo) (on the main developments of the Italian industrial credit system in the early postwar years, Asso P.F., Raitano G., 1999). If in 1950, there were 17 institutes, by 1960, the number had risen to 30, and by the 1970s, to 32 (de Cecco M., Ferri G., 1996: 70-71).

18 Lieutenant legislative decree (l.l.d.) no. 367/1946; l.l.d. no.397/1944; l.l.d. no. 605/1945; l.l.d. no. 686/1945.

19 See Asso P.F., Raitano G.,1999: 480–97; Lombardo G., Zamagni, 2009: 161–72. In October 1950 the Government decided to put the fund into liquidation. The liquidation process lasted almost twenty years (from 1951 to 1968) during which some companies continued to be financed while others were forced to liquidate. In 1962 with the creation of the Ente partecipazioni e finanziamento industrie manifatturiere (EFIM), the shares held by the Fondo in some companies were trasferred to this new entity.

was entrusted to a Committee which, due to its composition, had a political value. Furthermore, the IMI proposed to increase the endowment of the FIM and to provide funds for reskilling program, but with no success.

The change of pace in the activity of the IMI came when it was entrusted with the management of the American loans granted to the Italian Government.[20]

In 1947 it administered the 100-million-dollar loan granted by the Export-Import Bank for the import of raw materials and machinery from the United States by companies belonging to the steel-mechanical, electromechanical, chemical and rubber sectors (IMI, 1951; Segreto L., 2000). Faced with an initial resistance from the US authorities to entrust the management to a public institute, the choice of the Institute was supported by Donato Menichella, the governor of the Bank of Italy, and the managers of the major public and private industrial companies. Negotiations with the Eximbank were concluded in Washington by an IMI delegation and brought the Institute to open its first overseas representative office. The management of the loan marked the beginning of a long-term relationship between the two banks, based on schemes of export and import financing for capital goods (Lombardo G., 2000: 139-145).

In 1948 the IMI was entrusted with the administration of the European Recovery Program, or the Marshall Plan, dealing with heavy machinery and plants in industry and public utility services. As it was called upon to work with the American financial entities for the management of the funds, the Institute improved also its appraisal techniques. Dealing with the more innovative techniques adopted in the US led the Institute to consider, in addition to the usual technical-financial aspects, also the technological factors, the industrial costs and the market perspectives of the investment project proposed by a company.

Despite the prevalent quota of the funds managed on behalf of the State in the overall Institute's activity in the years of reconstruction, starting from 1952-1953 there was a gradual but regular increase in "ordinary" lending (i.e. loans granted by drawing on resurces raised on the financial markets by issuing its own bonds).[21] "Ordinary" loans performed a compensatory function for the sectors that did not benefit from the American funds such as the public services, the telecommunications and land and sea infrastructures, and were complementary to the State's financial support for specific sectors (for example shipbuilding and shipowning, the production and distribution of electricity) (IMI, 1957: 37). This strategy was supported by the Government and the Bank of Italy, who were both interested in containing public spending (Lombardo G., Zamagni V., 2009: 144).

Furthermore, the lending with State funds and the "ordinary" lending were called, in the intentions of the IMI, to satisfy different purposes: the first, the financing of investments for the reconstruction, renewal and transformation of existing industrial plants, the second, the financing of new industrial plants (IMI, 1957: 38). An examination of the distribution of the IMI loans reveals also the propensity to finance large companies, and, in the

20 For an in-depth examination of the IMI's involvement in the management of the American funds, see Lombardo G., 2000.

21 It was estimated that, between 1945 and 1957, the Institute granted loans for almost 900 billion of lire, half of which with State and American financial resources (over 3/4 with the Eximbank and ERP loans) (IMI, 1957). See also Lombardo G., Zamagni V., 2009: 138-153.

'ordinary' lending to companies owned or controlled by the State as well as to municipal companies and local authorities (De Cecco M., Ferri G., 1996: 130).

In the following fifteen years, the IMI's oustanding loans were still concentraded in sectors characterized by large companies (or large group of companies): chemicals, petrochemicals, mechanics, metallurgy, telecommunications and shipbuilding (IMI, 1972: 7).

In particular, the IMI became the institution that the Government leaned on for its policy of favorable credit terms to support industry, which was widely adopted in three areas between the end of the 1950s and 1960s (Federico G., Giannetti R., 1999).

The first was the export of capital goods. This was regulated initially by law no. 955 of December 22, 1953, later modified with input from the Institute, by law no. 635 of July 5, 1961, and subsequent laws. Export credit became an increasingly important business for the IMI, not only for the amount of loans granted (see table 3) but also for its involvement in initiatives to support companies in their foreign activities such as the Italconsult – created in 1957 in partnership with the most dynamic Italian export-oriented companies (among them Fiat, Montecatini and Innocenti).[22]

Table 3: Export credit operations on the IMI total loans (% per years)

Year	%
1955/56	0,4%
1956/57	9,8%
1957/58	16,3%
1958/59	14,6%
1959/60	12,0%
1960/61	12,2%
1961/62	10,2%
1962/63	11,8%
1963/64	12,6%
1964/65	11,4%
1965/66	15,7%
1966/67	18,5%
1967/68	21,3%
1968/69	25,8%
1969/70	27,0%

Source: Lombardo G., Zamagni V., 2009: 256.

The second was the industrialization of the Mezzogiorno in order to reduce the development gap with the North of Italy. After the creation of the Cassa per il Mezzogiorno (1950), from 1957 the Government initiated a policy aimed to create "development poles," assisted by tax exemptions and subsidies, as well as financial incentives that could also be granted by non-Southern industrial credit institutions (Law no. 634/1957).[23] Moreover, from the mid-1960s, with the aim of coordinating the intervention in the South with the national planning policy, the incentives

22 The IMI's activity in export credit is widely reconstruted by Sbrana F., 2006. On the IMI's role in Italconsult, see Pasotti I., Costa B., 2019.

23 Until then the Southern credit institutions involved were: the Istituto per lo Sviluppo Economico dell'Italia Meridionale (ISVEIMER); the Istituto Regionale per il Finanziamento delle Industrie in Sicilia (IRFIS); the Credito Industriale Sardo (CIS).

provided through the credit institutions were subjected to an "opinion of conformity" (Law no. 717/1965) by the Comitato dei Ministri per l'Intervento nel Mezzogiorno and then by the Comitato Interministeriale per la Programmazione Economica which was also authorized to carry out an assessment of the loan application before that made by the credit institutions (Law no. 853/1971).

The IMI involvement with the Government policies in the South began as early as 1946, being among the founders of the Associazione per lo sviluppo dell'industria nel Mezzogiorno (or Svimez) that contributed to design the first measures for the intervention in the area; while the Institute's lending in the South grew sharply from the early 1960s. As a matter of fact, in 1959–1960 the loans granted to companies in the area were only 6,8% of the total lending, while two years later (1961–1962) they increased to 18,6%; the percentage rose further in the following two years, 1963–1964, exceeding the percentage of the loans stipulated with companies located in the North of Italy, which until then had been the area of the greatest concentration of the IMI's activity. Throughout the 1960s, the IMI's funding in the area of the Mezzogiorno ranged from 35 to 40 percent of its annual lending.[24]

In addition to granting loans, the IMI also joined some initiatives to promote industrialization in the South. In 1954, it co–founded the Istituto per lo Sviluppo delle Attività Produttive (ISAP), a financial institution that aimed to create new companies by taking minority stakes.[25] In 1964, it also joined another similar financial institution, Nuove Iniziative per il Sud (Insud), with other major public credit institutions.[26]

The third field of the State policy of favorable credit terms was the technological innovation. In 1968, the Government entrusted the IMI with the management of the Fondo per la Ricerca Applicate, whose goal was to accelerate the adoption of advanced technologies in industries. All the most important and largest Italian companies (among them Fiat, Pirelli, Ansaldo, Montedison, Olivetti, etc.) were borrowers of the fund, with the IMI that sought to support them in planning strategies capable to catch them up with the most advanced international developments in technology.[27]

Even if the IMI took part largely in the provision of subsidized credit – in the financial statements of the 1960s, the Institute recorded that it was involved for about 1/3 in their increase every year –,[28] it was also aware of the negative spillovers of an industrial policy largely based on them.

Starting from the mid–1960s, while recording the substantial expansion of subsidized credit to finance especially some industries such as the chemical and petrochemical in the South, the Institute drew the attention of the authorities to the concern that they could turn into "welfare credits". Without questioning the general usefulness

24 HAI, IMI, *Annual Report, 1959/60–1969/70*.

25 Besides IMI, ISAP's shareholders were the IRI who held the majority of its capital (55%), other major industrial credit institutions (Mediobanca and the Industrial Section of the Banca Nazionale del Lavoro) and the southern banks (Banco di Napoli and Banco di Sicilia). By the end of 1963, ISAP had shareholdings in 36 industrial companies, amounting to 4.3 billion lire.

26 Created in January 1963 on Cassa per il Mezzogiorno and Finanziaria Ernesto Breda's initiative, it was also joined by the ISVEIMER, the Banco di Napoli, the Banca Nazionale del Lavoro and the Banca Commerciale Italiana.

27 HAI, IMI, *Fondo ricerca applicata. Panorama delle richieste presentate. Possibili criteri di priorità per le istruttorie*, Servizio R.A., Roma, November 14, 1969; Censis–IMI, 1990.

28 HAI, IMI, *Annual Report, 1959/60–1969/70*.

of the credit incentives, the Institute remarked the problems arising in the process of selecting companies and investment projects and warned:

> It seems necessary to reaffirm the need, in order to avoid possible distortions of the purposes of the subsidized credit, that the following [criteria] are rigorously assessed: the economic validity of the project to be financed by taking into account the dimensional, technological, organizational, financial and income implications that the growing competition in integrated markets imposes; and the patrimonial and financial solidity of the borrowing company, which, without adequate risk capital, cannot have autonomous vitality (...). In fact, it should not be forgotten that a wrong industrial investment involves a dissipation of national wealth which manifests its most negative effects precisely on the local level whose employment and income opportunities are instead intended to be stimulated through incentives.[29]

On this basis, the IMI proposed that:

> The criteria for the administration of subsidized credit and other incentives for industrialization could perhaps in the future be less linked to quantitative formulas and leave a greater margin for the evaluation of non-quantifiable elements, such as for example the entrepreneurial skills or economic viability of an initiative to be considered in the context of a foreseeable sectoral or regional development. It also seems appropriate to underline (...), on the basis of the experience acquired especially in financing at subsidized rates, (...) the opportunity of a more correct proportion between own means (risk capital) and credit means [of the companies], in order to [have] a greater guarantee on the sound company management and the ability of the company to overcome the adverse phases of an economic situation.[30]

The IMI also repeatedly criticized the law promulgated in 1961 and then refinanced several times (until 1976) that gave the Institute the exclusive management of subsidized credit to support the restructuring of industries in crisis. For instance, in the 1974-1975 Annual Report it remarked the contradiction to entrust an industrial credit institution with the management of such a law. As the IMI argued, the law did not allowed an in-depth assessment of the companies' prospects and hence to establish their creditworthiness, while, on the contrary, it paradoxically envisaged the non-creditworthiness as a prerequisite for granting a loan.

Moreover, when a political body (the above-mentioned Comitato Interministeriale per la Programmazione Economica) was entrusted to carry out an assessment of the loan application prior to that of the credit institutions, Giorgio Cappon, then director general of IMI, declared in a parliamentary inquiry:

> Certainly, the existence of an "opinion of conformity" by the planning bodies constitutes an element of rigidity for the resolutions of the Institute, in the sense that expectations arise, obviously, both in industries and in the areas where the financing [of a company] must take place and obviously in the whole socio-economic environment concerned, expectations that are a bit difficult to ignore at the end.[31]

The Government support to the expansion of the petrochemical industry – especially of some new companies such as Nino Rovelli's SIR group – in the Mezzogiorno, led the IMI to be heavly involved with it. As a consequence, when

29 HAI, IMI, *Annual Report, 1966/67:* 21.

30 HAI, IMI, *Annual Report, 1964/65:* Similar arguments are developed in the *Annual Report, 1967/68*: 17.

31 Quoted in Lombardo G., Zamagni V., 2009: 247

the oil crisis in the mid–1970s hit the chemical companies, and dramatically those of the SIR group (which had a very low profitability especially due to the many plants still under construction) the IMI, on strong external pressures, persistently continued to finance SIR until it found itself in a difficult financial situation.[32]

The Institute was finally recapitalized in 1980 and undertook a corporate reorganization and a change in its operational strategy,[33] also as a consequence of the strong downsizing in the Government's policy of subsidized credit in favor of the Italian industry.

4. A case study. The IMI loans to the Pignone (then Nuovo Pignone)

The first loans granted by the IMI to the Pignone dated back to the beginning of the Institute's activity and its credit operations for exports to Russia.

Between 1932 and 1933 the company received credit for a total of about 2.324.452 million of lire (disbursed in 7 operations) for exporting air compressors.[34] Pignone, that was established in Florence in 1842 as a cast iron foundry and then, in the early 20th century, specialized in mechanical production, was among the first companies in Europe to produce large high–power air compressors, which it exported to various countries in the world.[35] In August 1935 the Institute was required to grant a loan of 10 million lire for paying off the company's debts to suppliers (4 million of lire), transferring the industrial plant to another area of the city of Florence (3 million of lire) and covering its need for cash liquidity.[36] The loan application was supported by a plea for special consideration by the Ministry of the Interior and the Ministry of the Navy who underlined that the company's "regular functioning [was] (…) of an essential interest for this Administration".[37]

As a matter of fact, since 1910 Pignone had the exclusive license for the production in Italy of underwater weapons protected by Elia–Wickers patents, and at the outbreak of the WWI it started the supply of torpedoes to the Ministry of Navy, that finally led to the signature of a contract in 1924. The contract was extremely binding for the company, who undertook to: build new factories for the production of torpedoes and preserve them for the next twenty years; subordinate other mechanical productions to the authorization of the Ministry and, in case of general mobilization for war purposes, to interrupt them; keep the Italian nationality of the company for the following 23 years.[38] Two other contracts followed in the first seven month of 1935. It was then the starting phase of autarchy and the mobilization for the colonial expansion in Etiopia.

32 The IMI lending to the petrolchimical industry is widely examined by Zamagni V., 2010.

33 The IMI undertook a gradual sector diversification and a reduction in the average duration of its lending, entered in the para–banking sector through its subsidiary company (Banca Manusardi) and in the management of financial savings (Fideuram) and mutual funds (Fonditalia). For more details, see Lombardo G., Zamagni V., 2009: 293–438.

34 Historical Archives of Intesa Sanpaolo (HAI), IMI, Loans Series, pr. 291.1, 335.1, 339.1, 350.1, 383.1, 386.1, 434.1.

35 A historical reconstruction of the Pignone's activity is provided in the reports prepared by the IMI's inspectors. See for instance, HAI, IMI, Loans Series, pr. 544.

36 HAI, IMI, Loans Series, pr. 544, Loan application, August 28, 1935.

37 Idem, pr. 544, Letter of the Ministry of Navy, August 7, 1935.

38 Idem, pr. 544, Report for the Executive Committee, October 21, 1935.

In evaluating the loan application, the IMI did not ignored the importance of the company's production for the Government. As highlighted in the report of the IMI's inspectors,[39] the financial situation of the Pignone would make it difficult for the company to access to other financing channels. The budget liabilities were caused by both a production activity concentrated on the supplies to the State, whose payments and advances were often delayed, and a non–transparent management of the outgoing managers. On the other hand, the IMI inspectors considered the transfer of the torpedoes production to other factories of the company as a good solution to cope with an uneconomic situation, characterized by high production costs.

Yet, the IMI reduced the loan to 6 million of lire because of the inadequacy of the cautionary guarantees offered by the Pignone.[40] It also made the loan contingent upon a recapitalization and the implementation of the planned relocation of the factory.

Immediately after the war, the IMI lending to the Pignone was part of the measures adopted by the Government to support the reconstruction of the industry. The Pignone was among the companies that had heavy difficulties in restructuring its production from war to peace purposes. During the WWII it had strongly expanded its activity, also by buying out companies (Soc. An. Carlo Bassoli with plants in Livorno and Apuania) and putting new factories into operation (in Magenta). In the final years of the conflict there was also a change in the ownership, with the SNIA Viscosa, an industrial group specialized in the production of artificial textile fibers, that became the major shareholder. The SNIA Viscosa, who also took over the administrative management of the company from 1944, aimed to adapt the production of the Pignone to the mass production of textile machinery in view of its extensive program for strengthening its factories.[41]

The first loan application was in 1945 and concerned 90 million of lire to purchase new machinery and increase the stock of raw material.[42] The Institute granted 30 million of lire "in order to not encourage an investment policy that would have not been justified by technical requirements".[43] As the investigations by the IMI's inspectors remarked, the productive potential of the company was "certainly considerable".[44] As far as the machinery was concerned, both quantitative and qualitative adequacy were noted; as regards the stocks of raw materials, they were evaluated as "excessive (…) in comparison with the current needs of the Company".[45] Furthermore, the IMI's inspectors criticized the production prospects provided by the Pignone; in addition to underlining the "situation of uncertainty that persists for the majority of the Italian industries", it was contested that the economic estimates did not take into account variables such as the trend of savings for investments and the possibility of accessing to machinery supplies from abroad.[46] Equally less than the amount requested by the

39 Idem, pr. 544, Report by Mario Moroni and Francesco Mauro, October 31, 1935.

40 Idem, pr. 544, Letter from the IMI to the Pignone, November 12, 1935.

41 On SNIA–Viscosa: Spadoni M., 2003; Cerretano V., 2020.

42 Idem, pr. 1557, Loan application, May 15, 1945. The loan was required for benefitting the financial resources provided with the law no. 367/1944.

43 Idem, pr. 1557, Report by Serangeli, September 10, 1945: 24.

44 Idem, pr. 1557, Report by Enea Virgili, September 12, 1945: 20.

45 Idem, pr. 1557, Report by Brizzi, October 8, 1945: 7.

46 Idem, p. 13.

Pignone was the second loan granted by the IMI in 1947, with the facilities provided with law no. 449/1946. The company applied for 106 million of lire to meet "an adequate supply of raw materials in the absence of which all forecasts [of 1946 production] would fail, putting [the company] in the painful need to close various plants".[47] The forecasts provided by the company highlighted, in addition to the scarcity of financial resources to cope with the needed provision, also the problem of keeping the excess of workers employed in unproductive productions. The trade union also wrote to the IMI's chairman to support the company's loan application.[48]

While acknowledging that the excess of workers compared to productive capacity was "one of the most serious data of the situation",[49] an IMI's inspector noted that the company was "in an effective productive phase and it seems to head towards a full settlement".[50] With regard to the prospects, then, it was highighted that the Pignone could take advantage of both the technical experience in productions in which it was competitive (compressors) and the SNIA Viscosa's trading network for the export of its new production, the textile machinery. It was precisely on the role of the SNIA Viscosa that the inspectors insisted: the parent company should have reserved "all or most of the mechanical work" to the Pignone and at the same time should have to intervene with its own capital to smooth out the financial difficulties of the company:

> The parent company can entrust or procure a lot of work to the Pignone; however, this is not enough. The parent company has large liquid assets and it is not right that it should allow the State to contribute exclusively to the arrangement of the Pignone, that is, to save its capital. It will therefore be necessary that before the disbursement of new funds, a formal commitment is made by the Snia for its financial assistance.[51]

Hence the decision of the IMI to grant a credit of 70 million, with two provisos: a recapitalization of the Pignone carried out by the SNIA Viscosa and the reorganization of the production process by moving the workforce from less to more efficient plants (for instance by closing the factory in Apuania and strenghtening the production activity of the main plants in Florence and Massa).[52]

Also in the examination of the loans disbursed to the Pignone with the American loans,[53] the IMI shows careful consideration of the production and export perspectives, while remarking the SNIA Viscosa responsibility for the reorganization of the company, from both the financial and operational standpoint.

Contrary to the expectations, SNIA Viscosa tried to balance the Pignone's accounts through not the strengthening of the company's capital base but the downsizing of its productive capacity. It closed factories (Magenta and Livorno) and fired workers in the main factory in Florence between 1950 and 1952. It finally put it into liquidation in November 1953.

---

47 Idem, pr. 1776, Letter from the Pignone to the IMI, May 27, 1946.

48 Idem, pr. 1776, Letter from the CGIL to the IMI, June 17, 1946. In the letter, the trade unione underlined "the undoubted urgency and importance" of the situation.

49 Idem, pr. 1776, Report of the IMI to the Interministerial Committee, August 16, 1946: 6.

50 Idem.

51 Idem, pr. 1776, Report by Alberto Gioannini, July 18, 1946: ... (authors' translation of the original Italian text).

52 Idem, pr. 1776, Report of the IMI to the Interministerial Committee, August 16, 1946, p. 6.

53 Idem, pr. 2374 and 4092 for the loans provided with the Eximbank financial resources. Idem, pr. 3123 for the loan within the ERP loan.

The strong mobilisation of the Pignone's workers, supported by the civil society and the local administration, led the Government – then headed by the Tuscan and Christian Democrat, Amintore Fanfani – to intervene (Taddei F., 1980). In January 1954, the majority stake of the Pignone was took over by the ENI, the State–owned group created in 1953 to control the Italian companies in oil and gas production, refining and distribution. At the end of the same year, the oil group acquired the full control of the company by distributing the capital shares among its most important subsidiaries (Agip, Agip Mineraria and Snam).

The bailout – of a company in crisis and belonging to a sector outside its main activity – was part of a broader strategy of the ENI which concerned, on the one hand, the assignment of licences for the exploitation of geothermal sources in Tuscany (Pozzi D., 2009: 353–56) and, on the other, the project by Enrico Mattei, the managing director of the ENI, to make the group self–sufficient from the international suppliers of machinery for the extraction and processing of the hydrocarbons (Roverato G., 1991). Moreover, the chairman of the Agip, Marcello Boldrini, claimed that the bailout was "perfectly relevant [...] to the fundamental tasks assigned by law to the ENI" from an employment standpoint and that the oil group was acting in accordance with the task assigning an important corrective function of the capitalist system to the State–owned enterprises (Romano M., 2020: 8).

Renamed Nuovo Pignone, the company's activity was placed at the service of the oil group, being its mission identified "in the construction and testing of equipment for the mining, oil, methane and natural gas industry, and in general, in testing mechanical, metallurgical and iron and steel industry and any other related activity". The IMI supported the company's productive reconversion and growth as well as its expansion into foreign markets in the late 1950s and early 1960s. In 1958 the Institute granted a first loan of 1 billion of lire in order to, mostly, reduce the liabilities incurred in the last three years investments, and, only for a residual part, to make new investments.[54] The IMI recommended also to increase the company's capital stock of an amount equal to the sum granted.[55] According to the IMI's inspectors, the company's loan application was justified from a financial and economic basis. The company's weak financial situation was caused by the considerable indebtedness incurred with the investments in fixed and working capital necessary for the reconversion. Yet, there were favorable prospects in its income capacity because the production would have been allocated mostly to the other companies belonging to the ENI group who had ongoing expansive industrial programs in the framework of the group's strategy, in Italy and abroad. Finally, Nuovo Pignone offered adequate guarantees for the loan: in addition to the mortgage assets, the surety of its three shareholders.[56] In 1960 and in 1962, the IMI granted two loans for the modernization of its plant in Florence, one of 1.500 million[57] and another of 3.500 million.[58] The total amount of the lending covered about 90% of the investments planned by the company for the 3–years period 1960–1962.

54 Idem, pr. 8583, Loan application, March 8, 1958.

55 Idem, pr. 8583, Executive Committee, June 17, 1958.

56 Idem, pr. 8583, Report by Luciano Ciminelli, May 13, 1958; Report by Paolo Urbani, May 18, 1958; Report by Mario Dal Poggetto, April 14, 1958.

57 Idem, pr. 9354, Loan application, June 21, 1960, and stipulation on December 7, 1960.

58 Idem, pr. 10973, Loan application, December 20, 1961, and stipulation on June 9, 1962.

While recognizing that expanding investments would have worsened the company's financial situation, in the IMI's view the Nuovo Pignone was a creditworthy applicant, not only for the prospects of its income capacity, but also for being part of the ENI group.[59] The Institute's inspectors remarked the achievement of a complete integration of the Nuovo Pignone in the development strategies of the ENI group. The production – mostly concentrated on equipment and plants for oil drilling (mainly under license of foreign patents) – was allocated mostly to the companies of the ENI group (an average of 65%), while the remaining was sold to foreign companies. Exports therefore represented an important driving factor for the company's earnings; the booklets of orders showed a positive basis for their continuous growth. The Nuovo Pignone could also count on the strengthening of technical, commercial and financial collaboration with the companies associated with the ENI; for instance with some of them had also created consortia for projecting, building and assembling refineries abroad.[60] Belonging to the ENI group (and hence having the surety of its three shareholders) also had an important weight in the IMI's decision to lend 2.000 million of lire for the construction of a new manufacturing plant in Loreto in 1965.[61] The investment project was deemed to be valid for various reasons, among which its impact in terms of creating new employment opportunities in an underdeveloped area.[62] Yet, the IMI's inspectors noticed also significant aspects against it. Firstly, the weak financial position, due mainly to the indebtedness resulting from the expansion of the investments to support the growth of its activity in the previous years (Nuovo Pignone had a financial exposure with the IMI of 7.300 million of lire).[63] Secondly, since the beginning of 1964 the company was experiencing a strong reduction in earnings due to, on the one hand, an increase in the cost of production (mainly the labour cost), and, on the other hand, the increasing competition on the foreign market, where the company seemed to be forced to lower the prices to counter the best offers of the foreign industry in terms of deferred payments.[64]

This last aspect introduces the Nuovo Pignone's significant loan applications to the IMI for export credit under favourable terms (see table 4). In most cases, exports were related to the foreign activities of the ENI group (Pozzi, D., 2009). For instance, this was the case in the exports to the Egyptian Compagnie Orientale des Pétroles d'Egypte (COPE) and the Polish Metalexport that were companies joined or controlled by the ENI for the purpose of oil exploration (COPE) or the construction of oil drilling and refining plants (Metalexport). Or it was the case in the exports to the Soviet Techmashimport, with which Snamprogetti, an ENI company specialized in projecting and the construction of onshore pipelines, had signed an agreement for the supply of a refinery and connected equipment in 1961.

There was also a group of Argentine State–owned companies that were key players in the Government's policy aiming at achieving the self–sufficiency in oil production. For instance, Yacimientos Petrolíferos Fiscales (YPF)

59 See in particular, Idem, pr. 10937, Report by Urbani, January 30, 1962 (conclusive remarks).

60 For the 1960 loan, Idem, pr. 9354, Report by Urbani, July 16, 1960 and Report by Angeloni, July 25, 1960. For the 1962 loan, Idem, pr. 10937, Report by Angeloni and Zitelli (with no date), and Report by Urbani, January 30, 1962.

61 Idem, pr. 13513, Loan application, February 1964, and stipulation on November 30, 1965.

62 Idem, pr. 13513, Report by Dal Poggetto, February 26, 1964.

63 Idem, pr. 13513, Report by Zitelli, June 18, 1964.

64 Idem, pr. 13513, Report by Urbani, November 18, 1964.

was the pivot of the *batalla del petróleo* started by the Frondizi government in 1959.[65] Another company engaged in the production of hydrocarbons was Gas del Estado. Finally, among the most important export financed by the IMI there was the loans to the Saipem–Siderexport Consortium, a partnership of public–private companies that included companies of the ENI group (Saipem, Snamprogetti and Nuovo Pignone), the public steel group Finsider (Siderexport, Italsider Dalmine), the Fiat, the Ercole Marelli and the Società Generale di Telefonia ed Elettronica. The Consortium, which was set up ad hoc as the Argentine counterpart wanted only one interlocutor, signed a contract in October 1961 for the construction of the gas pipeline which, crossing Patagonia, would have conveyed gas from the Santa Cruz region to Buenos Aires.[66]

Table 4: The IMI's export credits to Nuovo Pignone (1959–1970)

Country	Importer	Year (credit export)
Argentina	Yacimientos Petroliferos Fiscales	1959; 1960; 1968; 1970
	Saipem-Siderexport Consortium	1961
	Atanor	1962
	Gas del Estado	1962 (2)
Bulgaria	Machinoimport	1968
Czechoslovakia	Strojexport	1966
Egypt	Compagnie Orientale des Pétroles d'Egypte	1961 (3); 1962; 1963; 1964
Finland	Typpi Oil	1970 (3)
Great Britain	Humphreys & Gasgoldt	1965
Greece	Phosphoric Fertilizers Industry	1965; 1967
Hungary	Chemokomplex Hungarian Trading Company of Machines and Euipment for the Chemical Industry	1966
India	Oil and natural gas Commission	1967
	Oil India	1970
	Fertilizers and Chemical Travancore	1970
Malta	Gas Board	1963
Mexico	Petroleos Mexicanos – Pemex	1968
Norway	Norsk Elektrik	1969
	Norsk Hidro Elektrik	1969 (2)
Poland	Metalexport	1963; 1964 (2); 1965; 1967; 1968; 1970
Portugal	Sacor	1970 (2)
USSR	Techmashimport	1961
Yugoslavia	Masino Impex	1962; 1963; 1965; 1968
	Invest Import	1963
	Teking Invest	1970

65 Idem, for instance, pr. 8822, pr. 9155, pr. 11069, pr. 21837.
66 Idem, pr. 11849.

Source: Minutes of the IMI Executive Committee, 1959–1970.

Conclusion

The paper considered the role played by the IMI, a public–law credit institution, as an instrument of the State intervention in the economy.

Even if the Institute began to play this role in the years just before the outbreak of the WWII, from the post–war reconstruction period it became a privileged interlocutor of the State and assumed a prominent position against the other industrial credit institutions in the field of subsidized credit, which constituted the main instrument of the governments of the time for supporting industry, and was sometimes entrusted exclusively to the IMI with specific laws.

As we have seen, the Institute was aware of the negative spillovers of the subsidized credit. In particular, it drew the attention of the Government authorities on the risk that subsidized credit could turn into welfare credit if the economic validity of the project to be financed and the capital and financial soundness of the borrowing companies were not rigorously assessed. Since the beginning of its activity, the IMI adopted these criteria when considering the loan applications and it further tried to combined them while evaluating subsidized credit.

This effort emerges clearly in the examination of the loans granted to Pignone (then Nuovo Pignone). Although political and social aspects were considered when the IMI examined the loan applications, the investigations allowed the Institute to impose conditions in granting the loan or to reduce the amount of the loan requested. The demand for collateral was reinforced by a survey on the company's profitability and its recent and prospective production performance. In particular, the IMI attempted to link the ownership and management more closely to the economic outlook of the company and to use the lever of public funds to strengthen its capital base. In the loans here considered, for example, capital increases were imposed as a necessary and preliminary condition when the loan seemed to be used to settle old debts or to make up for the lack of liquidity. As well as the amount of the loan were reduced when the debt exposure was considered excessive.

Archives

Intesa Sanpaolo Group Historical Archives, IMI Heritage

Bibliographical references

AA.VV., *Alberto Beneduce e i problemi dell'economia italiana del suo tempo. Atti della giornata di studio per la celebrazione del 50° anniversario dell'istituzione dell'IRI, Caserta, 11 novembre 1983*, Roma: Edindustria, 1985

Asso P.F., De Cecco M., *Storia del Crediop. Tra credito speciale e finanza pubblica, 1920–1960*, Roma–Bari: Laterza, 1994.

Asso P.F., Raitano G., "Trasformazione e sviluppo del credito mobiliare negli anni del governatorato Menichella", in Cotula F. (a cura di), *Stabilità e sviluppo negli anni Cinquanta. 3. Politica bancaria e struttura del sistema finanziario*, Roma–Bari: Laterza, 1999, pp. 309–589

Bonelli F., "Alberto Beneduce (1877–1944)", in Mortara A. (ed.), *I protagonisti dell'intervento pubblico in Italia*, Milano: Franco Angeli, 1984, pp. 329–356

Born K.E., *International Banking in the 19th and 20th Centuries*, New York: St. Martin's Press, 1983

Castronovo V. (ed.), *Storia dell'IRI. 1. Dalle origini al dopoguerra 1933–1948*, Roma–Bari: Laterza, 2014

Censis–IMI, *Ricerca e industria in Italia. Vent'anni del Fondo IMI*, Roma: Il Sole 24 Ore - IMI, 1990

Cerretano V., "Autarky, market creation and innovation: Snia Viscosa and Saici, 1933–1970", *Business History*, 2020, https://doi.org/10.1080/00076791.2020.1750599

Cesarini F., *Alle origini del credito industriale. L'IMI negli anni '30*, Bologna: Il Mulino, 1982

Cesarini F., *Le origini e la gestione dell'IMI*, in AA.VV., *Alberto Beneduce e i problemi dell'economia italiana del suo tempo*, Edindustria, Roma, 1983, pp. 63–69

De Cecco M., Ferri G., *Le banche d'affari in Italia*, Bologna: Il Mulino, 1996

De Cecco M., Toniolo G. (eds.), *Storia della Cassa Depositi e Prestiti*, Roma–Bari: Laterza, 2000

De Simone E., "L'organizzazione del credito speciale tra primo e secondo conflitto", in Cova A., La Francesca S., Moioli A., Bermond C. (eds.), *Storia d'Italia. Annali 23. La banca*, Torino: Einaudi, 2008, pp. 503–533.

Farese G., *Dare credito all'autarchia. L'IMI di Azzolini e il governo della economia negli anni Trenta*, Napoli: Editoriale Scientifica, 2009

Federico G., Giannetti R., *Le politiche industriali*, in Amatori F., Bigazzi D., Giannetti R., Segreto L. (eds), *Storia d'Italia. Annali 15. L'industria*, Einaudi: Torino, 1999

Galea P., "Imi, Iri e legge bancaria del 1936", in Cova A., La Francesca S., Moioli A., Bermond C. (eds.), *Storia d'Italia. Annali 23. La banca*, Torino: Einaudi, 2008, pp. 534–604

IMI, *Loan from the Export-Import Bank to Italy,* Roma: IMI, 1951

IMI, Un *venticinquennio di attività*, Roma: IMI, 1957

IMI, *Istituto Mobiliare Italiano. 40 anni di attività*, Roma: IMI, 1972

Leonardi A., "Il sistema bancario nella ricostruzione del paese: tra vecchi e nuovi equilibri", in Cova A., La Francesca S., Moioli A., Bermond C. (eds.), *Storia d'Italia. Annali 23. La banca*, Torino: Einaudi, 2008, pp. 605-660

Lombardo G., *L'Istituto Mobiliare Italiano*, 1931-1940, Bologna: Il Mulino, 1998

Lombardo G., *L'Istituto Mobiliare Italiano. II. Centralità per la ricostruzione: 1945-1954*, Bologna: Il Mulino, 2000

Lombardo G. and Zamagni V., *L'Istituto Mobiliare Italiano*, *1931-1998*, Bologna: Il Mulino, 2009

Pasotti, I., Costa B., *Il ruolo dell'Istituto Mobiliare Italiano (Imi) a supporto dell'internazionalizzazione delle imprese italiane tra gli anni '50 e '70. Spunti di ricerca dall'Archivio Storico di Intesa Sanpaolo,* relazione presentata al convegno "Competere sui mercati internazionali. Dall'economia mondo alla globalizzazione", Università Bocconi, 11-12 dicembre 2019

Piluso G., "Gli istituti di credito speciale", in Amatori F., Bigazzi D., Giannetti R., Segreto L. (eds.), *Storia d'Italia. Annali 15. L'industria*, Torino: Einaudi, pp. 507-547

Pozzi D., *Dai gatti selvaggi al cane a sei zampe. Tecnologia, conoscenza e organizzazione nell'Agip e nell'Eni di Enrico Mattei*, Venezia: Marsilio, 2009.

Romano M., "The originator of Eni's ideas'. Marcello Boldrini at the top of Agip/Eni (1948-1967)", *Business History*, DOI: 10.1080/00076791.2020.1789101

Roverato G., *Nuovo Pignone: le sfide della maturità*, Bologna: Il Mulino, 1991

Sbrana F., *Portare l'Italia nel Mondo. L'IMI e il credito all'esportazione (1950-1991)*, Bologna: Il Mulino, 2006

Spadoni M., *Il Gruppo SNIA dal 1917 al 1951*, Torino: Giappichelli, 2003

Segreto L., "Finanza, industria e relazioni Internazionali. Il prestito dell'EXIMBANK all'Italia (1947-1955)", *Passato e Presente*, vol. 18, no. 51, 2000, 67-93

Taddei F., *Il Pignone di Firenze 1944/1954*, Firenze: La Nuova Italia, 1980

Zamagni V., "Il credito all'industria", in Cova A., La Francesca S., Moioli A., Bermond C. (eds.), *Storia d'Italia. Annali 23. La banca*, Torino: Einaudi, 2008, pp. 765-784

Zamagni V., *L'industria chimica italiana e l'IMI*, Bologna: Il Mulino, 2010

Michael Schwan, Mark Cassell

Sparkassen revisited. The resiliency of German savings banks between globalization and crises

Contents

Abstract 1
1. Introduction: savings banks and the German political economy 2
2. Sparkassen and global trends: financialization and market–based banking 3
3. Challenging the German model: Europeanization and savings banks' resiliency 6
4. Savings banks in times of crises 10
Conclusion 11
Bibliography 12

Michael Schwan, University of Cologne and Mark Cassell, Kent State University

E–Mail: schwan@wiso.uni–koeln.de
mcassell@kent.edu

Abstract

Despite changes in production networks, welfare state institutions or global finance, Germany's growth model still rests on its unique three-pillar banking system with its strong position of public and cooperative banks. This chapter takes a close look at German savings banks and reassesses the role of Sparkassen. Sketching main sectoral developments since the 1990s the chapter develops a threefold argument. First, savings banks successfully navigated through the white water of financialization and market-based banking. Second, specific institutional power resources equip Sparkassen with a high degree of resiliency vis-à-vis challenges posed by Europeanization and liberalization. Third, Sparkassen contribution to solving national crises is illustrated by savings banks' role in mitigating the economic turmoil caused by Covid-19.

Introduction: savings banks and the German political economy

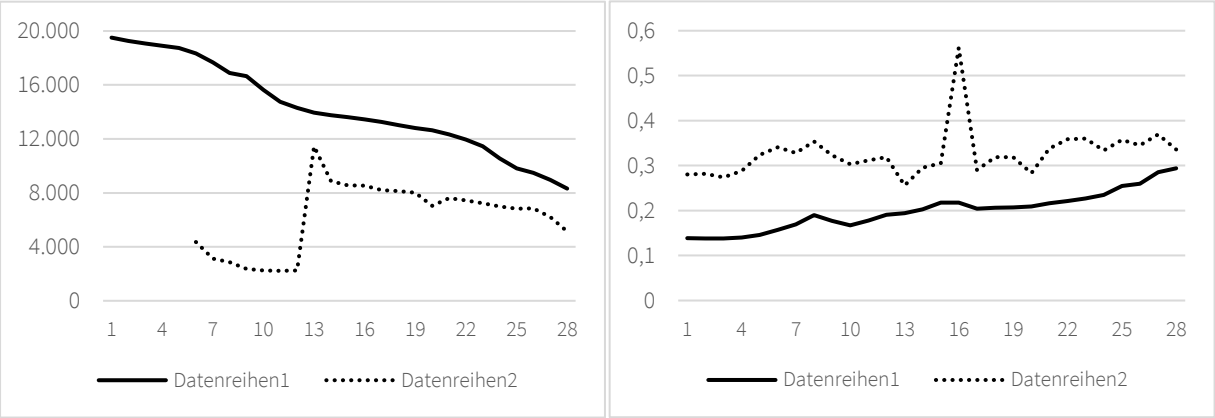
Despite increases in financialization and privatization, public banks remain an essential element of Germany's political economy. Traditionally, research characterizes the German financial system as the epitome of bank–based finance in which capital markets take the back seat while banks call the shots (Zysman 1983, Deeg 1999). At the center of the economic model, that supported Germany's post–war reconstruction and its system of industrial specialization known as "Diversified Quality Production" (Streeck 2009), rests the country's three–pillar banking system. Despite accusations of being "overbanked" (Handelsblatt 2013), the trifecta of private banks, public banks and cooperative banks remains. From the "economic miracle" through today, German banks, to varying degrees, play a central role in guaranteeing liquidity, stability and predictability in the financial sector. Moreover, banks were key to former "Germany Inc.", a unique configuration of corporate governance, whose insider orientation, interlocking directorates and preference for patient capital allowed firms to ward off pressures from international competitors and global financial markets (Beyer and Höpner 2003). Although much has changed in past decades – including the globalization of production, the fragmentation of the German labor market or substantial welfare state restructuring – Germany's manufacturing sector is still double the size of that in France or the United States with a gross value added to GDP of more than 18%. Conversely, market capitalization of listed domestic companies in Germany stands at 60% of GDP and is thus only a fraction of French (85%) or US capital markets (194%) (The World Bank 2022). To make sense of this unique position, we take a closer look at the country's banking sector and disentangle its specificities. Flanked by big commercial banks like Deutsche Bank and specialized promotional banks such as the Kreditanstalt für Wiederaufbau or the Landesbanken, as dense network of cooperative banks – the Volks– und Raiffeisenbanken, and public savings banks, the Sparkassen – forms the institutional base on which most business and household lending is realized. While both the big private banks and public special banks were affected more severely by global financial market developments and changes in national production regimes (Braun & Deeg 2020; Ertürk 2016; Hardie & Howarth 2013; Mertens 2017; Trampusch et al. 2014), savings banks and cooperative banks largely held their ground.

This chapter concentrates on German Sparkassen. It investigates their development since the 1990s and reassess their role in today's political economic environment. We address three crucial questions surrounding Germany's savings banks sector: First, how did savings banks navigate the waters of changing global finance? For this, the next section presents evidence on how market–based banking and, more general, certain aspects of financialization affect Sparkassen. Second, how have savings banks in Germany successfully defended their position and withstood attempts to Europeanize and liberalize? To answer this, section three uses illustrative examples to elaborates on savings' banks institutional resources – economic, administrative and political – which contribute to sectoral resiliency. Third and finally, what is the current state of Sparkassen in Germany? Providing a general outlook against the backdrop of recent challenges, such as the 2015/16 refugee crisis and the financial and economic ramifications of Covid–19, the final section concludes and stress the role of German savings banks especially in times of crises.

Sparkassen and global trends: financialization and market-based banking

The first key development in the German savings banks sector is how thrifts have reacted to the "increasing role of financial motives, financial markets, financial actors and financial institutions in the operation of the domestic and international economies" (Epstein 2005: 3). Financialization is an encompassing trend that affects preferences and behavior of corporations, households and states alike (van der Zwan 2014). For the banking sector, mainly two aspects reflect this shift from "boring" to "roaring" business practices. The first one is what Ertürk and Solari (2007) identify as the "retail revolution" – a process that inter alia consists of a focus on fee-based activities of revenue generation and increasing profitability pressures. Already before the advent of low-to-zero interest rates, but even more so today, fees and commissions became an important source of revenue for banks. Usually associated with the largest international financial institutions, such income stems from securities trading, wealth management and other services. While this is more pronounced in the realm of "big finance", savings banks – and other alterative institutions – also generate substantial fee income from mortgages or insurance contracts via their partner network (S-Finanzgruppe) as well as overdraft fees instead of consumer credit (Schwan 2021). Regarding profitability pressures it is true that savings banks, in contrast to their private, often publicly-traded competitors, are not exposed to the same levels of (shareholder) demands. However, cost-cutting, profitability-enhancing efforts have been key components of their strategy as well (dpa 2002; WamS 2015). Figure 1 illustrates these two trends for savings banks in relation to Germany's "big 3" – Deutsche Bank, Commerzbank and UniCredit Bank AG. We see a clear trend of assimilation between the polar opposites of the German financial system. In 1993 there were nearly 20,000 savings banks branches in Germany and at the end of the nineties the branch ratio of Sparkassen to big banks was almost six to one. In 2020, however, this ratio is now less than two to one. As the number of savings banks has been nearly cut in half compared to thirty years ago, Germany's 377 Sparkassen today maintain about 8,300 branches. A similar trend has happened in the relative importance of non-interest income. In 1993, fees and commission were twice as important for big banks (28%) than for savings banks (14%). In 2020 this discrepancy has shrunk to only five percentage points. Given the limitations of this paper, a causal analysis of these trends is beyond its scope. It is clear that savings banks, in line with their public mission and in contrast to Deutsche Bank, still focus on regional credit allocation instead of prioritizing investment banking. Yet, consolidation and concentration processes have created a tension between business efficiency and social responsibility – a tension, which Sparkassen so far have successfully mitigated.

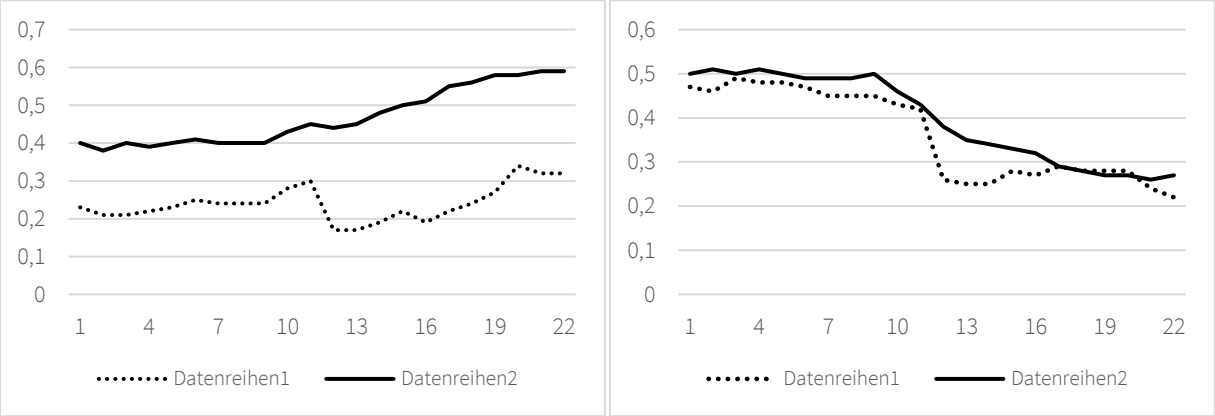
Figure 1: Number of branches (left) and fees and commissions, in % of total revenue (right).



Source: own illustration based on Bundesbank 2022a, 2022b.

Another aspect through which financialization challenges savings banks is the general shift of towards the principle of market–based banking (Hardie et al. 2013). In a nutshell, under this "transformation of commercial banking" (Seccareccia 2012), banks react to global financial markets and act differently within them. This affects both the asset and liability side of the balance sheet and results in converted business models. Figure 2 depicts one of the core indicators: the extent to which banks rely on wholesale funding (market–based banking) as opposed to customer deposits (traditional banking). In contrast to fee income and rationalization tendencies we see that savings banks have, by and large, held their ground. Although a separate look at savings banks and Landesbanken or smaller and larger thrifts would reveal stark differences in their orientation (Trampusch et al. 2014; Schwan 2021), on the aggregate level, savings banks have steadily increased their retail funding shares while simultaneously reducing their money market exposure. A stark difference between the two banking groups remains the prevalence of equity refinancing and securitized liabilities that is not shown in figure 2. For savings banks, for instance Sparkassenbriefe play a negligible role, whereas Germany's big banks tap into capital markets.

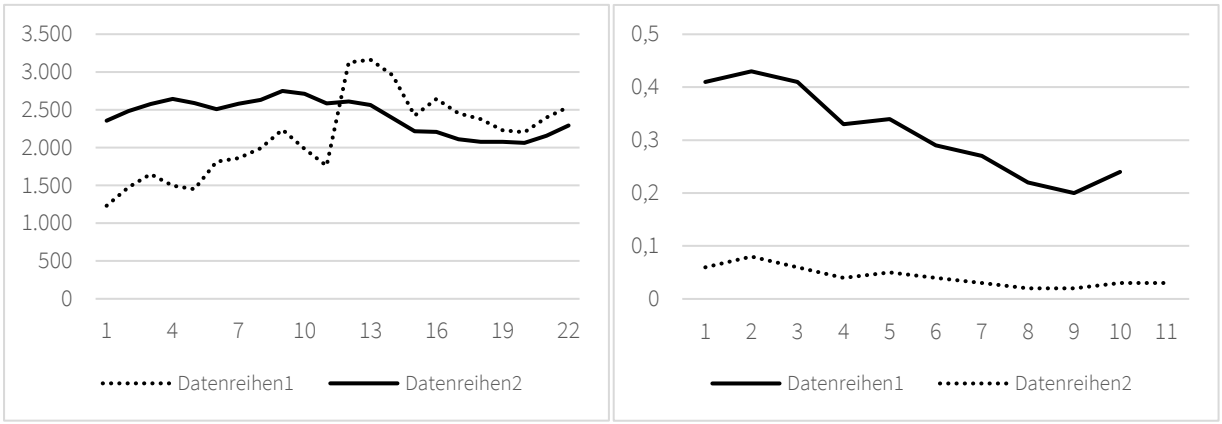
Figure 2: Retail funding (left) and wholesale funding (right), in % of total liabilities, 1999–2020.



Source: own illustration based on Bundesbank 2022a

A final feature of financialization in general and market-based banking in particular is the ascendance of derivatives for both hedging and speculation (LiPuma and Lee 2005). Very often, increases in derivatives holdings came along with a substantial balance sheet inflation that is driven by the asset side with the goal of generating new profits via speculation. Especially large and internationally-oriented commercial banks used this leveraging strategy until the Global Financial Crisis. Yet, Sparkassen rely almost exclusively on customer deposits and did not follow this trend. Figure 3 compares the development of the balance sheet totals with total derivatives holdings. Although the face value of total outstanding OTC derivatives on the books of reporting German banks has more than quadrupled since the introduction of the Euro, reaching €42 trillion in 2021, savings banks have taken a cautious approach, using derivatives exclusively for hedging against default risk (Ricken 2008). In contrast to Germany's big banks they have been recording low aggregate numbers, which marks a substantial difference between Sparkassen and private financial institutions.

Figure 3: Balance sheet total, in € billon (left), and derivatives, in % of total liabilities (right).



Source: own illustration based on Bundesbank 2022a

Still, their recurring SK Kredit-Basket which pools mostly SME loans from geographically diverse savings banks across different regions, has consistently grown in size and scope. Regarding balance sheet size, savings banks show a steadier, more gradual trend. A sign that they adhered to more sustainable, long-term business strategies. While big banks' balance sheets jumped by almost 50% in the wake of the Global Financial Crisis, exceeding €3 trillion, Sparkassen, in contrast, have smoothed their balance sheet development with a reduction of circa 25% compared to their previous high in 2008.

In sum, savings banks in Germany provide a mixed, yet stable picture. On the one hand, they have been continuously challenged by an environment that was often disadvantageous and sometime even hostile to alternative banks such as cooperatives or Sparkassen. On the other hand, savings banks have adjusted parts of their business strategies and some large institutions like the Sparkasse KölnBonn, for some years had even actively embraced liberalized financial markets. In general, however, those are more exceptions than the norm and savings banks are still cornerstones of the German political economy.

Challenging the German model: Europeanization and savings banks' resiliency

Europeanization and liberalization challenge Germany's savings banks in several ways. Despite the manifold and, at times unsystematic applications of the term "Europeanization", we single out two core dimensions that directly impact national political economic processes within the context of European integration. Following Olsen (2002) we differentiate the development of European-level institutions from the domestic impact of those institutions. The former goes beyond the formation of a true European polity in the sense of comprehensive decision-making processes through the interaction of the European parliament, the Council and the EU Commission. In a wider sense it conceives of institutions as a system of governance structures on the European level that sets the rules of conduct for firm behavior. Regarding the broader economy an important example is the European Union Emissions Trading System. In the case of banks and financial institutions, such governance structures comprise capital requirement directives and supervisory mechanisms. Concerning the domestic impact of EU-level institutions, the second aspect of Europeanization, very often EU member states, or influential economic actors, take the initiative. According to the "goodness of fit" hypothesis that is often tested in Europeanization studies, businesses or civil society organizations upload their preferences to the EU level with the ultimate goal of creating binding regulations that favor their interests. Through this mechanism interest groups seek achieve a favorable outcome that was previously out of reach in the arena of domestic politics. For this to happen, the dynamic interplay of domestic and two-level politics plays a crucial role (Mastenbroek and Kaeding 2006). A common area of this type of Europeanization is the field of competition policy. Efforts by the European Union (EU) and European Central Bank (ECB) to reshape the banking landscape challenge Germany's public savings banks in several ways (Semenyshyn 2017). The following discusses the challenges posed by Europeanization and liberalization to public savings banks and how savings banks have defended themselves.

EU policymakers made no secret they would like European commercial banks to merge and grow in size, and for Germany's state and local public banks to privatize and disappear. In 2016, ECB President Mario Draghi made clear in speech to the European Systemic Risk Board (which he chairs) that the biggest financial problem in Europe is that it is overbanked, "Over-capacity in some national banking sectors, and the ensuing intensity of competition, exacerbates this squeeze on margins" (quoted in Buell 2016). Put simply: there is just too much competition from the hundreds of smaller banks that are crowding out the profits for the big banks. Draghi's solution is greater concentration and consolidation of the banking sector coupled with the privatization of smaller local public banks (Buell 2016). For EU policymakers, a small number of large private banks has important advantages including: 1) a reduction in intra-European competition; 2) an increase in the ability of European banks to compete with large investment banks in the US and China; and 3) a reduction in the regulatory burden for the ECB by reducing the total number and type of banks being overseen.

The EU along with the ECB pursue these goals through a variety of policies to liberalize financial markets including: the end of state guarantees of public banks; efforts to establish a European Banking Union consisting of a single supervisory, a single resolution mechanism, and a single European deposit insurance system; the deregulation of the loan repurchasing agreement market ("repo market"); the promotion of European-wide securitization; the effort to establish a "Capital-Markets Union"; and the opposition to financial transaction tax (Braun 2018). These policies pose particular challenges to Germany's public savings banks. The end of state guarantees, for example,

was designed to increase borrowing costs to local and regional public banks. The EU's banking union proposals, which initially did not exempt smaller institutions, placed a disproportionately heavier regulatory burden on smaller institutions. In response to Germany's opposition to the initial proposal, the final architecture of EU Banking Union limited supervision and resolution only to Europe's largest and most significant institutions leaving out Germany's local saving banks. European deposit insurance was eliminated but is likely to be reintroduced.

The first case in which Europeanization challenged savings banks concerns the conflict between the European Commission and the German government over the future of German public banks, which played out during the 1990s and the first half of the 2000s (Grossmann 2006). From a wider angle, this clash has to be viewed in the general context of European financial market liberalization. This process, which began in 1985 with the initiative for a Single European Market, first led to the Economic and Monetary Union (EMU) in 1999 before picking up speed again in the new Millennium with the Commission's Financial Services Action Plan (FSAP) aimed at creating a fully-integrated internal market for financial services (Bieling 2003). Although the German financial system had always been considered a laggard in terms of liberalization or, more precisely, marketization, trying to keep its traditional system of corporate governance and Bundesbank-led stability in place (Story 1996), reform debates and political pressures eventually intensified (Beyer and Höpner 2003; Bieling 2003). The conflict formally started in 1999 when the European Banking Federation, representing the interests of private banks, filed a complaint with the Commission's DG Competition claiming that state guarantees enjoyed by Germany's public banks – most notably the Sparkassen and, related to them, Landesbanken – equipped these financial institutions with unfair competitive advantage based on illegal government aid. After a back-and-forth between the Commission, the German government, the European Court of Justice and both the Sparkassen and Landesbanken all conflict parties settled for a compromise. Threatened by the fear of losing their public law status and horrendous repayment obligations that would have sealed their fate, German savings banks eventually had to accept a compromise to save their own existence (Seikel 2014). As a result, Landesbanken had to separate their regular business activities from their public infrastructure mandate and state guarantees were phased out for the entire public banking sector. Despite heavy pressure, savings banks survived based on a solid deposit base and largely regional business models.

The second case concerns the European Deposit Insurance Scheme (EDIS), which poses particular threat to public savings banks' approach (and comparative advantage) to solvency and deposit insurance. Rather than pay into a deposit insurance fund based on their risk Germany's public savings banks protect institutions and depositors through an International Protection Scheme (IPS). The EU defines an IPS "a contractual or statutory liability arrangement which protects those institutions and in particular ensures their liquidity and solvency to avoid bankruptcy where necessary" (article 113, paragraph 7 CRR). The entire Savings Bank Network (S-Finanzgruppe) known as the "S-Group" including the public savings banks and Landesbanken are part of an IPS. This means all the parts of the S-Group share joint liability for all the other institutions and the customers. The EU's EDIS plan, modeled on the Federal Deposit Insurance Corporation, forces Sparkassen to contribute to two schemes (EDIS and IPS), undermines their competitive advantage, and threatens their existence (Semenyshyn 2017; Gros and Schoenmaker 2013). And finally, expansion of securitization, deregulation and a new capital-market union are supra-national efforts to foster a market-based financial system that favors commercial banks at the expense of local public savings banks. A related challenge to EU pressure confronted by public savings banks is increased regulatory burden.

In the wake of the financial crisis banking regulators in Europe increased the regulatory burden for all credit institutions. The three European Financial Supervisory Authorities imposed greater disclosure requirements, new capital requirements, and the adoption of a single rule book to cover all banks in Europe. Supervisory authorities issued more than 180 new guidelines and 300 new technical standards with which all credit institutions, regardless of size, must comply (Engelhard 2018). The single rulebook is meant to ensure the uniform application of Basel III requirements across all Member States and thus close any regulatory loopholes (European Commission 2013). National banking supervisors have also increased their regulatory oversight.

The new regulations increase the demands and cost of regulatory compliance for all credit institutions. However, the regulatory burden falls disproportionately on smaller European banks like Germany's Sparkassen and cooperatives for two reasons. First, regulatory compliance is a fixed cost and larger institutions enjoy economies of scale that comes from their size; they are able to spread the cost of compliance across a much larger organization. And second, European banking supervisors apply the same standards and regulatory burden (Basel I to IV) across all banks regardless of their size and complexity. Sparkassen are credit institutions within the meaning of Section 1(1) German Banking Act ("Kreditwesengesetz [KWG]") as well as Article 4(1) European CRR. Hence, they are subject to all German and European bank regulation requirements, and to supervision by Deutsche Bundesbank and German Federal Financial Supervisory Authority ("Bundesanstalt für Finanzdienstleistungsaufsicht [BaFin]"), and/or the European Central Bank (ECB). While large commercial banks in Europe support the single rule book (because it advantages them), small institutions like Sparkassen and cooperatives argue European banking regulation directly hurt SMEs. George Fahrenschon, former head of the DSGV, stated, "If regulators fail to recognize the importance of proportionality and maintain a one-size-fits-all system, we ; will create a new problem of "too small to succeed" (Moore 2017).

In short, Europeanization and financial liberalization should have relegated Germany's public savings banks to a footnote in the financial history books: either extinct or transformed into entities that resemble private commercial banks. Yet, public savings banks have defied expectations. Today, large private banks like Deutsche Bank struggle while the profitability among public savings banks with their "boring" business model remains strong and stable (Cassell 2020; Ewing 2019). Public savings banks have effectively managed without government guarantees and the increased regulatory burdens. And, as we note above, some convergence has occurred, Germany's public savings banks have been remarkably effective in defending their interests at the national and European-level – fending off efforts to impose a European Deposit Insurance Scheme. What accounts for their ability to punch above their weight class? How are Germany's public savings banks able to survive let along thrive in a European environment dominated by too-big-to fail institutions? What explains their resilience?

Public savings banks draw on three sources of strength. The first is economic. Public savings banks remain successful because of the particular economic value they provide the country. In contrast to private banks, state banking laws limit the territory in which a public savings bank does business to a relatively small area – typically a city or county. This so-called "regional principle" is an institutional design feature that ensures a public savings bank has a strong incentive to promote its region's economic health. Sparkassen promote the economic health directly and indirectly: direct lending to local and regional governments, SMEs, and low- and medium-income households that other banks undersupply; and indirectly, by being at the center of a regional economic network,

strengthening the capacity of local economic actors, and channeling excess reserve to civic and economic institutions that further strengthen the social capital of a region.

Organization is the second explanation for public savings banks' resilience. Although the 367 savings banks operate and are governed independently of one another, they are part of a large public banking network known as the Sparkassen–Finanzgruppe or "S–Group." The S–Group network consists of regional banks (Landesbanken), regional building societies, insurance companies, IT companies, and numerous other financial service providers. The network plays an essential role in boosting the capacity of public savings banks; enabling small credit institutions to benefit from a number of economies of scale that large credit institutions have. At the same time, the networks' as well as each savings bank's organization contributes to accountability and oversight. Public savings banks are governed by multiple and overlapping oversight committees including supervisory boards, credit committees, monitoring committees and transparency committees. The web of oversight creates a system of checks and balances that support stability at a relatively low cost. Savings banks are also insured by four different insurance funds including a joint–liability fund in which each savings bank contributes to a fund covering all savings banks. In keeping with Germany's ordoliberal approach to regulatory policy, the shared liability incentivizes savings banks to regulate themselves; to prevent an individual savings bank from going rogue by, for example, betting on complicated financial products. Finally, the insurance system directly insures institutions rather than depositors. By insuring creditors, the bank insurance system creates an incentive for local economic actors to do business with the savings banks. At the same time, the system places savings banks at the center of a network of banking relationships built on patient capital and coordinated economic policy.

A third and final explanation for public savings banks' resiliency is politics. Savings banks remain among of the most politically powerful economic sectors in Germany. Represented by the Deutscher Sparkassen– und Giroverband (DSGV) at the federal level and 12 regional association, public savings banks' power stems from several sources including: 1) geographic distribution – the 367 independent savings banks with more than 8,300 branches are located in nearly every town and city in Germany; 2) close connection to citizens and voters – more than half of all citizens have their savings accounts with public savings banks and surveys show the public holds savings banks in high trust; 3) Sparkassen's place within the large S–Group banking network; and more importantly, 4) Public savings banks' relationship with local political and economic leaders. Many of the country's policymakers served or continue to serve on the supervisory boards of public savings banks. If all politics is local, savings banks are the nation's power players. Their influence enables public savings banks to maintain their institutional character, protect their interests, and confront national reforms and European Union efforts that weaken them.

Savings banks in times of crises

Germany's public savings banks operate as for-profit businesses but do not maximize profits. Instead, in addition to profits, public savings banks also pursue a public mission reflected in state laws that require them to: a) promote savings and asset building; b) ensure access to financial services to all individuals; c) promote savings and the creation of wealth (for example, by way of financial education in schools); d) maintain a presence throughout their geographical area of business (including in rural areas); and, in particular, e) safeguard the provision of loans to regional enterprises (Schackmann-Fallis et al. 2017). The public/private hybrid character of public savings banks has proven to be an especially important tool to address national crises. Two examples stand out: the 2015/2016 refugee crisis and the recent Covid-19 pandemic.

During the 2015/16 refugee crisis Germany took in over a million refugees seeking asylum from the ravages of war and persecution in Afghanistan and Syria. In addition to contributing to refugee assistance organizations through their endowment funds, public savings banks were required to by state laws and their public mission to establish bank accounts for refugees who settled in the area. Private banks and cooperatives often refused to offer refugees accounts because they lacked proper identification. The Refugee Council of Baden Württemberg publicly called out large private banks like Commerzbank and Deutsche Bank for failing to open accounts for refugees. By providing refugees with bank accounts, savings banks helped the refugees and local governments since so much of the social welfare system relies on bank transfers. Savings banks became the go-to banking institutions for refugees and new immigrants. Savings banks created special branches solely for the use of refugees and asylum seekers. Refugees and Germany's social market economy benefitted from savings banks' action because transactions made through the banking system are far more efficient and easier to monitor. A recent study by the Center for Global Development finds that five years after the crisis, half of the refugees had found a job, paid training of an internship, 41 percent spoke Germany, and support for immigration remains high. Those impressive social and economic accomplishments are no small measure the result of public savings banks.

Finally, the Covid-19 pandemic offers the clearest example of savings banks' role in fostering economic and social growth and stability, particularly when compared with the United States' experience. The pandemic's impact on economies was akin to a natural disaster. Governments around the world created a recession through lockdowns and restrictions to save lives. Small businesses were among the worst hit by the Covid recession. Governments launched several relief programs to help small businesses weather the economic storm. Germany's Kreditanstalt für Wiederaufbau (KfW) created a subsidized loan program to ensure small firms had enough liquidity. SMEs were required to apply for aid through a local financial institution. The program made banks gatekeepers of the funding. The program proved highly successful in considerable measure because the local financial institutions used by SMEs were savings banks. Germany's public savings banks informed firms of the program, helped SMEs navigate the application, and ultimately advocated on behalf of SMEs for federal aid. Over 144,000 enterprises received loans worth €52 billion. SMEs were the primary beneficiaries, most of the assistance flowed to firms within the first three months, detected little fraud or abuse, and the program was extremely popular.

By contrast, the United States' Covid-19 relief program also targeted SMEs through a special federal subsidized loan program known as the Paycheck Protect Program (PPP). Like Germany, US firms had to apply for aid through a local lender. Unlike Germany, however, there are no local public savings banks. PPP support flowed primarily

through large private banks and private community banks, which often favored their biggest and wealthiest clients at the expense of smaller and poorer firms. The New York Times and Washing Post, and government auditors like the Government Accountability Office criticized the program for failing to get funds to the small firms quickly, favoring the largest and wealthiest clients over the smallest and poorest, and for lack of adequate oversight, which led to significant abuse and fraud. Savings banks' played and continue to play a central role in helping firms, individuals, and local governments navigate the crisis. Because their unique public/private hybrid character Germany's local public savings banks advocated on behalf of their communities while ensuring that the federal support targeted those who needed it most.

Conclusion

This paper has demonstrated the enduring strength and persisting functional benefits of savings banks within the German political economy. Based on a unique combination of administrative, political and economic factors, Sparkassen and the entire S-Group has not only been able to withstand challenges posed by Europeanization, liberalization and financialization. Moreover, German savings banks have fortified their position both in terms of SME and household lending as well as financial services provision and economic relief distribution (DSGV 2021). For instance, in the first half 2020 Sparkassen accounted for the lion's share in KfWCovid-19 emergency loans, doubling private banks and cooperatives alike (Deutscher Bundestag 2020). Maintaining regionalism with the Hausbank principle puts savings banks in an advantageous position to tackle future developments in relationship lending (Flögel and Gärtner 2020). Given a changing global environment marked by increasing uncertainties, economic diversification, an ongoing pandemic and the need for a green transformation, savings banks can assist in multiple ways.

Bibliography

Beyer, Jürgen and Martin Höpner (2003). 'The Disintegration of Organised Capitalism: German Corporate Governance in the 1990s', West European Politics, 26:4, 179–198.

Bieling, Hans–Jürgen (2003). 'Social Forces in the Making of the New European Economy: The Case of Financial Market Integration', New Political Economy, 8:2, 203–224.

Börsen–Zeitung (2012). 'Streit über Europas Bankenaufsicht', Börsen–Zeitung, September 13, 2012, p.4.

Braun, Benjamin and Richard Deeg (2020). Strong Firms, Weak Banks: The Financial Consequences of Germany's Export–Led Growth Model. German Politics, 29:3, 358–381.

Butzbach, Olivier (2016). 'The Evolution of Organizational Diversity in Banking: Savings Banks' Consolidation and Sector Coordination in France and Italy, 1980–2012', Organiza–tion Studies, 37:4, 565–589.

Buell, Todd (2016). "ECB President Says Crowded Banking Sector Hurts Profits." Wall Street Journal. (July 24, 2019).

Braun, Benjamin. (2020). "Central Banking and the Infrastructural Power of Finance: The Case of ECB Support for Repo and Securitization Markets." Socio–Economic Review, 18:2, 395–418.

Cassell, Mark K. (2020). Banking on the State. The Political Economy of Publicly–Owned Banks. Newcastle upon Tyne: Agenda.

Capital Requirements Regulations (CRR), Article 113, Paragraph 7. [Per European Banking Authority. Calculation of risk–weighted exposure amounts].

Deeg, Richard (1999). Finance Capitalism Unveiled: Banks and the German Political Econ–omy. Ann Arbor, MI: University of Michigan Press.

Deeg, Richard (2010). 'Institutional Change in Financial Systems', in Glenn Morgan, John L. Campbell, Colin Crouch, Ove Kaj Pedersen and Richard Whitley (eds.), The Oxford Hand–book of Comparative Institutional Analysis, Oxford: Oxford University Press, 309–334.

Deeg, Richard and Shawn Donnelley (2016). 'Banking union and the future of alternative banks: revival, stagnation or decline?', West European Politics, 39:3, 585–604.

Deutsche Bundesbank (Bundesbank) (2022a). Banken und andere finanzielle Unternehmen. (https://t1p.de/8k4x).

Deutsche Bundesbank (Bundesbank) (2022b). Bankstellenberichte und Bankstellenstatistiken. (https://t1p.de/t3xmj).

Deutsche Bundesbank (Bundesbank) (2022c). OTC–Derivate: Nominalwerte der derivativen Kontrakte insg. von deutschen Banken. Time series BBK01.QUY229. (https://t1p.de/aiif).

Deutscher Bundestag (2020). Corona–Kreditprogramme und Start–up–Hilfen der KfW. Drucksache 19/20325, 23 June 2020.

Deutsche Presse–Agentur (dpa) (2002). 'Sparkassen schließen Stellenabbau und betriebsbedingte Kündigungen nicht aus', March 19, 2002.

Deutscher Sparkassen– und Giroverband (2021). Finanzbericht 2020 der Sparkassen–Finanzgruppe. Berlin.

Epstein, Gerald A. (2005). 'Introduction: Financialization and the World Economy', in ibid. (ed.), Financialization and the World Economy, Cheltenham: Edward Elgar, 3–16.

Engelhard, Michael. (2018). "Small Credit Institutions and Proportionality: The Perspective after the Risk Reduction Package." In Ljubljana, Slovenia. https://ebi-europa.eu/wp-content/uploads/2018/07/Michael-Engelhard-Small-credit-institutions-and-proportionality.pdf.

Ertürk, Ismail (2016). Financialization, bank business models and the limits of post-crisis bank regulation, Journal of Banking Regulation, 17:1-2, 60-72

Ertürk, Ismail and Stefano Solari (2007). 'Banks as Continuous Reinvention', New Political Economy, 12:3, 369-388.

European Commission (2013). "Europeans, The European Union and The Crisis". Standard Eurobarometer 79). Brussels: Directorate General for Communication.

Ewing, Jack. 2019. "Deutsche Bank's Turnaround Costs Lead to Big Loss." The New York Times. (July 28, 2019).

Flögel, Franz and Stefan Gärtner (2020). The Covid-19 pandemic and relationship banking in Germany. Will regional banks cushion an economic decline or is a banking crisis looming? Tijdschrift voor Economische en Sociale Geografie, 111:3, 416-433.

Gros, Daniel, and Dirk Schoenmaker. 2014. "European Deposit Insurance and Resolution in the Banking Union." JCMS: Journal of Common Market Studies 52(3): 529-46.

Grossman, Emiliano (2006). Europeanization as an Interactive Process: German Public Banks Meet EU State Aid Policy. Journal of Common Market Studies, 44:2, 325-348.

Hackethal, Andreas (2004). 'German Banks and Banking Structure', in Krahnen, Jan P. and Reinhard H. Schmidt (eds.), The German Financial System. Oxford: Oxford University Press, 71-105.

Hardie, Iain and David Howarth (2013). 'A Peculiar Kind of Devastation: German Market-Based Banking', in Hardie, Iain and David Howarth (eds.), Market-Based Banking and the International Financial Crisis. Oxford: Oxford University Press, 103-128.

Hardie, Iain, David Howarth, Silvia Maxfield and Amy Verdun (2013). 'Banks and the False Dichotomy in the Comparative Political Economy of Finance', World Politics, 65:4, 691-728.

Howarth, David and Lucia Quaglia (2016). Internationalised banking, alternative banks and the Single Supervisory Mechanism. West European Politics, 39:3, 438-461.

LiPuma, Edward and Benjamin Lee (2005). 'Financial derivatives and the rise of circula-tion', Economy and Society, 34:3, 404-427.

Mastenbroek, Ellen and Michael Kaeding (2006). Europeanization Beyond the Goodness of Fit: Domestic Politics in the Forefront. Comparative European Politics, 4:4, 331-354.

Mertens, Daniel (2017). Borrowing for social security? Credit, asset-based welfare and the decline of the German savings regime. Journal of European Social Policy, 27:5, 474-490.

Moore, Philipp. 2017. "Low Rates Hobble Germany's Public Banks." Euromoney.

Olsen, Johan P. (2002). The Many Faces of Europeanization. Journal of Common Market Studies, 40:5, 921-952.

Ricken, Stephan (2008). 'Verbriefung von Krediten und Forderungen in Deutschland', Betriebswirtschaftliche Handlungshilfen 213, Düsseldorf: Hans-Böckler-Stiftung.

Ruiz, Juan Rafael, Patricia Stupariu and Angel Vilariño (2016). 'The crisis of Spanish savings banks', Cambridge Journal of Economics, 40:6, 1455-1477.

Schackmann–Fallis, Karl–Peter, Horst Gischer, and Mirko Weiß (2017). A Case for Boring Banking and Re–Intermediation. Working Paper.

Schwan, Michael (2021). Weathering the Storm? Financialiasation and German Savings Banks. New Political Economy, 26:3, 422–438.

Seccareccia, Mario (2012). 'Financialization and the transformation of commercial banking: understanding the recent Canadian experience before and during the international financial crisis', Journal of Post Keynesian Economics, 35:2, 277–300.

Seikel, Daniel (2014). 'How the European Commission deepened financial market integra–tion. The battle over the liberalization of public banks in Germany', Journal of European Public Policy, 21:2, 169–187.

Semenyshyn, Halyna (2017). 'Marginalizing the German savings banks through the European Single Market', in Christoph Scherrer (ed), Public Banks in the Age of Financialization. A Comparative Perspective. Cheltenham, UK/Northampton, MA, USA: Edward Elgar, 176–192.

Story, Jonathan (1996). Finanzplatz Deutschland: National or European Response to Internationalisation. German Politics, 5:3, 371–394.

Streeck, Wolfgang (2009). Re–Forming Capitalism: Institutional Change in the German Po–litical Economy. New York: Oxford University Press.

The World Bank (2022). World Bank Open Data. (https://data.worldbank.org/).

Trampusch, Christine, Benedikt Linden and Michael Schwan (2014). 'Staatskapitalismus in NRW und Bayern: Der Aufstieg und Fall von WestLB und BayernLB', Zeitschrift für Ver–gleichende Politikwissenschaft, 8:2, 129–154.

Van der Zwan, Natascha (2014). 'Making sense of financialization', Socio–Economic Re–view, 12:1, 99–129.

Vitols, Sigurt (2005). 'Changes in Germany's Bank–Based Financial System: implications for corporate governance', Corporate Governance: An International Review, 13:3, 386–396.

Welt am Sonntag (WamS) (2015). 'Wenn's ans Geld geht. Die Sparkassen leiden unter zu niedrigen Zinsen und zu hohen Kosten'. March 15, 2015, p. 34.

Zysman, John (1983). Government, Markets and Growth. Financial Systems and the Politics of Industrial Change, Ithaca, NY: Cornell University Press.

Marcin Borsuk, Oskar Kowalewski, Pawel Pisany

State–owned banks and international shock transmission*

Contents

Abstract	1
1. Introduction	2
2. Literature	4
3. Data and methodology	6
3.1. Bank characteristics	8
3.2. Country characteristics	9
3.3 Methodology	11
4. Results	11
4.1. Host Banking Crisis	14
4.2. Home banking crisis	17
4.3. Global financial crisis	21
4.4. Sovereigns and currency crisis	25
5. Conclusions	29
References	32

*The authors acknowledge support from the National Science Center (NCN), Poland, research grant no. 2018/29/B/HS4/00594.

Marcin Borsuk [a,b,c], Oskar Kowalewski[b,d,e,f,1], Pawel Pisany[b]

[a] *European Central Bank, Germany*
[b] *Institute of Economics, Polish Academy of Sciences, Poland*
[c] *School of Economics, University of Cape Town, South Africa*
[d] *IESEG School of Management, UMR 9221 – LEM – Lille Economie Management, France*
[e] *Univ. Lille, UMR 9221 – LEM – Lille Economie Management, France*
[f] *CNRS, UMR 9221 – LEM – Lille Economie Management, France*
1 Corresponding author: IESEG School of Management, Socle de la Grande Arche, 1 Parvis de La Defense – F–92044 Paris La Defense cedex, France.

Email addresses: mborsuk@inepan.waw.pl, o.kowalewski@ieseg.fr, ppisany@inepan.pl

Abstract

In this study, we employ a new dataset on bank ownership and reassess the links between domestic and foreign ownership and lending during the 1996- 2018 period. Additionally, we distinguish between privately-owned and state-controlled banks and find that the lending activities of foreign state-controlled and privately-owned banks differ, particularly following the financial crisis of 2008. Our analysis confirms that foreign state-controlled and privately-owned banks provided credit during domestic banking crises in host countries, whereas lending by domestic state-controlled banks contracted. Further, foreign state-controlled banks reduced their credit base during a home banking crisis, whereas foreign privately-owned banks expanded lending. Hence, we find that the credit supply of foreign state-controlled and privately-owned banks differs in host countries because of exogenous shocks. We also find weak evidence that foreign state control can be a transmission channel during a sovereign crisis in the home country. However, we find no evidence that foreign banks, state-controlled or privately-owned, transmit a currency crisis to a host country. Overall, our results suggest a mixed banking sector comprising foreign and domestic state-controlled banks and privately-owned banks to contribute to financial stability during domestic and international crises.

1. Introduction

A dramatic increase in foreign bank activities has been observed across countries during the last two decades. This trend has been viewed positively in the literature, as foreign banks have improved the functioning of domestic banking markets, particularly in developing countries. The extant literature documents that foreign banks stabilized the lending situation during crisis periods in host developing countries. Moreover, foreign banks have been perceived as more efficient than domestic banks, particularly state-owned banks. Consequently, governments have tended to privatize institutions owned by them and reduce entry barriers to multinational banks.[1]

However, the situation reversed dramatically following the global financial crisis (GFC) of 2007-2009. During this period, foreign-owned banks often reduced their lending activity compared to domestic banks, particularly state-owned banks. The resilience of state-owned banks to the GFC provided a renewed impetus to the debate on the economic costs and benefits of state banking.[2]Previous research has illustrated that state banks tend to perform poorly (Cornett et al., 2010), misallocate resources, and lead to lower economic growth (La Porta et al., 2002). Brei and Schclarek (2013) documented that government-owned banks increase their lending during crisis periods relative to normal times. They clarified that government-owned banks can counteract the lending slowdown of private banks, and consequently, argued that governments can play an active countercyclical role in their banking systems directly through government-owned banks. However, the existing studies concentrate on domestic-owned government banks, while little is known about how state-controlled foreign banks operate abroad during normal times and crisis periods . In this study, we aim to enhance the understanding of foreign banks' lending behavior, especially by distinguishing foreign private-owned and government-owned banks. Gonzalez-Garcia et al. (2013) distinguished four groups of state-owned financial institutions: retail commercial banks, development banks, quasi-narrow banks, and development agencies. In our study, we focus on state-owned commercial banks that perform the same type of operations as private commercial

banks. In other words, they collect deposits and use them to provide loans to firms and individuals. Moreover, state-owned retail banks provide different financial services and act as universal or near-universal commercial banks both at home and abroad.

However, state-owned commercial banks can be significantly different in their lending behaviors from privately-owned banks, as they pursue a different lending agenda in response to the government's needs. Gonzalez-Garcia et al. (2013) argued that the objectives of state-owned banks often lead to reduced profitability, as they provide loans at non-commercial terms or based on non-economic criteria.

Cornett et al. (2010) documented that state-owned banks finance the government to a greater degree and have greater credit risk than privately-owned banks. This, in turn, leads to higher risk and misallocation of capital within

[1] Cull et al. (2018) present an excellent review of the empirical literature on the implication of government and foreign ownership on bank performance and competition, financial stability, and access to finance.
[2] A good example is the AAF Virtual Debate between Charles Calomiris and Franklin Allen on state-owned banks available at https://blogs.worldbank.org/allaboutfinance/the-aaf-virtual-debates-join-charles-calomiris-andfranklin-allen-in-a-debate-on-state-owned-banks

the economy. The existing evidence demonstrates that domestic government banks behave differently from privately–owned banks during normal times as well as crisis periods (Cull and Peria, 2013; Allen et al., 2017; Bosshardt and Cerutti, 2020). However, whether this behavior also applies to privately–owned and state–owned subsidiaries in host countries is not known.

In host countries, foreign banks can have a stabilizing or destabilizing influence on the banking sector, depending on the type and origin of the shocks that hit the host economy. On the one hand, existing studies reveal that foreign banks can have a stabilizing impact by continuing to extend credit in host countries during their banking crisis periods (De Haas and Van Lelyveld, 2006), unlike domestic banks in general and government–owned banks, in particular, which reduce lending during such episodes (Allen et al., 2017). On the other hand, foreign banks can import shocks from abroad, either from their home country or from other countries where they have significant operations. This, in turn, can destabilize the host country's banking sector. In such a situation, recent research demonstrates that domestic government–owned banks can help stabilize the banking sector. However, whether foreign state–owned banks behave differently from domestic government–owned banks or more like foreign privately–owned banks is not known. Moreover, recent research demonstrates that ownership explains the behavior of banks during a sovereign crisis. Consequently, foreign banks and their ownership may influence whether they act as external shock amplifiers during a sovereign crisis in the home country.

We attempt to provide some answers to the issues outlined above using a unique dataset of 9,967 banks from 102 countries for the 1996–2018 period. The dataset allows us to control for the state and private ownership of foreign banks. Moreover, we can control for the period before and after the GFC. The two periods differ not only in terms of the dynamics of foreign bank expansion (Claessens and Van Horen, 2014) but also in terms of bank regulations, including exposure to foreign banks (Fratzscher et al., 2016). We document that the lending practices of foreign privatelyowned and state–controlled banks differed during prosperous and crisis periods. Moreover, we demonstrate that ownership plays a role in the transmission of the crisis from the home market during banking and sovereign crises. By contrast, we find no such evidence when we control for currency crises in the host or home markets, which indicates that our results are not accidental. Further, we find no evidence that the poor financial performance of the parent banks was directly related to the decline in the lending of its subsidiaries during crisis periods. In line with Allen et al. (2017), however, we find that bank–specific characteristics, such as profitability and liquidity, are more important determinants of credit growth than parent banks' health. Overall, our results are robust to the augmentation of the estimation method, sample, and variables employed in the regression.

We contribute to the existing literature in the following three ways. First, we extend the existing literature on the lending activities of foreign–owned banks by providing evidence–for the first time, to the best of our knowledge–on how state–controlled banks operate abroad. In our study, we present evidence on foreign state–controlled banks' lending activities abroad during normal and crisis periods.

As such, we contribute to the literature by providing new evidence on the transmission of shocks to the real economy via the banking channel. We confirm that foreign banks can mitigate the impact of host country–induced crises and can act as external shock amplifiers. In our analysis, we distinguish between foreign private and state–controlled

banks and document that their behavior differs, particularly during a sovereign crisis in the home market. We find evidence that a systematic banking crisis and sovereign crisis can be transmitted via the banking channel from the home market to the host market, although we find no such evidence for a currency crisis in the home market.

Lastly, this study complements the literature on foreign bank lending by providing evidence on how the lending of domestic and foreign banks changed over the last two decades, particularly following the GFC period. In addition, we calculate loan growth rates in domestic currency, in contrast to the existing studies that use bank–level data generally denominated in US dollars. Consequently, we can better address exchange rate fluctuations, particularly during crisis periods in developing countries. Thus, we present robust evidence on domestic and foreign bank lending during the normal and crisis periods.

This paper is organised as follows. Section 2 presents a short review of the literature on state and foreign bank lending. Section 3 describes the data and introduces the econometric methodology. Section 4 presents the main results as well as the studies for different crisis periods. Finally, Section 5 provides concluding remarks.

2. Literature

Our study combines two main strands of literature, foreign bank and government bank lending before and after the GFC. While studies before the GFC concentrate on the analysis of government and foreign–owned bank lending during crisis periods in the host country, the studies following the GFC focus more on the transmission of the home banking crisis, particularly the GFC, to the host countries. The topic of foreign and governmental ownership in the banking sector remains a controversial subject, and the viewpoint has changed strongly following the GFC. In this section, we briefly summarize studies that we find important from the perspective of our study.

Before the GFC, the literature on foreign ownership concentrates, particularly on developing and emerging markets. Several studies have illustrated that foreign banks are more efficient than domestic banks in general and government–owned banks, in particular. More importantly, studies have revealed that foreign–owned banks do not reduce lending during domestic crises. De Haas and Van Lelyveld (2006) analyzed the lending behavior of domestic and foreign–owned banks in Central and Eastern European (CEE) countries during the 1993-2000 period and documented that, unlike greenfield foreign banks, domestic banks reduced lending during crisis periods.

Moreover, they demonstrated that the home country conditions and the health of parent banks influence subsidiaries' lending in host countries. In a later study, De Haas and Van Lelyveld (2010) presented an extended version based on the behaviors of 45 multinational banks from 18 home countries with 194 subsidiaries across 46 countries. The authors provided evidence that within multinational banks, an internal capital market exists and is used as a tool to manage the credit growth of their subsidiaries. Overall, the authors claim that having a financially strong parent bank allows subsidiaries to expand their lending activities at a faster pace. Moreover, foreign bank subsidiaries supported by healthy parent organizations, unlike domestic banks, do not reduce lending in host country crisis periods.

Claessens and Van Horen (2014) argued that foreign bank presence may be negatively related to domestic credit creation, especially in developing countries. Furthermore, they illustrated that during the GFC, foreign banks

reduced credit more than domestic banks, except where the whole host country banking system was dominated by foreign banks.

In a later study, De Haas and Van Lelyveld (2014) revised their prior approach while considering the experience of GFC and presented a much more complex view. First, they confirmed that, unlike domestic banks, multinational bank subsidiaries did not reduce lending in the case of the host country–banking crisis. However, when the home country experiences a banking crisis, thereby impacting the parent organization, it can no longer support subsidiaries, and internal funding may even be sourced from subsidiaries to rescue the business activity of the parent organization in its home market. In particular, subsidiaries of banking groups that relied significantly on wholesale funding were forced to slow down lending more than other banks. These observations lead the authors to figuratively compare financial integration to a double–edged sword. Foreign banks may act counter cyclically in the case of only host country crises. However, the GFC indicated that if a parent home–banking crisis occurs, the lending policy of multinational banking groups may become pro–cyclical in host countries and may contribute to the deterioration of their financial system conditions. In other words, the core market is protected to the detriment of peripheral markets, from the group's perspective.

Bonin and Louie (2017) distinguished two different groups of foreign banks in their study and separately examined: (i) subsidiaries of six big European multinational banks and (ii) other foreign banks in emerging Europe. They investigated foreign bank behaviors during the GFC and the Eurozone crisis (2010) and found that bank lending was hampered during both these crises, although the two foreign bank groups defined by the authors behaved differently. The selected multinational banks' lending in host countries did not differ significantly from domestic bank lending and they continued financing the respective host economies during the hard times of crises. By contrast, other smaller foreign banks behaved pro–cyclically, that is, they contributed to the credit boom during the prosperity period and decreased lending abruptly during crises.

The second strand of the literature deals with government–owned bank lending behaviors. In a seminal study, Micco and Panizza (2006) related bank credit growth to gross domestic product (GDP) growth and an interaction term of GDP growth and a state ownership variable for a crosscountry sample of banks and found that credit growth of state banks was less pro–cyclical than that of private banks. Similarly, in their comprehensive study on banks from 111 countries, Bertay et al. (2015) contended that lending by state–owned banks is less pro–cyclical than lending by privately–owned banks, especially in countries with good governance. Lending by state–owned banks in high–income countries is even countercyclical.

Cull and Peria (2013) examined the impact of bank ownership on credit growth in a sample of Latin American and Eastern European countries before and after the GFC and found mixed results. They reported that unlike in Eastern Europe, state banks in Latin America acted counter cyclically during the crisis, thus emphasizing regional differences.

Using an international sample of banks from 50 countries, Brei and Schclarek (2013) found that government–owned banks lent relatively more than private banks during a financial crisis. Similarly, Allen et al. (2017) bank examined banks in CEE countries and provided a complex view of the role of government–owned banks. During the GFC, the lending of government–owned banks increased relatively, most likely because of stimulus programs or political pressure. However, the results revealed that foreign and domestic government–owned bank behaviors

were strongly dependent on the type of turmoil. During host country banking crises in CEE, the credit growth of foreign-owned banks remained constant or increased, whereas the lending by government-owned banks declined, with the notable exception of the recent global crisis. By contrast, the home crisis periods resulted in decreased lending by affected foreign bank subsidiaries.

In a study of 108 government-owned and 2,547 private banks from both developed and emerging markets between 2004 and 2010, Chen et al. (2016) analyzed lending behaviors through the prism of institutional quality in the host country. They documented that government-owned banks had higher loan growth rates than private banks during the crisis. Moreover, in countries with low corruption, increased lending by government banks was associated with better bank performance and more favorable GDP and employment growth during the crisis period. However, the results for countries with high corruption were more consistent with the so-called political view presented, for instance, by Sapienza (2004). The increased lending by government-owned banks is associated with underperformance relative to privately-owned banks and creates no beneficial effects on either GDP growth or employment.

In a recent study, Bosshardt and Cerutti (2020) investigated lending by government-owned banks during the GFC. Using data for a sample of banks, of which 96 were state-owned, from 25 emerging economies, they argued that state-owned banks indeed lent more during the GFC, which was probably caused by external factors that motivated those banks to pursue a stabilizing role during economic turmoil. Moreover, they contended that relatively high lending during the GFC did not compromise the portfolio quality and stability of state-owned banks in emerging economies. Overall, the empirical evidence suggests that foreign-owned banks tend to help stabilize credit when host developing countries face domestic shocks. Consequently, foreign ownership has increased dramatically in many developing countries. However, the GFC experience demonstrated a trade-off as foreign-owned banks can also transmit external shocks and might not always contribute to expanding access to credit. The record on the impact of government bank ownership suggests few benefits, especially for developing countries. While government-owned banks can help stabilize credit growth during crises, which was observed especially during the GFC, they have a negative impact on competition and performance and provide no clear benefits of expanding access to credit in the context of institutional quality. Moreover, government bank ownership can lead to resource misallocation because government-owned banks are prone to engage in political lending.

Studies that have also put forth political and environmental influence as reasons include that of Jain and Nigh (1989), which illustrated that the lending behavior of banks was affected by the political relationships between the home and host countries. This has also been studied by Hadjikhani et al. (2012), who documented how political turbulence in Russia between 1995 and 2010 affected Swedish banks to commit or de-commit themselves, based on the stability of the political climate.

3. Data and methodology

We construct an unbalanced panel dataset using both bank-level and macroeconomic data. We retrieved the bank-level data for commercial, saving, and cooperative banks from Bureau van Dijk's BankScope and BankFocus databases. In our study, we do not include development banks, which often have a strong international presence,

as their mission and business models differ from those of commercial banks. Commercial banks, particularly those with foreign presence, tend to be listed as universal banks, often with broad mandates. However, development banks vary in mandate and scope, are usually equipped with public guarantees, and often combine forprofit and non-profit activities. Most importantly, commercial banks generally operate as first-tier institutions, which means they interact directly with the final borrower. By contrast, a substantial number of development banks are second-tier institutions (Fernandez-Arias et al.´ , 2020), which also often manage and distribute state aid (e.g., KfW in Germany, BPI in France, CDP in Italy, and ICO in Spain).

To create time series information on the ownership of banks, we used past and current information on ownership structures from the two above-mentioned databases. In addition, we used various websites, including Orbis's online database, to classify the owner as private or state. We complement this information with information from several other sources, including individual banks' websites and annual reports, and websites of parent companies, banking regulatory agencies, and central banks.

Using the ownership information, we first established whether the banks are owned by private shareholders or controlled by the government. We classify a bank as government-owned if the government controls, directly or indirectly, at least 20% of the bank. This threshold for state ownership has often been used in the literature. Panizza (2021) and La Porta et al. (1999) argued that this benchmark level is sufficient to control a company. We employ two dummies to encode domestic and foreign government-controlled banks. The dummy GOVD takes the value of one if the bank is owned by the domestic government, and zero otherwise. The dummy GOVF takes the value of one if the bank is owned, directly or indirectly, by the foreign government.

Consequently, we classify banks in our sample with government ownership of less than 20% as privately-owned banks. However, we consider a bank as foreign-owned, including foreign state controlled, when at least 50% of its capital is owned by foreign shareholders (Allen et al., 2017), which we encode using a dummy variable FGN. PRIVF to encode foreign privately-owned banks, which takes the value of 1 when at least 50% of the capital is owned by a foreign entity and the government ownership is less than 20%. Finally, we encode all the remaining banks as domestic privately-owned banks using a dummy PRIVD. We omit the dummy from the regressions to avoid multicollinearity, although it is captured by the constant in the regressions.

In the remainder of the study, we use the definition of state-controlled banks to underline the difference in ownership thresholds between state and private banks. However, we generally find that, unlike foreign privately-owned banks, state-controlled banks are often wholly-owned subsidiaries.

Using these data, we construct a panel of 46,419 observations for 9,967 banks from 102 countries for the 1996-2018 period. Following De Haas and Van Lelyveld (2010), we also use a subsample that consists of bank subsidiaries and parent banks in the regression. In contrast to De Haas and Van Lelyveld (2010) and Allen et al. (2017), we control for the impact of parent banks' financial health on foreign as well as domestic subsidiaries if they operate independently from the parent bank in the host country. Consequently, we can compare the impact of parent banks' fundamentals on domestic and foreign operations, which, to the best of our knowledge, has not been

conducted in the past. Using ownership data for the ultimate owners, we identified 4,219 parent banks that owned 3,791 subsidiaries over the 1996-2018 period. A total of 2,902 subsidiaries were domestic, while 899 subsidiaries were foreign-owned, of which, 196 were state-controlled parent banks and 731 were privately-owned multinational banks. The sum of state-controlled and privately-owned subsidiaries is higher than the total number of subsidiaries due to ownership changes over the analysis period.

We retrieved the necessary financial data for parent banks from the BankScope database, and our final sample comprised 9,413 parent-subsidiary-year observations, as in some cases, the data for the parent banks were missing. We use only unconsolidated accounts for parent banks, while for the full sample, we use consolidated financial statements when unconsolidated accounts are not available. We winsorize at the 1% level for all bank-level variables in both datasets, and provide the definitions of the variables used in the study and their sources in the Appendix Table A1.

3.1. Bank characteristics

Our dependent variable is the percentage of real growth in total gross loans in the domestic currency (← Loans) of bank i in country c in year t. We follow Bonin and Louie (2017) and calculate the real (inflation-adjusted) growth of gross lending using domestic currency. By contrast, most studies convert loans to US dollars (eg. Cull and Peria (2013); Allen et al. (2017); Panizza (2021)), which is not problematic for developed countries. However, the share of state-owned banks is not uniform across countries. Panizza (2021) illustrates that the share of state-controlled banks in advanced economies dropped from 5.5% in 1995 to below 4% over the 1999-2007 period, but started to increase following the GFC. In middle- and low-income economies, the share of total assets of state-controlled banks decreased from approximately 20% in the mid-1990s to around 15% in 2018. By contrast, state ownership increased rapidly in developing countries in East Asia after the Asian financial crisis and then remained constant at about 30%. In developing countries of other regions, state ownership mostly decreased in the last two decades, and then flattened to about 25% of bank assets in East Europe and Central Asia or increased again in Latin America and the Caribbean, the Middle East, North Africa, and Sub-Saharan Africa. In South Asia, state ownership, despite its ongoing decline, remained high at about 50% in 2018. Thus, the figures illustrate that state ownership remains relatively high in most of the developing or emerging countries, which dominate the world economy as well as our sample.

Domestic currencies of developing countries often fluctuate, particularly during periods of economic uncertainty. Therefore, loan growth rates may be biased because of domestic currency volatility against the US dollar or other hard currencies. For example, Corsetti et al. (1999) demonstrated that during the Asian crisis of 1997, the currencies of Thailand, Malaysia, Indonesia, and the Philippines came under speculative pressure, which eventually led to a devaluation of domestic currencies in the region. The loss in the value of domestic currencies against the US dollar within a period of six months ranged from 5% in Taiwan to more than 40% in Thailand, Malaysia, Indonesia, and the Philippines. Similarly, the domestic currencies in CEE countries first appreciated against the US dollar in the 2005-2007 period, and then sharply depreciated as the GFC hit the region. Bonin and Louie (2017)

illustrated that the correction in the calculation of bank loan growths in eight European Union-countries provides slightly different results and contradicts those presented earlier in the literature.

In the regression, we control for the following bank characteristics that may influence a bank's tendency to expand its loan portfolio: liquidity (liquid assets to total assets), profitability (return on assets), solvency (equity to assets), and total bank assets to countries' GDP as a measure of size. The bank-specific characteristics mentioned in the literature are found to be important determinants of foreign banks' lending behavior. Jeon et al. (2013) contended that banks can resort to liquid assets to finance their lending, and therefore, more liquid banks tend to increase their credit at faster rates. Peek and Rosengren (1997) found that better-capitalized banks facilitate faster loan growth. However, Black and Strahan (2002) demonstrated that less liquid banks or undercapitalized banks can be prone to moral hazard and rapidly expand lending. Kishan and Opiela (2000) found that the effects of monetary policy on bank loans depend on bank capitalization and size and illustrated that undercapitalized and small banks are more responsive than well-capitalized and large banks to monetary shocks.

Indeed, Allen et al. (2017) documented that bank-specific characteristics are more important than ownership in explaining the supply of credit during a financial crisis. They found that in periods of simultaneous host and home financial crises, only the bank characteristics of profitability, liquidity, and deposit growth were important in explaining the lending behavior in CEE countries. However, De Haas and Van Lelyveld (2010) documented that affiliations with parent banks can also affect subsidiary banks' credit supply in the host country. Hence, we control for parent bank characteristics that may determine subsidiaries' loan growth, including the following bank-specific measures in the regression as independent variables: liquidity (parent liquid assets to total assets), profitability (parent banks' return to assets), and size (parent bank assets to home country GDP).

3.2. Country characteristics

Claessens and Van Horen (2012) documented that the relative performance of foreign banks is better when the geographical, cultural, and institutional distance is small. However, they demonstrated that foreign banks perform better when the economic distance is large and the parent's home country has a higher level of development than the host country. We control for geographical distance using a variable that measures the differences in the log of kilometers between the capitals of the home and host countries. We control for cultural aspects using a dummy language, which equals one if the official language in both countries is identical. Additionally, we control for the differences in the institutional environment in the host and home countries using a dummy common law that equals one if the countries have the same legal origins (Buch and DeLong, 2004). The language and common law variables also proxy for information costs, which are important for multinational banks.

We follow Allen et al. (2017) and employ country GDP growth and inflation rate (CPI) as country macroeconomic variables reflecting the attractiveness of expanding credit in the host country. We expect banks to be positively and relatively strongly related to host countries' GDP growth. By contrast, we expect a negative relationship between CPI and loan growth, as a high inflation rate reflects unstable macroeconomic conditions in the host country.

Lastly, we control for a systematic banking crisis using a dummy variable, crisis, which takes a value of one for years in which the host (or home) country experienced a systematic banking crisis. We identify the years of the domestic systematic banking crisis in a particular country using the Laeven and Valencia (2020) database. Furthermore, we use the database to identify domestic sovereign and currency crises, which we use in the sensitivity analysis. Finally, we employ a GFC crisis dummy that takes the value of one for the years 2008–2009 and zero otherwise. In the regression, we interact the crisis dummies with the ownership variables to observe the impact of ownership on bank loan growth during crisis periods.

Table 1 Descriptive statistics

The table provides descriptive statistics of the variables employed in the empirical specifications. The summary statistics for the bank and country level variables are based on the full sample for the year 1996–2018.

	Mean	Median	Std. dev.	Obs.
Subsidiary characteristics				
← Gross loans	0.085	0.058	0.196	66,717
Liquidity	0.214	0.160	0.172	66,717
Loan to Deposit	0.697	0.718	0.275	66,717
Profitability	0.011	0.010	0.011	66,717
Solvency	0.115	0.100	0.066	66,717
Size	0.006	0.001	0.009	66,717
GOV_D	0.040	0.000	0.195	66,717
FGN	0.292	0.000	0.455	66,717
GOV_F	0.034	0.000	0.181	66,717
$PRIV_F$	0.258	0.000	0.438	66,717
Parent bank characteristics				
Profitability	0.038	0.020	0.037	18,093
Size	38.946	0.067	98.376	20,975
Liquidity	0.131	0.077	0.140	20,926
Host country characteristics				
Distance	2.004	0.000	3.412	64,114
Language	0.096	0.000	0.294	57,775
Common law	0.358	0.000	0.479	66,717
GDP growth	0.028	0.027	0.029	66,717
CPI	0.042	0.021	0.160	66,717

3.3 Methodology

The relationship between loan growth, bank−specific characteristics is evaluated using the following specification:

$$\Delta L_{i,c,t} = \alpha 0 + \beta 1 Bank_{i,c,t-1} + \beta 2 Own_{i,c,t} + \beta 3 Host_{c,t} + \imath t + ict \qquad (1)$$

where the dependent variable is the real credit growth of bank i in country c and year t; Banki,c,t represents one period lagged variables controlling for characteristic of banks i; Owni,c,t are ownership dummy variable controlling for domestic and foreign government−owned banks as well private foreign−owned banks; Hostc,t is set of host−country macroeconomic variables including crisis dummy. When we use the subsample of multinational bank subsidiaries, Banki,c,t ✣ 1 includes in addition one period lagged variables controlling for parent bank characteristics. We estimate the specification using polled ordinary least squares with year fixed effects. We weigh the observations, with the weights equal to the number of banks in the host country to prevent any bias due to differences in market size. All standard errors are robust and allow for clustering at the host country level.

4. Results

Columns (1)−(2) in Table 2 present the results of estimating Eq.1 for the growth of the full sample's total gross loans. Columns (3)-(4) and (5)-(6) list the results for the subsamples that include the years 1996-2007 and 2008-2018, respectively. We decided to split the sample into two subsamples as we expected that foreign bank lending may have changed following the GFC. Our assumption is confirmed by the results, as we find that in columns (1)-(4), the coefficients of foreign bank lending are positive and significant at the 1% level. Moreover, in columns (2) and (4), we find that the coefficient of ownership is positive for foreign state−controlled and privately−owned banks and statistically significant. Thus, the results supplement the existing empirical results and demonstrate that foreign state−controlled and privately−owned bank lending was pro−cyclical before the GFC. The results in columns (5) and (6), however, reveal that the situation changed following the GFC. The ownership coefficients are negative but statistically insignificant. The results imply that the change in lending affected both private and state−controlled foreign subsidiaries. However, the coefficients indicate state−owned foreign banks were more aggressive than privately−owned banks before the GFC but reduced their lending more than the latter following the GFC. The results may reflect the low economic growth rates in most of the countries following the GFC, and consequently, the dynamics could change again with economic recovery.

As expected, we find that domestic government−owned banks provided less credit than domestic privately−owned banks and foreign banks. In all specifications, the coefficient was negative and statistically significant. The effect seems to be slightly stronger for the period following the GFC, which can be due to the nationalization of privately−owned banks that encountered financial problems. As a robustness test, we decided to exclude all financial institutions that received state aid or were nationalized. The exclusion of these institutions does not change our main results, although we do not present them here for brevity.

Table 2 Main results

This table reports the coefficients of the linear regression model using weighted least squares. Columns (1)-(2), (3)-(4), and (5)-(6) include the samples for the years 1996-2018, 1996-2007, and 2008-2018, respectively. The dependent variable is the change in real gross loans. The independent variables are presented in Table A1. All specifications include constants, year, and country−fixed effects. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Liquidity	0.069***	0.069***	0.119***	0.118***	0.020	0.021
	(0.017)	(0.017)	(0.030)	(0.030)	(0.018)	(0.018)
Loan to Deposit	0.002	0.002	0.019	0.019	−0.015	−0.015
	(0.012)	(0.012)	(0.018)	(0.018)	(0.014)	(0.014)
Profitability	1.325***	1.320***	2.474***	2.478***	0.956***	0.949***
	(0.350)	(0.351)	(0.618)	(0.619)	(0.337)	(0.339)
Solvency	0.011	0.011	−0.075	−0.076	0.051	0.052
	(0.051)	(0.051)	(0.105)	(0.105)	(0.051)	(0.052)
Size	−0.131	−0.131	−0.594	−0.593	−0.307	−0.308
	(0.315)	(0.315)	(0.496)	(0.497)	(0.345)	(0.344)
GOV_D	−0.029***	−0.029***	−0.026*	−0.026*	−0.029***	−0.029***
	(0.007)	(0.007)	(0.014)	(0.014)	(0.008)	(0.008)
FGN	0.070***		0.195***		−0.003	
	(0.024)		(0.044)		(0.027)	
GOV_F		0.069***		0.200***		−0.005
		(0.024)		(0.045)		(0.028)
$PRIV_F$		0.071***		0.194***		−0.002
		(0.024)		(0.045)		(0.027)
Distance	−0.010***	−0.010***	−0.024***	−0.024***	−0.001	−0.001
	(0.003)	(0.003)	(0.006)	(0.006)	(0.004)	(0.004)
Language	−0.013	−0.013	−0.044**	−0.044**	−0.001	−0.001
	(0.008)	(0.008)	(0.017)	(0.017)	(0.009)	(0.009)
Common law	−0.017*	−0.017*	0.013	0.013	−0.028***	−0.028***
	(0.009)	(0.009)	(0.018)	(0.018)	(0.010)	(0.010)
GDP growth	1.105***	1.105***	1.341***	1.339***	0.842***	0.841***
	(0.197)	(0.197)	(0.200)	(0.200)	(0.242)	(0.241)
CPI	−0.045***	−0.045***	−0.026***	−0.026***	−0.140*	−0.140*
	(0.012)	(0.012)	(0.008)	(0.008)	(0.071)	(0.071)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,419	46,419	17,426	17,426	28,993	28,993
R^2	0.14	0.14	0.12	0.12	0.11	0.11
Adj R^2	0.13	0.13	0.12	0.12	0.11	0.11

On the one hand, columns (3)-(4) indicate that the coefficient of distance is negative in all specifications and statistically significant at the 1% level. On the other hand, these two columns also reflect that the coefficient of common language is negative in all specifications and significant at the 5% level. In other words, we find that banks are more likely to provide loans in areas closer to the country of the parent bank, but that country does not need to be close in terms of culture, as the coefficient of common language is negative. These results were driven mainly by the period before the GFC. By contrast, we find that the coefficient of common law is negative, but the results are statistically significant in columns (5)-(6) at the 1% level. Hence, we find no evidence that culture proximity explains the growth of loans. Nevertheless, the results demonstrate that the lending characteristics changed

following the GFC . The remaining macroeconomic control variables are aligned with the literature. The coefficient of economic growth is positive and significant in all specifications at the 1% level. By contrast, the coefficient of inflation is negative and significant in all specifications. Thus, the results confirm that the macroeconomic environment is important in explaining the lending levels in the host countries. As the cultural and economic control variables do not differ across the different specifications, we do not discuss them here.

4.1. Host Banking Crisis

In Table 3, we present the specification where we introduce a dummy for a systematic banking crisis in the host country. We interact the variable with the ownership variables to analyze the impact of the host country crisis on bank lending depending on the type of bank. Columns (1)-(3) in Table 3 present the results for the full sample, while columns (4)-(5) and (6)-(7) list the results for the subsamples covering the years 1996-2007 and 2008-2018, respectively. In all the following regressions, we control for bank-level variables and macro-country variables as in Table 2, although we do not report them here for brevity.

In line with our previous results, we find that domestic government-owned banks provided less credit than domestic privately-owned or foreign-owned banks. In all specifications, the coefficients of domestic government-owned banks remain negative and statistically significant. By contrast, we find that foreign-owned banks, both privately-owned and state-controlled, expanded lending before the GFC. In columns (4)-(5), the coefficients of foreign ownership are positive for both privately-owned and state-controlled banks and statistically significant at the 1% level. As expected, we find that the coefficient of the host country crisis is negative and statistically significant. In other words, we illustrate that, on average, banks reduce lending in periods of a systematic banking crisis. The interaction between the host country crisis and domestically-owned banks is negative in all specifications, although statistically insignificant. By contrast, the coefficients of the interaction term between host country crisis and foreign ownership, both privately owned and state-controlled, are positive in all specifications but are statistically insignificant. The coefficient of the interaction term between host crisis and foreign subsidiaries controlled by the state is positive and statistically significant at the 1% level only in column (5). These foreign state-controlled banks stabilized the lending situation during a systematic banking crisis in the host country. In column (7), the coefficient of the interaction term is positive but insignificant, implying that this effect diminished following the GFC, which may be attributed to the financial problems of many state-controlled banks.

Table 3 Host banking crisis

This table reports the coefficients of the linear regression model using weighted least squares. Columns (1)-(3), (4)-(5), and (6)-(7) include the years 1996-2018, 1996-2007, and 2008-2018, respectively. The dependent variable is the change in real gross loans. The variable crisis controls for systematic banking crisis in the host country. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank−level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GOV_D	−0.029***	−0.029***	−0.029***	−0.024*	−0.025*	−0.028***	−0.028***
	(0.007)	(0.007)	(0.007)	(0.014)	(0.013)	(0.008)	(0.008)
FGN	0.074***	0.072***					
	(0.023)	(0.024)					
GOV_F			0.069***	0.202***	0.197***	0.000	−0.002
			(0.024)	(0.044)	(0.045)	(0.028)	(0.028)
$PRIV_F$			0.073***	0.195***	0.194***	0.004	0.003
			(0.024)	(0.043)	(0.044)	(0.027)	(0.027)
Host Crisis	−0.049***	−0.054***	−0.054***	−0.057***	−0.071***	−0.048***	−0.053***
	(0.010)	(0.011)	(0.011)	(0.018)	(0.017)	(0.010)	(0.013)
GOV_DxCrisis	−0.002			−0.017		−0.001	
	(0.015)			(0.018)		(0.018)	
FGNxCrisis		0.013					
		(0.016)					
GOV_FxCrisis			0.037		0.145***		0.022
			(0.030)		(0.054)		(0.028)
$PRIV_F$xCrisis			0.009		0.030		0.007
			(0.016)		(0.033)		(0.017)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,419	46,419	46,419	17,426	17,426	28,993	28,993
R^2	0.14	0.14	0.14	0.12	0.12	0.11	0.11
Adj R2	0.14	0.14	0.14	0.12	0.12	0.11	0.11

Table 4 Host banking crisis and parent bank fundamentals

This table reports the coefficients of a linear regression model using weighted least squares using the sample of subsidiaries and parent banks for the years of 1996–2018. The subsample include in columns (1)–(3) domestic and foreign banks that are controlled by another bank; in column (4) only domestic owned banks; in column (5) foreign–owned banks; in column (6) foreign state controlled banks and in column (7) private foreign banks. The dependent variable is the change in real gross loans. The variable crisis controls for systematic banking crisis in the host country. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank–level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Subsidiary characteristics							
Liquidity	−0.015	−0.016	−0.016	−0.021	−0.011	0.001	0.004
	(0.039)	(0.039)	(0.039)	(0.085)	(0.043)	(0.097)	(0.044)
Loan to Deposit	−0.037	−0.038	−0.037	−0.044	−0.032	−0.043	−0.043*
	(0.023)	(0.023)	(0.023)	(0.039)	(0.025)	(0.062)	(0.024)
Profitability	−0.310	−0.344	−0.341	3.212	−0.610	−1.745	−0.231
	(0.715)	(0.713)	(0.713)	(2.380)	(0.725)	(1.331)	(0.816)
Solvency	0.260**	0.267**	0.254**	−0.024	0.266**	0.115	0.323**
	(0.107)	(0.109)	(0.109)	(0.381)	(0.123)	(0.243)	(0.134)
Size	0.852	0.816	0.803	−0.404	0.961	−4.008***	1.730***
	(0.556)	(0.558)	(0.556)	(0.729)	(0.588)	(1.240)	(0.617)
Host crisis		−0.051***	−0.265**	−0.094	−0.298**	−0.171	−0.337**
		(0.017)	(0.131)	(0.077)	(0.143)	(0.157)	(0.165)
Parent bank characteristics							
Liquidity	−0.108***	−0.106***	−0.116***	−0.177	−0.128***	−0.327**	−0.151***
	(0.037)	(0.037)	(0.036)	(0.115)	(0.039)	(0.154)	(0.045)
Profitability	−0.280	−0.273	−0.310	−0.783**	−0.344	0.134	−0.282
	(0.288)	(0.287)	(0.289)	(0.359)	(0.370)	(0.509)	(0.405)
Size	−0.000	−0.000	−0.000	0.000	−0.000*	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LiquidityxCrisis			0.700	0.329*	0.757	0.515	0.827
			(0.577)	(0.195)	(0.611)	(0.488)	(0.630)
ProfitabilityxCrisis			2.972*	1.095	3.607**	−0.613	5.233***
			(1.507)	(0.770)	(1.714)	(1.466)	(1.576)
SizexCrisis			−0.000	−0.000	−0.000	−0.002	−0.000
			(0.001)	(0.001)	(0.001)	(0.002)	(0.000)
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,413	9,413	9,413	5,487	3,926	634	3,292
R^2	0.10	0.10	0.11	0.18	0.12	0.19	0.15
Adj R^2	0.10	0.10	0.10	0.17	0.11	0.14	0.14

In Table 4, we present the results for the subsample of the domestic and foreign bank subsidiaries where we can control for parent bank financial standing. Columns (1)-(2) list the results for the full sample, which includes both domestic and foreign bank subsidiaries. Next, we divided the sample into subsamples based on ownership. Columns

(4)–(5) illustrate the results for the subsample that includes only domestic and foreign–owned banks, respectively. Additionally, in columns (6)–(7), we present the results for foreign state–controlled and foreign privately–owned banks, respectively.

The results, controlling for parent bank characteristics, confirm our previous findings. In almost all specifications, the dummy for the host country crisis is negative and statistically significant. The dummy is insignificant only in specifications (4) and (6). Thus, the results confirm that foreign state–controlled banks behave differently during a systematic banking crisis.

In line with Allen et al. (2017), we find little evidence that parent banks' financial situation determines the loan growth of domestic and foreign subsidiaries. The coefficient of liquidity is negative and statistically significant in almost all specifications at the 1% level. However, unlike in Allen et al. (2017), we find that parent banks' health seems to play a role during a host country crisis, as the coefficients of the interaction term between crisis and parent bank profitability are positive and statistically significant in column (3). Thus, the results indicate that bank subsidiaries of profitable parent banks increased lending during systematic banking crisis periods. Moreover, the coefficients of the interaction terms are positive and statistically significant in columns (5) and (7), which suggests that parent banks' situation is more important for foreign banks, particularly those that are privately–owned.

4.2. Home banking crisis

In Table 5, we present the results, where we control for the systematic banking crisis in the home countries of foreign banks. Columns (1)–(3) present the results for the full sample, while columns (4)–(5) and (6)–(7) for the subsamples covering the years 1996–2007 and 2008–2018, respectively. In all the following regressions, we control for bank–level variables and macro–country variables as in Table 2, although we do not report them here for brevity.

Table 5 Impact of home banking crisis on lending

This table reports the coefficients of the linear regression model using weighted least squares. Columns (1)-(3), (4)-(5), and (6)-(7) include the years 1996-2018, 1996-2007, and 2008-2018, respectively. The dependent variable is the change in real gross loans. The variable crisis controls for systematic banking crisis in the home country. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank-level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
GOV_D	−0.029***	−0.029***	−0.029***	−0.0295*	−0.025*	−0.028***	−0.028***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
FGN	0.075***	0.075***					
	(0.024)	(0.024)					
GOV_F			0.074***	0.198***	0.198***	−0.002	−0.002
			(0.025)	(0.046)	(0.046)	(0.029)	(0.029)
$PRIV_F$			0.075***	0.190***	0.190***	0.001	0.001
			(0.024)	(0.045)	(0.045)	(0.027)	(0.027)
Home Crisis	−0.026***	−0.024***	−0.031	−0.050***	−0.172***	−0.011	−0.011
	(0.010)	(0.011)	(0.029)	(0.017)	(0.037)	(0.013)	(0.030)
GOV_FxCrisis		−0.008		−0.122***		0.001	
		(0.029)		(0.039)		(0.032)	
$PRIV_F$xCrisis			0.007		0.122***		−0.001
			(0.031)		(0.039)		(0.032)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,329	46,329	46,329	17,409	17,409	28,920	28,920
R^2	0.14	0.14	0.14	0.12	0.12	0.11	0.11
Adj R^2	0.13	0.13	0.13	0.12	0.12	0.11	0.11

The results demonstrate that a banking crisis in a foreign subsidiary's home country is negatively related to lending in the host country. The coefficients of the home banking crisis are negative in all specifications, although they are significant only in columns (1)-(2) and (4)-(5). The results are in line with the literature indicating that foreign banks can act as external shock amplifiers (Peek and Rosengren, 1997; Aiyar, 2012). In particular, we confirm that foreign banks can transmit shocks via lending channels. However, we find that cross-border shock transmission via the lending channel is mainly related to foreign state-controlled banks. In column (4), the coefficient of the interaction term between home country crisis and government control is negative and statistically significant at the 1% level. By contrast, in column (5), the coefficient of the interaction term between home country crisis and private ownership is positive and statistically significant at the 1% level. This implies that foreign privately-owned banks expand their lending abroad during a home country-banking crisis. The results are in line with the substitution effect reported by De Haas and Van Lelyveld (2010), who find some evidence that multinational bank subsidiaries expand lending faster when economic growth in their home country decreases.

However, we find that the results for the banking crisis and the interaction terms are weaker for the post−GFC period. One explanation is that multinational banks limited their exposure to foreign markets following the GFC, particularly because of the new banking regulations (Fratzscher et al., 2016). Indeed, the results partially supportDermine (2013) warning that new regulations may reduce the supply of bank loans. Nevertheless, more time is needed to assess the impact of the new regulation on multinational banks, especially whether they render banking sectors safer and reduce the shock transmission, including cross−border transmission, from the banking sector to the real economy.

In Table 6, we list the results for the subsample of domestic and foreign−owned subsidiaries, where we control for parent bank fundamentals. Columns (1)-(2) include the subsample of domestic and foreign subsidiaries, column (3) comprises only foreign−owned banks, and columns (4)-(5) include only foreign state−controlled and foreign privately−owned banks, respectively.

In line with the previous results, we find that a home country−banking crisis has a negative impact on the lending levels in the host country. In all specifications, the coefficient of the home banking crisis is negative and statistically significant. The results partially support our previous findings, demonstrating that foreign state−controlled banks behave differently from foreign privately−owned banks. In column (4), the coefficient of home country crisis is almost three times larger than in column (5), indicating that foreign state−controlled banks reduce lending more significantly than foreign privately−owned banks.

In line with the previous results, we find that parent bank liquidity strongly determines the lending of subsidiaries. In all specifications, the coefficient of liquidity is negative and statistically significant, at least at the 5% level. Similarly, the interaction term between parent bank liquidity and home country crisis is negative and statistically significant in three out of four specifications. However, the remaining coefficients of the parent bank characteristics remain statistically insignificant.

Table 6 Home banking crisis and parent bank fundamentals

This table reports the coefficients of a linear regression model using weighted least squares using the sample of subsidiaries and parent banks for the years of 1996–2018. The subsample include in columns (1)–(2) domestic and foreign banks that are controlled by another bank; in column (3) only foreign–owned banks; in column (4) foreign state controlled banks and in column (5) private foreign banks. The dependent variable is the change in real gross loans. The variable crisis controls for systematic banking crisis in the home country. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank–level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)
Subsidiary characteristics					
Liquidity	−0.016	−0.016	−0.010	−0.001	0.005
	(0.039)	(0.039)	(0.039)	(0.039)	(0.039)
Loan to Deposit	−0.038	−0.038	−0.033	−0.040	−0.043*
	(0.023)	(0.023)	(0.025)	(0.062)	(0.024)
Profitability	−0.344	−0.354	−0.621	−1.797	−0.224
	(0.713)	(0.713)	(0.725)	(1.331)	(0.814)
Solvency	0.267**	0.266**	0.282**	0.111	0.341**
	(0.109)	(0.109)	(0.122)	(0.243)	(0.133)
Size	0.816	0.834	0.998*	−3.948***	1.762***
	(0.558)	(0.558)	(0.591)	(1.236)	(0.624)
Home crisis	−0.051***	−0.050***	−0.051***	−0.119***	−0.043***
	(0.017)	(0.017)	(0.017)	(0.068)	(0.024)
Parent bank characteristics					
Liquidity	−0.106***	−0.103***	−0.111***	−0.323**	−0.132***
	(0.037)	(0.037)	(0.037)	(0.037)	(0.037)
Profitability	−0.273	−0.271	−0.280	0.061	−0.194
	(0.287)	(0.290)	(0.375)	(0.498)	(0.414)
Size	−0.000	−0.000	−0.000*	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LiquidityxCrisis		−0.145*	−0.224***	−0.287	−0.197***
		(0.080)	(0.069)	(0.407)	(0.074)
ProfitabilityxCrisis		−0.160	−0.411	−0.304	−0.371
		(0.372)	(0.372)	(0.372)	(0.372)
SizexCrisis		−0.000	−0.000	−0.002	−0.000
		(0.000)	(0.000)	(0.000)	(0.000)
Country controls	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes
Observations	9,413	9,413	3,926	634	3,292
R^2	0.10	0.10	0.11	0.19	0.14
Adj R^2	0.10	0.10	0.10	0.14	0.13

We believe that the results confirm that bank funding structure influences lending stability. We may assume that only those domestic and foreign subsidiaries that could not rely on parent banks' liquidity reduced lending. The results supplement the findings of Allen et al. (2014), who documented that foreign bank subsidiaries dependent on interbank market financing increased their credit supply before the crisis but reduced their lending activities during the GFC. Moreover, the authors demonstrated that the reduction in the subsidiary's lending was strongly related to its parent bank's lending via the interbank market. They argued that the situation indicated that foreign bank subsidiaries could not rely on their parent banks' support via the interbank market during the GFC. As foreign bank subsidiaries encountered problems in attracting new depositors during this period, they were forced to reduce their lending significantly during the GFC.

4.3. Global financial crisis

Table 7 presents the results for the determinants of bank lending during the GFC. Columns (1)–(3) list the results for the full sample, while columns (4)–(6) present the results that exclude those banks that either received government financial aid or we nationalized. We conducted this segregation to check whether it impacts our results, as government aid was often based on conditions, while the nationalization of multinational banks changed the composition of foreign state–controlled banks. We discover that excluding these banks did not alter the main results presented in columns (1)–(3).

We again find that domestic state–controlled banks provide significantly fewer loans than private domestic banks and foreign–owned banks in periods of normality. The coefficient of domestic state control is negative in all specifications and statistically significant at the 1% level. By contrast, foreign–owned banks, both state–controlled and privately–owned, are more likely to be procyclical. The coefficient of foreign ownership, including the variables controlling for state control and private ownership, are positive in all specifications and statistically significant at the 1% level. In line with Cull and Peria (2013); Chen et al. (2016); Allen et al. (2017); Bonin and Louie (2017), we find that the coefficient of GFC is negative and statistically significant in all specifications, at least at the 5% level. Similarly, the coefficient of the interaction term between foreign ownership and GFC is negative, although it is not statistically significant. Therefore, we find only weak evidence that foreign banks, both state–controlled and privately–owned, reduced lending in host countries during the GFC. The results can be explained by the fact that our sample consists of many countries, while the existing studies focus mainly on regions that were strongly affected by the GFC, such as CEE countries.

By contrast, we find that domestic state–controlled banks had higher lending growth rates than foreign–owned and domestic privately–owned banks during the GFC. The coefficient of the interaction term between domestic state–controlled banks and GFC is positive, although significant only at the 10% level. Thus, the results confirm that government ownership could be useful in smoothing the business cycle, especially during deep recessions.

Table 7 Global financial crisis

This table reports the coefficients of the linear regression model using weighted least squares. Columns (1)-(3) include the full sample of banks for the 1996-2018 period. Columns (4)-(6) lists a subsample that excludes banks that received government aid following the GFC. The dependent variable is the change in real gross loans. The variable GFC controls for global financial crisis of 2007−2008. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank−level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV_D	−0.031***	−0.029***	−0.029***	−0.031***	−0.029***	−0.029***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
FGN	0.071***	0.071***		0.077***	0.077***	
	(0.024)	(0.024)		(0.025)	(0.025)	
GOV_F			0.069***			0.084***
			(0.024)			(0.025)
$PRIV_F$			0.071***			0.076***
			(0.024)			(0.025)
GF Crisis	−0.062***	−0.058**	−0.058**	−0.063***	−0.057**	−0.058**
	(0.023)	(0.026)	(0.026)	(0.023)	(0.027)	(0.026)
GOV_DxGFC	0.036*			0.038*		
	(0.020)			(0.020)		
FGNxGFC		−0.002			−0.002	
		(0.015)			(0.015)	
GOV_FxGFC			−0.006			−0.023
			(0.029)			(0.032)
$PRIV_F$xGFC			−0.002			−0.002
			(0.015)			(0.015)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,419	46,419	46,419	46,026	46,026	46,026
R^2	0.14	0.14	0.14	0.13	0.13	0.13
Adj R^2	0.14	0.13	0.13	0.13	0.13	0.13

We recognize that previous results indicated that state−owned banks are also likely to reduce lending during a domestic banking crisis. The differences in the results can be explained by the sample composition, which includes countries that were not directly affected by the GFC. In these countries, we may expect that state−controlled banks were more likely to provide countercyclical lending. Moreover, Chen et al. (2016) find that the effect of an increase in lending by government banks relative to private banks depends on a country's degree of corruption.

Overall, the results support the argument of Yeyati et al. (2007) that the countercyclical lending of state−controlled banks may increase the effectiveness of countercyclical macroeconomic policies and help smoothen the business cycle.

Table 8 presents the results when we control for the parent bank's financial situation. Columns (1)-(2) include the sample domestic and foreign banks, columns (3)-(4) list only the subsamples of domestic and foreign−owned

banks, respectively, and columns (5)–(6) include the subsample of foreign state–controlled and foreign privately–owned banks, respectively.

In line with our previous results, we find that the coefficient of GFC is negative and highly statistically significant in all specifications. Moreover, as in previous results, the parent bank liquidity

is a strong determinant of domestic and foreign subsidiaries' loan growth. When we interact the GFC dummy with the parent–specific variables, we find that the effect is not homogeneous across the sample. The results for the subsample of domestic banks in column (3) indicate that more liquid and more profitable banks expanded their loan portfolios during the GFC. One explanation for the results is that the domestic subsidiaries in our sample are cooperative, saving, and union banks, which are integrated within a group controlled by the parent bank. Hesse and Cihak´ (2007) documented that cooperative banks are more stable than commercial banks because they have significant soft information on the creditworthiness of customers, and are, therefore, less likely to commit lending mistakes. Moreover, they found that the earnings volatility of cooperative banks is significantly lower than that of commercial banks, which more than offsets their lower profitability and capitalization; Becchetti et al. (2016) illustrated that cooperative banks tightened loan intensity only slightly compared to commercial banks during the GFC and their loan intensity gradually converged to that of non–cooperative banks. Our results support the argument that liquid and profitable cooperative and saving banks expanded their lending compared to other groups of banks during the GFC.

Table 8 Global financial crisis and parent bank fundamentals

This table reports the coefficients of a linear regression model using weighted least squares using the sample of subsidiaries and parent banks for the years of 1996–2018. The subsample include in columns (1)–(2) domestic and foreign banks that are controlled by another bank; in column (3) only domestic owned banks; in column (4) foreign–owned banks; in column (5) foreign state controlled banks and in column (6) private foreign banks. The dependent variable is the change in real gross loans. The variable crisis controls for global financial crisis of 2007–2008. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank–level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
Subsidiary characteristics						
Liquidity	−0.015	−0.015	−0.021	−0.008	0.007	0.006
	(0.039)	(0.039)	(0.085)	(0.043)	(0.098)	(0.044)
Loan to Deposit	−0.037	−0.037	−0.044	−0.037	−0.038	−0.042*
	(0.023)	(0.023)	(0.039)	(0.025)	(0.062)	(0.024)
Profitability	−0.310	−0.307	3.210	−0.568	−1.596	−0.175
	(0.715)	(0.716)	(2.378)	(0.728)	(1.303)	(0.817)
Solvency	0.260**	0.260**	−0.025	0.277**	0.129	0.332**
	(0.107)	(0.108)	(0.381)	(0.120)	(0.243)	(0.130)
Size	0.852	0.854	−0.402	1.015*	−4.116***	1.785***
	(0.556)	(0.556)	(0.729)	(0.589)	(1.232)	(0.619)
GF crisis	−0.176***	−0.254***	−0.395***	−0.242**	−0.053	−0.263**
	(0.058)	(0.080)	(0.110)	(0.092)	(0.211)	(0.101)
Parent bank characteristics						
Liquidity	−0.108***	−0.109***	−0.177	−0.118***	−0.317**	−0.140***
	(0.037)	(0.037)	(0.116)	(0.040)	(0.154)	(0.045)
Profitability	−0.280	−0.287	−0.782**	−0.300	0.054	−0.221
	(0.288)	(0.291)	(0.357)	(0.373)	(0.477)	(0.411)
Size	−0.000	−0.000	0.000	−0.000*	−0.000	−0.000
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
LiquidityxCrisis		0.258	0.723**	0.160	−0.687	0.270
		(0.187)	(0.305)	(0.209)	(0.381)	(0.221)
ProfitabilityxCrisis		1.223	2.610**	0.918	−0.777	1.194
		(0.804)	(1.127)	(0.921)	(4.840)	(1.028)
SizexCrisis		0.000	−0.000	0.000*	−0.044	0.000
		(0.000)	(0.000)	(0.000)	(0.449)	(0.000)
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	9,413	9,413	5,487	3,926	634	3,292
R2	0.10	0.10	0.18	0.11	0.18	0.14
Adj R^2	0.10	0.10	0.17	0.10	0.13	0.13

The coefficient of the interaction term between size and GFC in column (4), which includes the subsample for foreign banks, is positive and statistically significant. The result supports the findings of Bonin and Louie (2017) that the lending dynamics of the subsidiaries of large European multinational banks differed from those of all other foreign–controlled banks. They demonstrated that subsidiaries owned by large multinational banks

remained committed to the region, that is, their lending behavior did not differ from that of domestic banks. By contrast, the other foreign banks that were involved in fueling the credit boom in the region before the GFC decreased their lending aggressively during the crisis periods. Although the coefficients of the interaction terms are negative for foreign state–controlled banks, they are positive for privately–owned banks. Hence, the results seem to be driven mainly by private banks, although almost all are statistically insignificant. Only the coefficient of the interaction term between liquidity and GFC for foreign state–controlled banks is statistically significant at the 10% level, again indicating that access to parent bank funding is an important factor explaining subsidiaries' lending during normal and crisis periods.

4.4. Sovereigns and currency crisis

To analyze the sensitivity of our results, we expand our analysis and employ a crisis dummy that takes the value of one if the particular host or home country experienced a sovereign crisis or currency crisis during the 1996-2018 period. As these crises do not directly affect the banking sector, the conducted test may be viewed as a placebo test to our previous results. We expect the effects to be weaker, yet these crises affect the economy, and hence, most likely the lending activity of the banks in the host country. As the number of these crises is smaller than that of the banking crises, we decided not to split the sample into the pre–and post–GFC periods. Columns (1)-(3) of Table 9 present the results where we control for the sovereign crisis in the host country, while in columns (4)-(6), we control for the sovereign crisis in the home country. The results confirm that domestic state–controlled banks lent less aggressively than privately–owned and foreign–owned banks. By contrast, the growth in lending of foreign banks, both state–controlled and privately owned, was pro–cyclical.

We find that the coefficient of the sovereign crisis in the host country is negative and significant at the 1% level in all specifications. Similarly, the sovereign crisis in the home country has a negative effect on bank lending in the host country. However, the results are slightly weaker for foreign banks, as the coefficient is only significant in columns (4) and (6), where we control for all foreign banks and foreign privately–owned banks, respectively.

Consequently, we find that a sovereign crisis in the home and host countries has a negative effect on the average credit growth in the host country across all banks. One explanation for these results is that banks tend to hold a large amount of government debt securities on their balance sheets. Popov and Van Horen (2015) demonstrated that in Europe. Banks also hold sizable amounts of debt issued by foreign sovereigns. Therefore, they are exposed to a sovereign crisis in the home as well as the host country.

Popov and Van Horen (2015) and De Marco (2019) distinguished between two channels through which sovereign debt held by banks can lead to a decline in bank credit. First, banks' losses on sovereign debt imply equity loss, which increases their default risk, and hence, their funding costs, forcing the most highly exposed banks to deleverage. Second, banks often use sovereign debt as collateral in the interbank market. Hence, a sovereign default reduces the eligibility of collateral and lowers banks' funding capacity.

The existing link between the domestic sovereign crisis and bank lending was confirmed by Altavilla et al. (2017) and De Marco (2019), who investigated the determinants of banks' sovereign exposures and their effects on lending during and after the 2009 Eurozone crisis. They found that the domestic sovereign exposure of banks in

stressed countries led to reduced lending in their home markets. Meanwhile, Popov and Van Horen (2015) illustrated a direct link between the deteriorating creditworthiness of foreign sovereign debt and lending by banks holding this debt on their balance sheet. We supplement these results, demonstrating that a sovereign crisis in the home country leads to a reduction in lending in the host country.

Table 9 Sovereign crisis in host and home country

This table reports the coefficients of a linear regression model using weighted least squares using the sample of domestic and foreign banks for the years of 1996–2018. The dependent variable is the change in real gross loans. Columns (1)-(3) and (4)-(6) include the crisis variable controls for sovereign crises in the host and home countries, respectively. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank-level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV_D	−0.030***	−0.029***	−0.029***	−0.029***	−0.029***	−0.029***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
FGN	0.068***	0.068***		0.071***		
	(0.024)	(0.024)		(0.024)		
GOV_F			0.066***		0.070***	0.070***
			(0.023)		(0.024)	(0.024)
$PRIV_F$			0.068***		0.071***	0.071***
			(0.024)		(0.024)	(0.024)
Sov. Crisis	−0.111***	−0.090***	−0.090***	−0.046***	−0.039	−0.049***
	(0.020)	(0.033)	(0.033)	(0.014)	(0.030)	(0.013)
GOV_DxCrisis	0.014					
	(0.044)					
FGNxCrisis		−0.057				
		(0.041)				
GOV_FxCrisis			0.005		−0.010	
			(0.039)		(0.030)	
$PRIV_F$xCrisis			−0.066			0.010
			(0.044)			(0.030)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,419	46,419	46,419	46,329	46,329	46,329
R^2	0.14	0.14	0.14	0.14	0.14	0.14
Adj R^2	0.14	0.14	0.14	0.14	0.14	0.14

Although our results confirm that both home and host sovereign crises have a negative impact on credit supply, we find only weak evidence of the different effects of the crises on banks based on their ownership. In all specifications, the coefficients of the interaction term between ownership and sovereign crises are insignificant. One explanation for the results is that the level of exposure to the risk depends on the bank's holding of domestic and sovereign government debt, which differs across banks and countries. Altavilla et al. (2017) documented that in stressed countries, banks more exposed to sovereign risk reported sharper reductions in loans and more pronounced rises in lending rates than less exposed banks. Our results supplement the findings of Altavilla et al.

(2017), who argued that banks' exposure to sovereign risk via government bond holdings acts as an amplification mechanism in the transmission of stress to the banking system. Column (5), which lists the results of the interaction of foreign state–controlled banks with sovereign crisis, indicates that the crisis dummy remains negative but insignificant. The coefficient of the interaction term for foreign state–controlled banks and sovereign crisis is negative. By contrast, the interaction term for foreign privately–owned banks is positive. We believe that the results indicate that the transmission of the home sovereign crisis is more likely to occur through foreign state–controlled banks. Altavilla et al. (2017) (2017) found that domestic state–owned banks react to the sovereign crisis by increasing their domestic public debt holdings significantly more than privately–owned banks. In response, we assume that state–controlled banks are forced to reduce their lending, particularly abroad. This explains the different effects of the sovereign crisis in the home market on the lending activity of foreign state–controlled and foreign privately–owned banks in the host countries.

Table 10 Currency crisis in host and home country

This table reports the coefficients of a linear regression model using weighted least squares using the sample of domestic and foreign banks for the years of 1996–2018. The dependent variable is the change in real gross loans. Columns (1)-(3) and (4)-(6) include the crisis variable controls for currency crises in the host and home countries, respectively. The independent variables are presented in Table A1. All specifications include constant and year fixed effects as well as bank-level and country control variables (as illustrated in Table 2), which are not presented here for brevity. Robust standard errors controlling for clustering at the country level are in parentheses. ***, **, * indicate statistical significance at the 1%, 5%, and 10% levels, respectively.

	(1)	(2)	(3)	(4)	(5)	(6)
GOV_D	−0.029***	−0.028***	−0.028***	−0.029***	−0.029***	−0.029***
	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)	(0.007)
FGN	0.065***	0.065***		0.071***		
	(0.023)	(0.023)		(0.024)		
GOV_F			0.063***		0.070***	0.070***
			(0.023)		(0.024)	(0.024)
$PRIV_F$			0.065***		0.072***	0.072***
			(0.024)		(0.024)	(0.024)
Currency Crisis	−0.158***	−0.155***	−0.158***	−0.036	−0.037	−0.029
	(0.021)	(0.018)	(0.018)	(0.024)	(0.030)	(0.044)
GOV_DxCrisis	0.015					
	(0.030)					
FGNxCrisis		−0.003				
		(0.029)				
GOV_FxCrisis			0.024		0.008	
			(0.042)		(0.057)	
$PRIV_F$xCrisis			−0.010			−0.008
			(0.030)			(0.057)
Bank controls	Yes	Yes	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes	Yes	Yes
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes
Observations	46,419	46,419	46,419	46,329	46,329	46,329
R^2	0.14	0.14	0.14	0.14	0.14	0.14
Adj R^2	0.14	0.14	0.14	0.14	0.14	0.14

Finally, columns (1)-(3) and (4)-(6) of Table 10 present the results of the impact of the currency crisis in the host and home countries, respectively. The results again confirm that domestic state-controlled banks provided less credit than private and foreign-owned banks in normal time. Foreign banks, both state-controlled and privately-owned, were pro-cyclical during normal economic periods.

Next, we find that the coefficient of the currency crisis is negative in all specifications. However, it is statistically significant only for the host country currency crisis, as illustrated in columns (1)-(3), but at the 1% level. Hence, the results demonstrate that the domestic currency crisis has a negative effect on credit growth in the host country. However, none of the interaction terms between ownership variables and the host country are

statistically significant. Therefore, we can assume that a currency crisis is related to the overall decline in lending activity, which affects all banks equally.

In contrast to the previous results, we find only weak evidence that a currency crisis in the home country has a negative effect on the host country's credit growth. In columns (4)–(6), the coefficient of the currency crisis in the home country is negative but statistically insignificant in all specifications. Consequently, the results confirm that only a systematic banking crisis and sovereign crisis can be transmitted via subsidiaries to host countries. However, we document that the sovereign crisis is more likely to be transmitted mainly through foreign state–controlled banks.

Overall, the final results confirm that our previous results are not likely to be driven by accident, as ownership seems to play a role only during a banking crisis, and only to some extent, during a sovereign crisis. We conduct a wide array of additional analyses to check the robustness of our main results, although we do not report them here for brevity.[3] First, we check the consistency of the results after removing countries that are over–represented in our sample, such as the United States. Second, we increase the set of explanatory variables and add additional control variables for banks and countries. Third, we employ the generalized method of moments estimation that better controls for the three sources of endogeneity, unobserved heterogeneity, simultaneity, and dynamic endogeneity. The results of the robustness test using different methods, data, and, variables confirm our results and the relationship between bank ownership and lending during normal and crisis periods.

5. Conclusions

The globalization of financial systems in most countries has reshaped the structure of banking industries worldwide, leading to the intensive development of multinational banks. A number of these multinational banks entered new markets through the acquisition of state–controlled banks, which was perceived as a positive development, given that existing research demonstrated that foreign banks can stabilize lending during a domestic banking crisis. By contrast, domestic banks, especially in developing countries, reduced lending, which amplified the economic shock in those countries. The same applies to state–controlled banks in developing countries, which, on average, are found to be less efficient and their lending volume to the real economy is lower than that of privately–owned banks (Micco and Panizza, 2006).

However, the situation changed dramatically following the GFC. New evidence has emerged illustrating that foreign banks can act as external shock amplifiers in host countries. In particular, in response to the financial problems of parent banks in industrialized countries, De Haas and Van Lelyveld (2014) and Allen et al. (2017) documented that subsidiaries of these banks reduced lending in the CEE. Brei and Schclarek (2013) found evidence that domestic government–owned banks increased their lending during crises relative to normal times, while private banks' lending decreased. They argued that domestic government–owned banks counteract the lending slowdown of private banks, and therefore, have an active countercyclical role in their banking systems.

[3] The full results of the main regressions and the additional robustness check are available upon request.

Our study aimed to enhance the understanding of foreign banks' lending behaviors, especially by distinguishing foreign private–owned and foreign government–controlled banks. We contribute to the existing research by clarifying whether ownership of foreign banks determines their behavior during normal times as well as crisis periods in the host and home countries. Further, we demonstrate the difference between foreign government–controlled and foreign privately–owned banks' reactions during a crisis period. We also contribute to the extant literature by analyzing the behavior of banks during banking crises, sovereign crises, and currency crises in the host and home countries by utilizing a unique database with financial and ownership data on banks operating worldwide during the 1996-2018 period. Moreover, we analyzed the lending behaviors of domestic and foreign banks using subsamples for the periods before and after the GFC. Analyzing the behavior of banks during normal times, our results confirmed the existing findings that foreign banks and domestic privately–owned banks lend more than domestic state–controlled banks. Therefore, we confirmed that domestic government–controlled bank lending is less sensitive than that of private banks to business cycle fluctuations. We found that the credit supply of foreign banks changed significantly in the host countries after the GFC. Our results demonstrated that foreign banks, both privately–owned and government–controlled, had lent significantly more than domestic banks in the host country market before the GFC; however, after the GFC, this effect disappeared.

We also confirmed that during a domestic banking crisis, the overall supply of credit declines. We documented that foreign banks, both privately–owned and state–controlled, can have a stabilizing influence during a domestic banking crisis. We found foreign–controlled banks provided more credit than foreign private banks during banking crises in the host country. Thus, the lending of foreign state–controlled banks was countercyclical during the host country banking crises. However, countercyclical lending by foreign banks during the banking crisis in the host country was not observed after the GFC, regardless of the specific owner type. Additionally, we found no such effect for foreign banks during domestic sovereign and currency crises.

We illustrated that foreign banks reduced their lending earlier and faster than domestic banks during a banking crisis in the host country. A closer analysis revealed that the reduction in lending can be mainly attributed to foreign state–controlled banks. By contrast, foreign privately–owned banks increased lending in host countries during a home banking crisis. These effects, however, disappeared again after the GFC. Furthermore, we documented that foreign state–controlled banks can import shocks from their home country to the home country during a sovereign crisis. By contrast, we found no such effect in a period of a currency crisis in the home country.

Finally, we found that bank–specific characteristics explain the supply of credit during normal times and crisis periods. In periods of financial shocks, we found that bank profitability and liquidity were important in explaining the level of credit supply. Moreover, we demonstrated that the subsidiaries' financial situation was a more important determinant of credit growth than parent banks' health during crisis periods.

One key takeaway is that substantial heterogeneity exists across domestic and foreign banks, countries, and time. The result is important from a policy perspective, as we illustrated that a mixed composition within the banking sector, consisting of foreign and domestic–owned banks that are controlled by the state and private owners, is

advisable. Thus, future research should focus on understanding the drivers of the heterogeneity among domestic and foreign banks. In particular, in a recent study, Ture and Medas (2021) confirmed that state–controlled bank lending is less pro–cyclical than private bank lending, but that this is not the case in developing economies with high levels of public debt. However, we leave new questions for future research.

References

Aiyar, S. (2012), 'From financial crisis to great recession: The role of globalized banks', *American Economic Review* 102(3), 225-30.

Allen, F., Hryckiewicz, A., Kowalewski, O. and Tumer-Alkan, G. (2014), 'Transmission of financial shocks in loan and deposit markets: Role of interbank borrowing and market monitoring', *Journal of Financial Stability* 15, 112-126.

Allen, F., Jackowicz, K., Kowalewski, O. and Kozłowski, Ł. (2017), 'Bank lending, crises, and changing ownership structure in central and eastern European countries', *Journal of Corporate Finance* 42, 494-515.

Altavilla, C., Pagano, M. and Simonelli, S. (2017), 'Bank exposures and sovereign stress transmission', *Review of Finance* 21(6), 2103-2139.

Becchetti, L., Ciciretti, R. and Paolantonio, A. (2016), 'The cooperative bank difference before and after the global financial crisis', *Journal of International Money and Finance* 69, 224-246.

Bertay, A. C., Demirgu¸c-Kunt, A. and Huizinga, H. (2015), 'Bank ownership and credit over the business cycle: Is lending by state banks less procyclical?', *Journal of Banking and Finance* (50), 326-339.

Black, S. E. and Strahan, P. E. (2002), 'Entrepreneurship and bank credit availability', *Journal of Finance* 57(6), 2807-2833.

Bonin, J. P. and Louie, D. (2017), 'Did foreign banks stay committed to emerging Europe during recent financial crises?', *Journal of Comparative Economics* 45(4), 793-808.

Bosshardt, J. and Cerutti, M. E. M. (2020), 'Why did public banks lend more during the global financial crisis?', *IMF Working Paper* (2020/084).

Brei, M. and Schclarek, A. (2013), 'Public bank lending in times of crisis', *Journal of Financial Stability* 9(4), 820-830.

Buch, C. M. and DeLong, G. (2004), 'Cross-border bank mergers: What lures the rare animal?', *Journal of Banking & Finance* 28(9), 2077-2102.

Chen, Y.-S., Chen, Y., Lin, C.-Y. and Sharma, Z. (2016), 'Is there a bright side to government banks? Evidence from the global financial crisis', *Journal of Financial Stability* 26, 128-143.

Claessens, S. and Van Horen, N. (2012), 'Being a foreigner among domestic banks: Asset or liability?', *Journal of Banking and Finance* 36(5), 1276-1290.

Claessens, S. and Van Horen, N. (2014), 'Foreign banks: Trends and impact', *Journal of Money, Credit and Banking* 46(s1), 295-326.

Cornett, M. M., Guo, L., Khaksari, S. and Tehranian, H. (2010), 'The impact of state ownership on performance differences in privately-owned versus state-owned banks: An international comparison', *Journal of Financial Intermediation* 19(1), 74-94.

Corsetti, G., Pesenti, P. and Roubini, N. (1999), 'What caused the Asian currency and financial crisis?', *Japan and the World Economy* 11(3), 305-373.

Cull, R. and Peria, M. S. M. (2013), 'Bank ownership and lending patterns during the 2008-2009 financial crisis: Evidence from Latin America and Eastern Europe', *Journal of Banking & Finance* 37(12), 4861-4878.

Cull, R., Peria, M. S. M. and Verrier, J. (2018), Bank ownership and economic development, *in* 'Handbook of finance and development', Edward Elgar Publishing.

De Haas, R. and Van Lelyveld, I. (2006), 'Foreign banks and credit stability in Central and Eastern Europe. a panel data analysis', *Journal of Banking & Finance* 30(7), 1927–1952.

De Haas, R. and Van Lelyveld, I. (2010), 'Internal capital markets and lending by multinational bank subsidiaries', *Journal of Financial Intermediation* 19(1), 1–25.

De Haas, R. and Van Lelyveld, I. (2014), 'Multinational banks and the global financial crisis: Weathering the perfect storm?', *Journal of Money, Credit and Banking* 46(s1), 333–364.

De Marco, F. (2019), 'Bank lending and the European sovereign debt crisis', *Journal of Financial and Quantitative Analysis* 54(1), 155–182.

Dermine, J. (2013), 'Bank regulations after the global financial crisis: good intentions and unintended evil', *European Financial Management* 19(4), 658–674.

Fernandez–Arias, E., Hausmann, R. and Panizza, U. (2020), 'Smart development banks', *Journal of Industry, Competition and Trade* 20(2), 395–420.

Fratzscher, M., Konig, P. J. and Lambert, C. (2016), 'Credit provision and banking stability after the great financial crisis: The role of bank regulation and the quality of governance', *Journal of international money and finance* 66, 113–135.

Gonzalez–Garcia, J. R., Grigoli, F., Clements, B. J. and Gajdeczka, P. (2013), 'State–owned banks and fiscal discipline', *IMF Working Papers* 2013(206).

Hadjikhani, A. I., Pajuvirta, A. and Thilenius, P. (2012), Internationalization of Swedish banks in Russia and the impact of political environment, *in* 'Business, society and politics', Emerald Group Publishing Limited.

Hesse, H. and Cihˇ ak, M. (2007), 'Cooperative banks and financial stability', *IMF Working Papers* 2007(002).

Jain, A. K. and Nigh, D. (1989), 'Politics and the international lending decisions of banks', *Journal of International Business Studies* 20(2), 349–359.

Jeon, B. N., Olivero, M. P. and Wu, J. (2013), 'Multinational banking and the international transmission of financial shocks: Evidence from foreign bank subsidiaries', *Journal of Banking & Finance* 37(3), 952–972.

Kishan, R. P. and Opiela, T. P. (2000), 'Bank size, bank capital, and the bank lending channel', *Journal of Money, Credit and Banking* pp. 121–141.

La Porta, R., Lopez–de Silanes, F. and Shleifer, A. (1999), 'Corporate ownership around the world', *Journal of Finance* 54(2), 471–517.

La Porta, R., Lopez–de Silanes, F. and Shleifer, A. (2002), 'Government ownership of banks', *The Journal of Finance* 57(1), 265–301.

Laeven, L. and Valencia, F. (2020), 'Systemic banking crises database II', *IMF Economic Review* 68(2), 307–361.

Micco, A. and Panizza, U. (2006), 'Bank ownership and lending behavior', *Economics Letters* 93(2), 248–254.

Panizza, U. (2021), 'State–owned commercial banks', IHEID Working Papers 09–2021, Economics Section, The Graduate Institute of International Studies.

Peek, J. and Rosengren, E. S. (1997), 'The international transmission of financial shocks: The case of japan', *American Economic Review* 495–505.

Popov, A. and Van Horen, N. (2015), 'Exporting sovereign stress: Evidence from syndicated bank lending during the euro area sovereign debt crisis', *Review of Finance* 19(5), 1825–1866.

Sapienza, P. (2004), 'The effects of government ownership on bank lending', *Journal of Financial Economics* 72(2), 357–384.

Ture, H. E. and Medas, P. A. (2021), 'Revisiting the stabilization role of public banks: Public debt matters', *IMF Working Papers* 2021(007).

Yeyati, E. L., Micco, A., Panizza, U., Detragiache, E. and Repetto, A. (2007), 'A reappraisal of state owned banks [with comments]', *Economia* 7(2), 209-259.

Table A1 Variables and their definitions

Variable	Description
Bank level variables	
Loan growth	Real growth rate of gross loans in domestic currency
Liquidity	Liquid assets over total assets
Loan to Deposits	Ratio of total loans to total deposits
Profitability	Ratio of gross profit to total assets
Solvency	Ratio of equity capital to total assets
Size	Ratio of bank's total assets to countries GDP
GOV_D	Binary variable identifying domestic banks directly or indirectly controlled by the government in a given year
FGN	Binary variable identifying banks owned by foreign investors in a given year
GOV_F	Binary variable identifying foreign banks directly or indirectly controlled by the host government in a given year
$PRIV_F$	Binary variable identifying foreign banks directly or indirectly controlled by private investors in a given year
Parent bank level variables	
Liquidity	Liquid assets over total assets
Profitability	Ratio of gross profit to total assets
Size	Ratio of bank's total assets to countries GDP
Country control variables	
Host crisis	Binary variable equal to 1 for the years of systemic banking crisis in a host country, and 0 otherwise.
Home crisis	Binary variable equal to 1 for the years of systemic banking crisis in a home country, and 0 otherwise.
GF crisis	Binary variable equal to 1 for the years 2008–2009 and zero otherwise
Sov. crisis	Binary variable equal to 1 for the years of sovereign crisis in a host or home country and 0 otherwise.
Cur. crisis	Binary variable equal to 1 for the years of currency crisis in a host or home country and 0 otherwise.
Distance	Logarithm of distance between most populated city of each country (km)
Language	Dummy variable equal to 1 if countries share a common language spoken by at least 9% of the population, and 0 otherwise
Common law	Binary variable identifying countries that share common legal origins
Growth	Real rate of growth of GDP
CPI	Consumer price inflation

Dan Mocanu and Matthias Thiemann

The Public Underpinnings of the European Venture Capital Market: A 30-Year Perspective

Contents

Abstract 1
1. Introduction 2
2. Literature Review: From Regulatory to (Hidden) Investment State 5
2.1. The VC market: what it is, how it works, and what we know about the role of public institutions in its evolution 7
3. Venture Capital Markets in the EU: The Role of Public Funds 10
3.1. The first phase: 1990 – 2001: Riding the Wave with Private Money 10
3.2. 2002 – 2013: Reviving the Market with Public Support 13
4. Chasing Unicorns in Ecosystems: 2014 to today 17
4.1. Juncker I: Deepening the Market with Public Funds 18
4.2. Juncker II: From Market-Fixing to Market-Shaping and Beyond 22
5. Discussion and Conclusion 25
References 27

Matthias Thiemann, Dan Mocanu, both Scienes Po, Paris

E-Mail: matthias.thiemann@sciencespo.fr
dan.mocanu@sciencespo.fr

Abstract

This paper takes the recent public policy proposals of the EU Commission to foster the growth of "unicorns" through direct interventions in the venture capital market as an entry point to inquire into the changing role of the EU in European Venture Capital Markets in the last three decades. Based on a historical reconstruction of that market's history and the EU public policy interventions, we show the foundational yet changing role of public actors, particularly development institutions, in European VC markets from the 1990s onwards. From an initial mere regulatory encouragement, we show how the subsequent policy stance at the EU level moved from a policy approach to fix market failures towards an ever-more assertive market-shaping approach. The latest engagement of EU public policy in this market, aiming to select and nurture start-ups with the potential to become unicorns, we argue has to be understood in this trajectory of foundational market investment, yet represents a qualitatively new level of assertive engagement, moving the EU from a focus on market-shaping towards a focus on shaping innovations themselves.

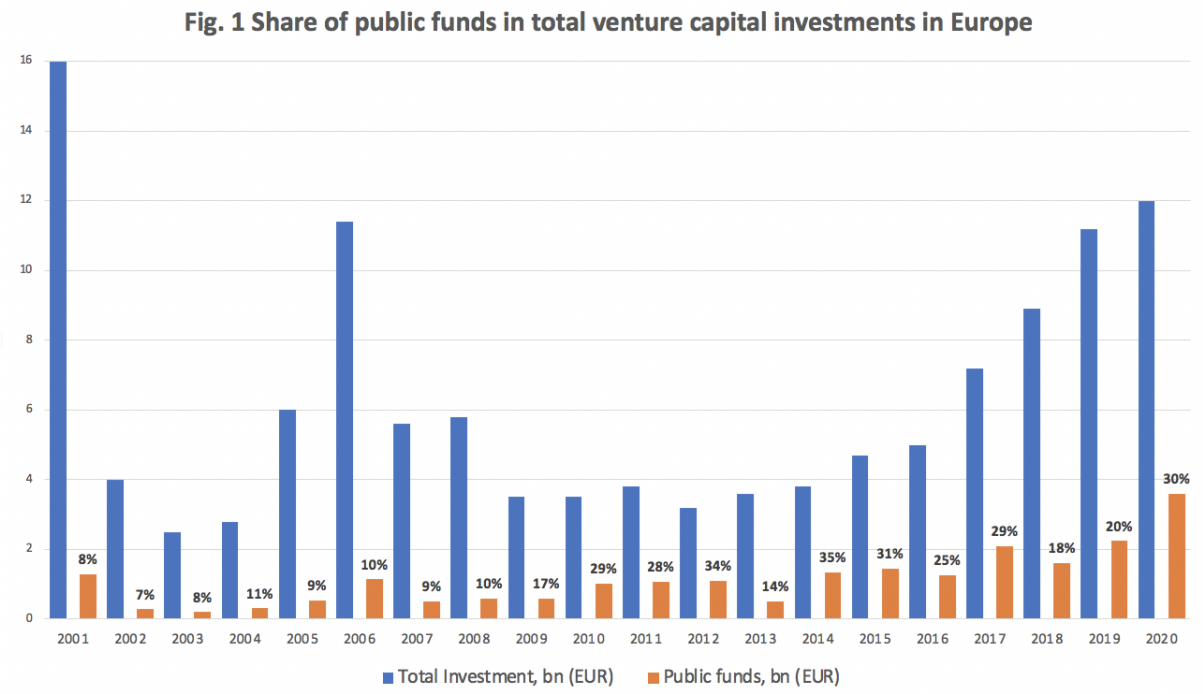
> *We need European unicorns to ensure EU leadership in deep tech start-ups to pave the way towards Europe's sustainable and resilient recovery, accelerate the green and digital transitions, innovation cohesion across the EU, and ensure Europe's technological sovereignty (European Commission, 2021a)*

1. Introduction

The European Union of 2021 is no longer the exemplary "regulatory state" par excellence which much of the literature since Majone's (1994, 1997) interventions has made it out to be. To stay in the metaphor of Majone, rather than limiting itself to the "steering" of market activities, it is today once again actively "rowing", seeking to transform the European economy into a carbon neutral economy by 2050 ("fit for 55"). In other words, the EU today more than ever assumes the role of guiding investment decisions in the economy and seeks to direct the processes of innovation, which could allow it to achieve carbon neutrality and digital leadership (European Commission, 2020a). This exposed role follows upon the build-up of infrastructures to channel investments which evolved more hidden in the past two decades, basing themselves on the blending of European Union budgetary means with the capabilities of national and European public financial institutions (Mertens and Thiemann 2018, 2019, Rubio and Thiemann 2021). This blending evoked the formation of a field of actors, which jointly coordinated to develop and implement European public policies that seek to steer the European economy into a green and digital future (European Investment Bank, 2021), with national and European development banks and funds acting as crucial actors for implementing these plans (Mertens et al. 2021).

One important policy tool in this plan of transitioning the EU economy to becoming more green, digital, and sovereign is a vibrant venture capital (VC) market that searches, funds, and fosters the market uptake of innovative business ideas, allowing for a quick maturing of ideas into actual products (European Commission, 2021b). Here, once more European and national public funds play an outstanding role, with the European Commission increasing the funding for the European Investment Fund (its main body for venture capital activity) and establishing the European Investment Council (EIC) as well as recent sectoral initiatives. In the context of an increased geopolitical rivalry with China, but also with the US, the EU seeks to invest these funds strategically to achieve technological sovereignty and decrease its dependence on these powers. The money thus invested is supposed to generate the next generation of "unicorns", that is starts-up which are evaluated to more than 1 billion dollars, on the agenda, which would allow the EU to take a primary place in the technological race at the frontier of emerging sectors (e. g. deep tech, life sciences, robotics etc.).

This infusion of public funds into the VC market in Europe is by no means a new phenomenon. Instead, as graph 1 below documents, it is the continuation of a two decades long engagement of the EU with the VC market, which made public funds an increasingly significant source of funding in European VC markets since 2001.



Source: EVCA/InvestEurope, 2001 – 2020

As we will show, it is through this decade long engagement of the EU with the VC market, characterized both by path-dependent engagements which brought about an ever- increasing engagement of European public funds with the VC market, but also qualitatively new developments that the EU has built its capacity for both steering and rowing in the VC market. To understand these capacities, continuous developments in the engagement of public funds with the VC market have to be analysed jointly with the qualitatively new developments, e. g. the adoption of a more holistic approach to the Venture Capital markets in the EU during the Juncker Commission, seeking to develop a "pan-European VC ecosystem". Doing so will allow us to better understand the likely impacts of these policies and to assess the likelihood that the EU will be able to assert its sovereignty with respect to its rivals externally and engender at least parts of the technological innovations it requires for the green and digital transition.

Most importantly, it will allow us to gain a better understanding of the transformation of the EU into a state-like entity that is both steering and rowing, seeking to build and shape markets as tools to be used for its own purposes. Doing so requires a historical reconstruction of the process by which the EU came to assume its current position in VC markets. To do so, this paper, based on public documents, constructs a historical narrative of engagement of the European Commission and the public bodies it commands with the VC market, showing the constitutive role it has taken on since at least the 2001 crash of the dot com bubble, and how, despite industry criticism, it has maintained this central position even after the beginning of the recovery of the VC market in the early 2010s. Unravelling this historically lasting engagement of public funds with the VC market, and contrasting it with the rather limited regulatory attempts of the EU to engineer a common judicial framework for VC in all EU jurisdictions sheds a different light on the EU, not as a rule-making entity (Majone 1997), but rather an investor and a catalyst of the formation of expertise and skills in the VC market, without which the VC market in the EU would be much less developed.

In order to make these points, we adopt a particular methodological approach to the historical reconstruction of this engagement based on public documents. We seek to avoid imputing path dependencies upon processes which were characterized by much more contingencies. Instead, based on a close diachronic reading of policy documents, we seek to discern the arrival of new discursive figures (such as the VC ecosystem) in the language of EU technocrats speaking about the VC market. This shifting programmatic engagement of EU actors is then complemented by a factual analysis of EU engagement with the market, seeking to distinguish empty words from consequential new orientations.

Based on this methodological orientation, the paper proceeds as follows: It first engages in a literature review regarding the shifting role of the EU, from a regulatory state par excellence to one integrating core state powers, such as steering and undertaking investments, building markets, such as the VC market, to achieve this channelling. To bring to the fore its role in the evolution of these markets, we also shortly review the role of public actors both in the US and China. In section 3, it develops the first part of the historical narrative, describing the engagement of EU public actors with the VC market from 1990 to the financial crisis in 2008 and its immediate aftermath. In the next section, we describe the evolution of the EU public policy regarding the VC market since 2014, in which an increasingly assertive EU consciously placed the pursuit of "unicorns". It traces the qualitatively new initiatives pursued by the EU since the Juncker Commission, and places them in the context of the path–dependent position public institutions have taken in the VC market. Section 5 concludes the paper by first seeking to distil the driving forces and main characteristics of the EU engagement with the VC market, then to engage in an assessment of the trade–offs the EU faces in its current positioning. Lastly, it develops a research agenda, based on these findings.

2. Literature Review: From Regulatory to (Hidden) Investment State

In the literature over the last 25 years, the EU has been described as the "regulatory state" par excellence (Majone 1997), limiting itself to the regulation of economic activities, rather than directly influencing market outcomes. Doing so, it was seen to limit also the actions of the Member states (Bickerton 2012), which saw themselves increasingly confined to the role of "steering, not rowing" with respect to market developments. This market–enabling role, focusing on the creation of a level playing field, has been the focus of most of the EU literature, which has focused on the activities of the EU to complete the single market and lower regulatory barriers. In these attempts, the literature has shown how the EU has used market actors and "the market" to gain momentum for further market integration, "playing the market" against Member States (Jabko 2006). This stance of EU actors regarding markets, and financial markets in particular has received a serious set–back with the financial crisis and the Eurozone crisis, as a series of governance gaps were seen to underlie the detrimental economic developments of the 2010s, following the EU's trajectory of 'failing forward' through crises (Jones et al 2016).

And yet, the EU's focus on financial markets and its attempts to achieve completion of the single market were not undermined by these developments, instead making an important comeback in the EU's Capital Market Union. To make sense of these developments, recent scholarship has pointed to these initiatives, as attempts to 'govern through financial markets (Braun et al. 2018), understood as "a political strategy adopted by state actors in pursuit of policy goals that exceed their institutional capacity" (ibid, p. 101). Using finance as an indirect policy tool to induce other entities towards desired ends, this strategy involves the engineering and re–purposing of financial instruments (ibid, p. 104, for an example, s. Endrejat and Thiemann 2020). In this respect, the increasing engagement of the EU in the Venture Capital market can be seen as just another example of the EU seeking to achieve policy goals of increasing innovation through this particular financial instrument, expression of a "financialized mode of public policy" (Chiapello, 2017), which applies the techniques of financial markets to the problem of innovation policy.

In line with such an argumentation, Mertens and Thiemann (2018, 2019) document the evolution of a "hidden investment state" in the EU, which links EU and domestic capacity for steering investment and development through financial markets (Mertens and Thiemann 2018). These new capabilities are based on the increasing use of financial instruments (loans and guarantees), financed by EU budgetary means, such as Structural Funds, and delivered by National Promotional Institutions in concert with the European Investment Bank and the EIF. This "reinvention of development banking" in the EU (Mertens, Thiemann and Volberding 2021), which led to the formation of a new policy field that integrates the European and national level with respect to public development banks is based on new forms of engagement of these development banks with their tasks, adopting techniques of securitization and risk sharing (Mertens and Thiemann 2018). Centred around the EIB and the EIF, these techniques primarily aimed at the stimulation of private investment activities, with state funds acting as lead investors, de–risking investments deemed politically desirable. This development, which often involves the leveraging of EU funds to derisk private funds, a mode of governing described as "market–based, but state–led" (Mertens and Thiemann 2018; Braun et al 2018) also included the field of the Venture Capital Markets in the EU.

Supporting the development of the VC market as a tool for fostering innovation, the increasing presence of publicly funded investment entities has been pushed forward by innovative challengers in the field of European development banking, building up a venture capital expertise since the late 1990s (Thiemann and Volberding 2021). They did so concomitantly with the EIF, which, founded in 1992, completed its strategy shift towards VC and SME support in the second half of 1990s (Rubio and Thiemann 2021). Together, these funds not only engage in fixing market failures, but also increasingly engage in a market– shaping approach (Mazzucato and Penna 2016, Mazzucato and Semeniuk 2017) that aims to allow VC markets to mature and increase their breadth and depth (Thiemann and Volberding 2021).

Such a characterization, however, we argue does not do full justice to the most recent developments of the EU's public policy stance in the Venture Capital Market, in particular as they came to fruition since 2017. It risks missing the increasingly assertive character of EU policy interventions in the VC market, which based on new practices of development banking, such as human capital formation and direct insertion in the process of managing start–ups, seeks to nurturing technological breakthroughs by directly intervening in the innovation ecosystem, taking on the role of venture capitalist themselves which act as the risk–taking actor that can breed "unicorns". This process, moving ever closer to the process of innovation, from regulation to investment into fund–of–funds to fund managers which then apply a very direct style of management assumes that public institutions can act as the better venture capitalist, directly engaging in the process of deciding which start–ups should be selected and should be nurtured. Thereby, the EU entered the VC market with new considerations which do not play a role for private actors, but which now come to structure the market, namely the pursuit of technological sovereignty in the context of a newly perceived "system competition" with the US and China.

With this shift in the goals of public policy, the insertion of public funds within the VC market itself becomes a vehicle not only to foster employment and an undirected process of innovation, but also to directly shape the content of these innovations. In order for us to best capture this latest modality and location of public policy in the VC, we argue that we need to move beyond the simple dichotomy of market failure and market shaping, as proposed by Mazzucato (2016), as it does not allow us to fully capture the latest developments in the VC market. Instead, we observe the emergence of a new modality of public policy in the VC market, which does not exclude the "fixing market failure" and "market–shaping" approaches and yet can be distinguished from them, going beyond "the reinvention of development banking", as diagnosed by Mertens et al. (2021). This new more interventionist stance inscribes itself into a historical continuity and yet, it is a historical break as it constitutes a qualitatively new mode of engagement. It can hence only be understood by tracing this historical process.

In order to better grasp this evolving engagement of the EU as a public actor in this market, its changing modality and location, we will in the following give a short summary of what the VC market is, how it operates and what we know about the role of public actors in its evolution in the context of the US and China, before we turn to the history of VC in EU and the role of public development institutions in it.

2.1. The VC market: what it is, how it works, and what we know about the role of public institutions in its evolution

The venture capital market is the market for the financing of innovative, early-stage, unlisted entrepreneurial ventures with strong growth potential but also a high risk of failure. Venture capital is a form of financing combined with techno-managerial expertise provided by VC funds to start-ups in exchange for equity stakes. VC firms – which raise funds from long-term investors and typically manage simultaneously multiple VC funds – have a relatively fixed time horizon for their investment, seeking to accelerate the development of their portfolio start-ups until the equity stake can be profitably exited, such as via M&As and IPOs. Investments across the venture capital cycle are organized across several stages. The first stage, or Series A, helps founders to test the commercial viability of the idea and to establish a track record. Series B funding facilitates product optimization and growth. Series C funding usually helps firms to reach breakeven, hire more staff, and expand operations, while Series D funding is usually used for scale-up and internationalization activities. VC firms fulfil four functions in the entrepreneurial ecosystem: providing risk capital, screening the most promising ventures, mentoring founders and assisting start-ups in the value creation process, and signalling to follow-on lenders or investors the higher potential of the start-up.

A vibrant VC market is particularly conditioned by (1) the availability of long-term investment capital, (2) the stream of high-quality start-up teams, (3) the degree of institutionalization of the market, such as the emergence of professional VC managers that calibrate the incentives of market participants and deepen specialisation, and (4) the existence of exit routes in an otherwise notoriously illiquid market. Empirical studies ascribe to VC an important role in spurring innovation and generating knowledge spillovers (for a review of evidence, see Lerner 2009). However, VC markets are characterized by a significant degree of cyclicality, volatility, skewed returns and persistent "market failures", such as informational asymmetries, agency problems, and transaction costs, which often hinder the emergence of a virtuous cycle between entrepreneurs and VCs (e. g. Kaplan and Stromberg 2003; Cochrane, 2005; Gompers et al. 2008). These features provide rationales for public interventions.

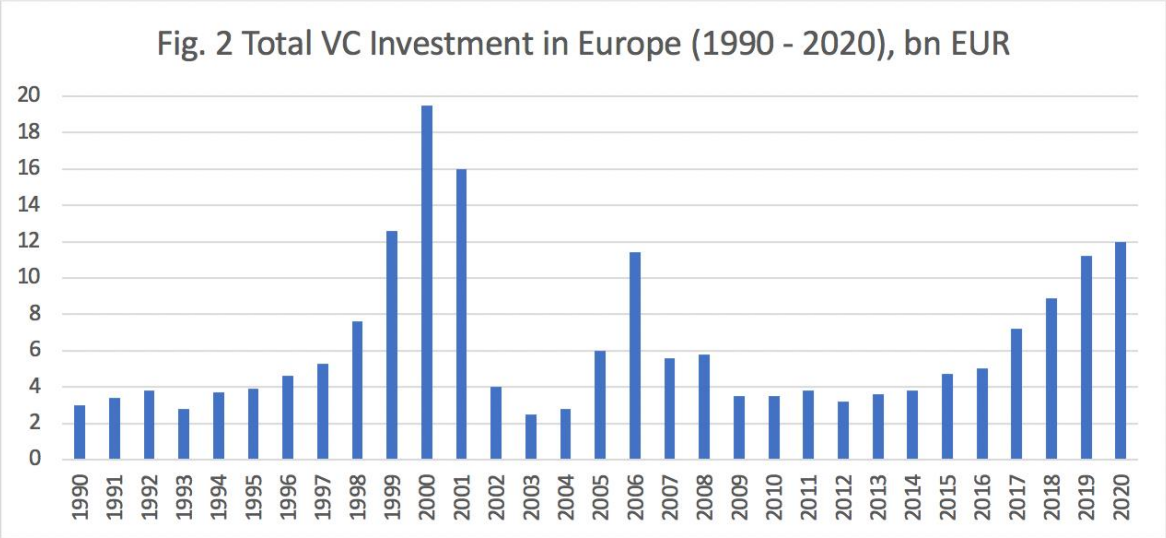
Almost all VC markets across the world have been engineered by states, although their modalities of intervention showcase a great diversity of modes of engagement (Avnimelech 2009; Lerner 2009; Klingler-Vidra 2018). The direct supply of capital is one of the most common tools used by policymakers to foster local VC ecosystems.[1] The spectrum of VC policy tools also includes such instruments as tax incentives, regulatory facilities, cluster formation, attracting talent and foreign investment, stock market access, and public procurement (OECD 1997; Klingler-Vidra 2014).

[1] Public funding is typically provided through public VC funds or through fund-of-funds. Public funds (e. g. Yozma in Israel) are publicly owned firms that take minority equity stakes in early-stage ventures. Fund-of-Funds (FoFs) are firms that make equity investments in a number of different VC funds without taking equity stakes in the underlying start-ups.

In the United States, the world's largest venture capital market, VC markets emerged out of private initiative in the early 1960s, but the expansion of the market in the 1970s and 1980s was driven by the federal government's risk-taking role in financing market-creating fundamental innovations legitimised by security imperatives. Furthermore, federal support schemes for the private commercialisation of government-sponsored innovations also catalysed the growth of the market (Mazzucato 2013; O'Mara 2019). For example, the proliferation of federally chartered Small Business Investment Companies (SBICs) created the organisational infrastructure of the industry and provided over $3bn to start-ups between 1958 and 1969, while the US Small Business Innovation Research programme injected since the 1980s over $54bn in promoting the commercialisation of American innovations (Gompers and Lerner, 2001; SBIR, 2019). The rise of VC markets in the US was also facilitated by a friendly corporate law and legislative changes in prudential regulations, which boosted the volume of fiduciary funds channelled into high-risk ventures (Gilson, 2003; Lerner, 2009; Weiss 2014). The US government has played a formative role in the rise of the VC industry until market forces achieved optimal conditions, though continuing since then to indirectly support the private commercialisation of new technologies (see Block 2008).

In contrast, the Chinese venture capital market was a government invention by design. The origins of the market can be traced to the 1986 government-initiated China New Technology Venture Investment Corporation and the subsequent Torch Programme for the commercialization of innovation, which kick-started China's high-tech and start-up scene by concentrating resources, capital, and competences up to a critical threshold in several key urban clusters. Although state-led market engineering efforts have often stumbled upon legal conundrums, over the last three decades the Chinese authorities have purposefully built from scratch the market infrastructure of venture capitalism through legislative engineering, strategic attraction of foreign VC funds, large-size public VC funds, tax incentives, and a proactive returnee labour policy (Huang and Tian in Amstad et al. 2020; Lin 2021).

In Europe, VC markets have experienced a cyclical evolution (fig. 2). EU public interventions can be distinguished in three ways from the American and Chinese VC ones. First, in contrast to the American and Chinese markets, the European VC industry has comprised a collection of relatively small and isolated markets, which impeded the exploitation of scale economies, the accumulation of cross-border synergies, and the proliferation of large VC funds. Hence, EU policymakers directed significant resources to the integration of markets. Second, EU authorities have acted until recently mostly indirectly, particularly through funds-of-funds operated under commercial terms. Finally, public actors have played a vital counter-cyclical role in the evolution of the market. However, the regulatory and institutional barriers, the heterogeneous distribution of VC capabilities across countries, and the market cycle of booms and busts have proved formidable challenges in the development of a pan-European VC ecosystem. The following section reconstructs the history of the European VC market, tracing the growing role of EU public institutions in its cyclical evolution and maturation.



Source: EVCA/InvestEurope, 1990 - 2020

Table 1. EU budgetary commitments to the venture capital market

Financial instrument	Programme	Period	EU funding (EUR, m)
European Technology Facility Start-up (ESU 1998)	Growth and Employment Initiative (G&E)	1998-2000	101
European Technology Facility Start-up (ESU 2001)	Multiannual Programme for Enterprise and Entrepreneurship (MAP)	2001-2006	209
High Growth and Innovative SME Facility (GIF)	Competitiveness and Innovation Framework Programme (CIP)	2007-2013	539
JEREMIE Holding Funds Instruments (supported by ERDF Structural Funds)	Joint European Resources for Micro to Medium Enterprises (JEREMIE)	2007-2013	1168
Equity Facility for Growth (EFG)	Programme for the Competitiveness of Small Enterprises and Small and Medium-sized Enterprises (COSME)	2014-2020	325
InnovFin Equity Facility for Early Stage (IFE)	Horizon 2020 - the Framework Programme for Research and Innovation	2014-2020	488
EFSI SME Window (SMEW) Equity Product	European Fund for Strategic Investments	2014-2020	1270

Source: Adapted from the European Court of Auditors, 2019

3. Venture Capital Markets in the EU: The Role of Public Funds

The evolution of public engagement with VC activities in Europe over the last three decades can be divided into several stages. Since the mid-1990s, the EU has actively engaged in market-crafting activities to spur VC activity across Europe. Market-crafting, as employed here, refers to the rule-making activities through which public actors create and govern markets (Vogel (2018). During the 2000s, EU-level interventions have focused on market-fixing in response to chronic funding gaps across stages, sectors, and regions. After a period of soul-searching in the early 2010s, the third stage has been defined by the Juncker Commission's market-shaping activities, which focused on deepening market integration and leveraging public funds for policy goals. More recently, particularly since the launch of the European Innovation Council, the EU has ventured out beyond the market-centric approach, displaying an ever more assertive approach to fostering a Pan-European Innovation Ecosystem.

3.1. The first phase: 1990 – 2001: Riding the Wave with Private Money

The origins of VC in Europe can be traced to the late 1970s, when the first VC firms inspired by the American VC contracting model were founded in the UK, France, the Netherlands, and Belgium as vehicles specialised in financing innovation. During the first phase in the evolution of VC markets in Europe, fundraising was driven mainly by private funds, which leveraged the resources of banks and institutional investors. However, the crises inherent in the cyclical evolution of venture capital have been a key driver in the engagement of public actors with the market. During the first half of the 1990s, VC investments in Europe largely plateaued at an average of $3bn annually (EVCA, 2001).[2] Yet, after the late 1990s boom, which saw investments soar from about $3.9bn in 1995 to $19.5bn in 2000, the market collapsed in the early 2000s with the burst of the dot-com bubble (EVCA 1995, 2001).

In contrast to their US counterparts, European VC managers displayed in the early days of the institutionalization of the market a rather conservative investment strategy that largely neglected emerging technology sectors and the early phase of the firm's lifecycle (OECD, 1996). Moreover, the share of the seed and start-up investments was three times higher in the US than Europe. For example, between 1990 and 1997 only 11% of VC investments in Europe targeted this market segment (Bottazzi and Da Rin 2002). Furthermore, while North American or Asian competitors were benefiting from large domestic markets and booming economies, the EU was confronted with a collection of fragmented markets, legislative, fiscal, and regulatory burdens, investors with shorter-term horizons than their American or Asian counterparts, which often undermined the matching of supply

[2] For cautionary purposes, it should be noted that the definition of venture capital had a larger scope in the public and industry reports in the 1990s than today. Hence, aggregate data for this period comprises both funds raised for early-stage companies and funds raised for buy-outs.

and demand, and a highly market concentrated, with the UK accounting for 40% of the European VC portfolio (OECD 1996:24).

However, total VC investment volumes in Europe spiked in the second half of the 1990s driven by the availability of capital pooled by financial institutions and institutional investors, which accounted for an annual average of 63% of the total VC raised in Europe throughout the 1990s (EVCA 2000). VC investments rose especially in the early-stage segment, increasing from $435m in 1995 to $6.3 bn in 2000, a phenomenon largely driven by the reallocation of investment capital from Asia to Europe, the mushrooming of start-ups that promised to commercialise the opportunities unlocked by the diffusion of the Internet, and the multiplication of exit venues for SMEs and tech companies, such as EASDAQ and the Euro.nm stock exchange (Weber and Posner 1998; Da Rin, Nicodano, Sembenelli 2006).

While private investors have catalysed the growth of VC in Europe in the first phase of market development, public authorities across the Member States have facilitated VC activity in the 1990s mostly by experimenting with tax incentives, government loans, and guarantee schemes (OECD, 1997). In contrast, direct investment was rather a minor component. While public vehicles providing institutional support to VC did play a role in spurring domestic VC investment in the 1990s[3] total public funding accounted for an annualised average of 4% of total VC fundraising in Europe during the 1990s (OECD, 1996; Bottazzi and Da Rin 2002).

However, despite this buoyant venture capital markets in Europe in the 1990s, transatlantic gap in VC has dramatically widened at the expense of the EU towards the end of the 1990s. The EU market slightly outweighed the US market at the beginning of the decade. Yet, the trend reversed soon thereafter and the transatlantic gap in VC investments peaked at around $80bn in 2000, raising competitive concerns among EU policymakers (EVCA 2001; NVCA 2001; European Commission, 1998).

VC first entered the EU policy discourse in the 1980s, and the European Commission has played key role in the early institutionalisation of the industry by sponsoring the set-up of the European Venture Capital Association, orchestrating VC syndicates (e.g. Venture Consort), piloting cross-border financing schemes (e.g. European Seed Capital Fund), and facilitating institutional innovations (the European Association of Securities Dealers Automated Quotation (EASDAQ) (European Council, 1980; Commission of the European Communities, 1980; 1985; 1995; Weber and Posner 2000).[4] Confronted with an aggregation of fragmented markets, the EU has been at the centre of the public efforts to revive VC activity in Europe and build a pan-European VC market for financing innovation, deploying substantial resources and accumulating market expertise in the process.

[3] Most notably, the CDC in France, Venture Capital Trusts in the UK, Beteiligungskapital fur Kleine Technologieunternehmen (BTU) in Germany, Investment Company for Flanders in Belgium, SITRA and KERA in Finland, Participation Companies for New Technology-based Firms (PMTSs) in the Netherlands, Atle and Bure in Sweden, and Axio in Spain.

[4] The Commission took action inspired by the December 1980 conclusions of the European Council, which called on the European authorities to "examine ways of eliminating the fragmentation of markets and improving incentives to innovation and the dissemination of knowledge" (European Council, 1980).

Although VC investments experienced steady growth, in the mid-1990s the European Commission increasingly focused its policy action on the interlinkages between innovation, employment, and competitiveness, identifying in its 1995 Green Paper on Innovation the structure of the European VC market, in particular the low share of high-tech and early-stage investments, as a key reason underlying the innovation paradox of the European Community that "despite its internationally acknowledged scientific excellence, it launches fewer new products, services and processes than its main competitors" (Commission of the European Communities, 1995). Following the 1997 Luxembourg Summit on Employment, which acknowledged "the important role that large pan-European risk-capital markets can play in job creation", the European Commission was mandated to develop an action plan for fostering the risk capital market, which was preceded by a complemented call on the EIB to start activities in venture capital, leading to the establishment of a EUR 250 million facility for the financing of high-technology projects being developed by SMEs (European Council, 1997; EIF, 2000).

The subsequent 1998 *Risk Capital Action Plan (RCAP),* proposed by the Commission and endorsed at the 1998 Cardiff Summit, was the first comprehensive VC plan of the EU to build a European VC market through regulatory changes, tax reforms, R&D support, and direct financing schemes (Commission of the European Communities, 1998). The plan was triggered on the one hand by the broad consensus among the Member States that governments can capture the public benefits of vibrant VC markets in terms of increased innovation, growth and quality job creation. On the other hand, its urgency also owed to the intensified transatlantic VC competition documented by a Commission report, which found evidence that "many good European ideas – themselves the result of expensive public investments in education and research – end up being developed in the United States", that there was a growing trend toward "migration and loss of some of Europe's best talent and best ideas", and that "there is strong evidence of major US corporations "buying" the latest high tech European ideas on the market" (Commission of the European Communities, 1998:7).

Apart from eliminating some barriers deterring cross-border VC operations and creating framework conditions for the market, such as guidelines for the approval of risk capital schemes involving state aid, the Commission also experimented with the use of budgetary resources for catalysing private investment, such as by setting up the Joint European Venture programme, which financed expenses related to the setting-up of cross-border VC vehicles and by entrusting to the EIF the implementation of the ETF Start-up Facility, a fund-of-funds of EUR 101 million agreed under the Growth and Employment Initiative, which targeted early-stage firms in the high-tech sector (EIF, 2000).

The primary role of the RCAP was to raise awareness about the strategic importance of risk capital and to send a political message by supporting those involved in the industry and permeating other European and national policies and programmes (Commission of the European Communities, 2003). The goals of the RCAP were reinforced in the 2000 EU Financial Services Action Plan, a package of regulations aimed to make cross-border fundraising easier and cheaper, facilitate stock exchange listings, modify prudential rules to allow institutional investors to

invest in VC, update accounting frameworks, and disseminate best practices in corporate governance.[5] Subsequently, building an efficient single market for risk capital became the backbone of the 2000 Lisbon innovation strategy. The March 2000 Lisbon summit recognised that "efficient risk capital markets play a major role in innovative high-growth SMEs and the creation of new and sustainable jobs", providing the framework for the next decade of VC policy (European Council, 2000).

The formation of VC as a new policy field also led to institutional innovations. In 2000, the EIB became the main shareholder of the EIF, refocusing the EIF's mandate exclusively on risk capital and guarantees for SMEs. Since then, the EIF has acted as the EU's main tool in building the VC market, with a focus on equity investments in venture capital funds investing in innovative sectors (EIB, 2006). By the end of 2000, the EIF was managing as a trustee of the EIB and the European Commission a total portfolio of EUR 1.2 billion spread across over 100 VC funds (EIF, 2000). Although private investors were already ensuring a growing supply of risk capital during this phase of the VC market cycle, the EU was called upon by the European Council to boost VC investments, particularly in the high-tech sector, due to its perceived effects on innovation and high-quality job creation in the context of the shift of the EU's priority toward building a knowledge-driven economy (European Council, 2000). This mainstreaming of VC in the EU policy discourse and programming coincided with the 2001 dot-com crash, which marked the end of the first major VC cycle in European VC.

In sum, although the first phase of VC market development in Europe was driven by the investments of private investors and was characterised by a large footprint of financial and institutional investors, high market concentration in several domestic hubs, and weak supply of capital for early-stage innovative firms, the EU's experiments in VC during this period have encouraged the subsequent EU policy inroads in the area. Hence, since the end of the 1990s the European VC market has been characterised by a public-private symbiosis driven by targeted regulatory interventions, strategic deployment of public funds, and denser collaborative VC links between the EU and national structures.

3.2. 2002 – 2013: Reviving the Market with Public Support

The second phase in the development of the European VC market was marked by the slow recovery from the dot-com crash followed by a short-lived quickly halted by a second negative cycle of adverse economic conditions triggered by the Global Financial Crisis (EIF, 2016: 17). The deteriorating market environment hit early-stage innovative firms most drastically. VC investment in early-stage firms dropped to 8.9% by 2003 (EVCA, 2004).

[5] Other smaller EU-level initiatives during the 1990s included the Joint Venture Phare (JOP) programme, which covered the costs of feasibility studies for firms in need of finance for cross-border operations and the Joint European Venture (JEV) designed to stimulate the creation of transnational joint ventures in the EU. Furthermore, in 1998, the Commission also partnered with the European Business Angels Association in sponsoring the creation of a network of national hubs for business angels (see Rudy Aernoudt, 1999).

After slowly rising from EUR 2.5 bn in 2002 to EUR 7.9 bn in 2007, the market experienced a decline until 2012. The post-crash phase was marked by the retreat of institutional investors from the VC market, the shift of the capital away from the early-stage segment toward more mature firms, and a greater counter-cyclical role of public actors.

In the wake of the dot-com crash, policymakers have recognised that the cyclical nature of the VC industry makes consistent long-term policy development essential (European Commission & US DCITA, 2005). However, public interventions had been scrupulously embedded in a market-failure justificatory framework and tested against distortionary effects. As recognised by the 2005 European Risk Capital Summit, the prevailing paradigm guiding public investments had to abide by the strict rule that "public sector programmes should not exist without clear market failure rationale" (European Commission, 2006:6).

In March 2001, the European Council reaffirmed its commitment to closing the innovation gap between the US and the EU, stressing that "investment and innovation need to be supported by an enhanced supply of risk capital" and calling for the expansion of capital infusions in European "frontier technologies" (European Council, 2001). Meanwhile, the main achievement of the European Commission's RCAP was to raise the political profile of VC and to create the basic regulatory framework for VC investments. As recognized by the industry association, public actors have been "instrumental in creating a large number of fund management teams and allowed them to gain significant skills and experience" (EVCA, 2010). The political commitment and market infrastructure built upon the RCAP also legitimised the subsequent counter-cyclical public interventions aimed at reviving market activity.

Notable national schemes during this period include the French "Plan Innovation", NUTEK in Sweden, the decision to turn the Danish Growth Fund into a public venture fund in 2001, and the creation of the UK High Technology Fund. However, VC investments by EU governments were also a barrier in the development of pan-European market since they often came with conditions that favoured their own local or national start-ups to the detriment of cross-border operations and the growth of larger, cross-border funds, which prevented VC managers from keeping pace with the scale-up needs of European start-ups.

In this context, the EIF has emerged after the dot-com bubble as the largest institutional investor in the European VC landscape and its leading counter-cyclical investor, accumulating substantial resources, market expertise, and reputation. During the 2002-2012 decade, the EIF committed EUR 4.5bn in about 260 VC operations, a 10% share of total fundraising in Europe during this period (EIF Annual Reports 2002 - 2007). In response to the gap in early-stage financing, the EIF took upon itself the mission to become the leading capital supplier for the early-stage segment of the market, although the portfolio's focus has been gradually broadened to include mid- and later- stage funds, partly to help support existing funds in the portfolio to provide follow-on investments to maturing companies (EIF, 2006). Although in 2001 the EIF channelled 80% of its commitments into VC funds specialised in early-stage firms, by 2008 this share dropped to 40% (EIF, 2001:8; EIF 2008:20).

The EIF fulfilled four key functions during this phase: (1) addressing the specific market needs by addressing market failures in the funding of high-tech start-ups; (2) professionalising the VC industry by supporting first-time teams and assisting fund managers to fine-tune their investment strategies, align the interest

between funds managers and investors, set industry standards and diffuse best practices; (3) generating catalytic effects by providing strong signalling that crowded–in private investors, and (4) striving to bring the European value–adding element by selecting VC funds with cross–borders reach.

In 2007, shareholders completed a 50% increase of the EIF's nominal capital to EUR 3bn (EIF, 2007). Equipped with new resources, following the 2007 financial crisis the EIF also served as the primary countercyclical buffer that provided some degree of market stability. Apart from its counter–cyclical function, the EIF has also experimented with the management of Member States mandates and joint investment facilities in line with its objective of developing a regionally balanced VC market, such ERP–EIF Dachfonds (2004) and Ifa–EiF Facility (2009) in Germany, NEOTEC (2006) in Spain, Dahlia in France (2006), Portugal Venture Capital Initiative (2007), and UK Future Technologies Fund (2010).

However, the effects of the so–called "dot–com collapse" resonated due to uncertainty, volatility, longer investment cycles, a decline in company valuations, and limited exit opportunities (EIF, 2006).[6] On the supply side, the low volume of VC activity in Europe in the decade between 2002 and 2012 was attributed to the withdrawal of institutional investors from the market following losses from the bursting of the dot–com bubble, the reallocation of capital toward private equity, a debt–equity bias in EU markets, and the lack of a large pool of pension funds, university endowments, foundations and family offices able to cover the shortfall. Furthermore, the profile and quality of VC funds – not large enough to raise capital from large institutional investors nor sufficiently experienced to screen and assist the most promising start–ups – highlighted the crucial role of human capital in the selection and management of VC portfolios. Market segmentation along national borders also reduced cross–border operations and undermined attempts to achieve economies of scale in both fundraising and investment.

On the demand side, investors also confronted a limited stream of of high–potential firms open to VC investments that could be expected to deliver acceptable rates of return. This problem was generally attributed to the low levels of R&D expenditure in most Member States, capital shortages in the diffusion and commercialisation of information technology, the lack of up–to–date business skills among entrepreneurs and management teams, outdated framework conditions linked to the intellectual property regime, procurement practices, and tax regimes, as well as labour market rigidity (European Parliament, 2012). Europe's weakness was also caused by the lack of suitable VC funds with credible expertise and with a scale that could respond to the asset allocation needs of institutional investors (InvestEurope, 2010:15).

Many structural factors that conditioned the development of VC in Europe remained the preserve of Member States, such as national fiscal laws, corporate and labour laws, and macroprudential regulations calibrating the risk appetite of institutional investors. Furthermore, although governments intensified efforts to address some

[6] The landmark success during these difficult years was an investment in the first fund of a VC team which in turn invested in Skype.

of these issues, national support schemes have reinforced both the fragmentation of markets and the symbiotic dependence on public funds of European VC markets.

In this context, the European Commission strengthened its efforts to revive and unify the market (European Parliament, 2012). First, after the Risk Capital Summit jointly organised in 2005 by the UK and the European Commission, the EU has tripled the volume of budgetary resources allocated to VC from EUR209m to EUR 625m (ECA, 2019). Second, the market's contraction following the 2007 crunch and the subsequent sovereign debt crisis also prompted the EU to play a more active regulatory role. After the Commission's 2007 proposal for the "mutual recognition" of VC funds among Member States as a short-term mechanism for reducing the regulatory and fiscal barriers "has not brought the expected short-term results", the Commission has intensified its regulatory efforts to address market fragmentation, with the Directorate General Enterprise and Industry being the architect of these initiatives (European Commission, 2010b:1). However, the Commission soon acknowledged that although the 2008 Council agreed with the proposed approach, in practice most of the Member States, particularly those with established and functioning VC markets, expressed low interest in overcoming market fragmentation (European Commission, 2010b).

The Europe 2020 Strategy, with its focus on "smart, sustainable, and inclusive growth", reaffirmed EU's commitment to "making an efficient European venture capital market a reality [;] and exploring incentives for private sector funds" (European Commission 2010b). Its flagship *Innovation Union* also outlined plans for adopting a new legal regime for VC investments and announced decisive steps toward unifying the basic legal framework for cross-border operations recalibrating private incentives to reduce the imputed industry overreliance on public sources (European Commission, 2010c:20). An essential step toward this goal was the Single Market Act (April 2011), in which the Commission announced the European Venture Capital Regulation (EuVECA), which came into force in 2013 and allowed VC firms to market their funds and raise capital on a pan-European basis.

The continuing funding crisis in the VC sector across the EU also promoted more cooperation among national VC players, particularly between the EIF and national VC funds. In 2011, a group of 17 public venture funds from 15 EU countries launched the European Venture Fund Investors Network (EVFIN), a platform of dialogue and coordination between public VC players across the EU (Caisse des Dépôts, 2015). Building on the EIF's expertise and track record and in response to positions statements from industry representatives, the European Council called on the Commission to "present proposals by the end of 2011 for putting in place an EU-wide venture capital scheme" managed by the EIF in cooperation with national players" (European Council, 2011:8). However, this initiative (later called VentureEU) eventually took-off only in 2018. In response to the European Council request to strengthen the collaboration between the EIF and the Member States, the EIF intensified its partnerships with national VC player, in line with other initiatives bringing together NPIs and the EIB group in that period (European Council, 2012:51; Mertens and Thiemann 2018, 2019). The EIF has partnered with domestic players in launching new public funds, such as the Baltic Innovation Fund (2012), Polish Growth Fund of Fund (2013) and Dutch Venture Initiative (2013), and co-invested along with existing national players.

However, in the early 2010s the Commission has experienced an episode of self-doubt driven by two contradictory trends. On the one hand, Member States expressed weak receptiveness to pan-European VC policy initiatives. At the same time, industry representatives criticised public interventions for eroding the competitiveness of the industry by stimulating the proliferation of small funds, trying to simultaneously achieve multiple policy goals with a single policy tool (EVCA/InvestEurope, 2010:8). Although the industry association recognised that "significant public support was required to kickstart the industry" and that "public sector initiatives operating on commercial terms have managed to "professionalise" the venture capital industry", by 2010 industry representatives distanced themselves from the previous funding model for venture capital in the EU, arguing "the time has now come to adapt and refine the existing structures of public support for venture capital", calling for "a phased reduction of its dependence on public money"(EVCA/InvestEurope 2010: 3, 8). The 2011 position statement of the industry association stated that what the industry demanded "are not a request for subsidies, grants or protection mechanisms" (EVCA/InvestEurope, 2011:4)

On the other hand, persistent structural problems and the post-crisis adverse market environment called for a more proactive EU approach, both regulatory and financial. Moreover, despite the general criticism against the growing footprint of public funds in the VC market, the position statements of industry representatives also recommended the EU to promote public funds-of-funds as vehicles for strengthening the undersized European VC funds (EVCA/InvestEurope, 2010, 2011).

In sum, the second phase in the evolution of the EU VC market was characterized by a short boom and bust cycle, which prompted the "flight to safety" among institutional investors and magnified funding gaps across stages, sectors, and regions. Public actors stepped in to revive the market through interventions embedded in a market-failure framework, becoming the primary sources of funding for the industry. The transatlantic VC gap remained an implicit rationale guiding VC policy, while market fragmentation, regional disparity, and concerns about market overreliance on public funds had been the leitmotifs of the VC policy agenda. The adoption of EuVECA was expected to play a decisive role in overcoming market fragmentation, an effort enhanced by EIF's role in multi-country funds. The EIF's role as a cornerstone investor and counter-cyclical actor was also heightened due to a 50% capital increase, additional EU budgetary commitments, and third-party mandates. The EIF thereby became the premier institutional investor in the market, experimenting with co-investment facilities and new mandates, as well as contributing to the professionalisation of the market through the diffusion of best market practices and the supply of capital and expertise to first-time VC teams. However, the contradictory expectations imprinted on EU policy, seeking to fix market failures in a market in which otherwise private forces were supposed to rule supreme, led to an intermezzo in which the EU focused mostly on trying to improve the framework conditions and allow market forces to escape the post-crisis malaise.

4. Chasing Unicorns in Ecosystems: 2014 to today

Since the sovereign debt crisis, the EU has increasingly distanced its VC policy from the market-failure framework, gradually moving from questioning its interventions to a more assertive and directing role in shaping VC markets. This shift reflected the EU's growing post-crisis capacity and willingness to 'govern through financial markets'

(Braun et al. 2018). After greatly expanding its market footprint by leveraging public funds in the first part of the Juncker mandate, towards the end of the Juncker mandate the EU has upgraded its VC policy by shifting toward an ecosystem approach to incubating "unicorns". Building upon this policy lineage, the incumbent "geopolitical Commission" has enhanced the ecosystem approach to fostering VC markets, exercising more targeted interventions and improving the policy steer of its initiatives while also imprinting new rationales on public venture capital.

The main VC policy challenges EU policies sought to address during Juncker's mandates included the continuing tasks of overcoming market fragmentation, building up the high-tech market segment, increasing the size of VC funds to enable local VC funds to provide scale-up funding to EU start-ups, expanding the geographical coverage of EU venture products, and catalysing private finance in the market. During this period, EU interventions have been increasingly shaped by discursive shifts toward (1) a more explicit geopolitical competition with US and China, (2) an explicit focus on scaling-up EU digital champions into global unicorns, (3) a shift toward more targeted sectoral interventions in critical areas through direct equity stakes in promising deep-tech start-ups[7] (4) a reframing of EU market-shaping interventions within a "mission-driven" framework motivated by the urgency of societal challenges, and (5) a focus on integrating scattered instruments, resources, and capabilities under a Pan-European Innovation Ecosystem geared toward incubating digital champions as a way of safeguarding the EU's technological sovereignty.

4.1. Juncker I: Deepening the Market with Public Funds

The early phase of the third stage of EU's policy engagement with the VC markets was characterised by the continuing, albeit enhanced, deployment of financial instruments to achieve policy goals, a trend that has emerged from the early 2000s onwards, and the materialisation of EU venture initiatives originating in the recession. Some leitmotifs of the EU venture public policy, such as filling "market gaps", addressing regional disparities, channelling capital toward the later-stage of the funding escalator, attracting more institutional investors, and making the market self-sustainable have continued to play an essential role on the European VC policy agenda. However, the quantitative boost achieved through the enhanced leveraging of public funds and deepening the market through increased participation, specialisation, and more intense collaboration with private actors and NPIs have later taken the form of qualitative shifts in policy engagement.

In March 2014, the shareholders of the EIF approved a 50% capital increase of the EIF, which resulted in about EUR500m additional counter-cyclical resources for reviving the market post-crisis. The launch of Juncker's EFSI has provided another public boost to VC activity, allowing the EIF to more than triple its VC commitments from

[7] "Deep tech" usually refers to those start-up organisations based on a mix of engineering innovation and scientific discovery in such fields as artificial intelligence, robotics, blockchain, advanced material science, photonics and electronics, biotech and quantum computing.

EUR 630m (16% of total VC investment in Europe) in 2014 to EUR 1.5bn (30% of total investment) by 2016 (EIF, 2014, 2016). These resources enabled the EIF to catalyse more private finance, expand its portfolio into the later-stage of the funding escalator, provide pan-European coverage of its VC products, and better address the financing gaps of individual countries. Collaborations with governments and national promotional institutions have resulted in new co-investments and the launch of new national venture funds. Since EU budgetary resources were still relatively small, their use was primarily aimed at catalysing private investment, particularly from large institutional investors, which was inscribed in the Commission's larger strategy of this period to exploit the leverage effect of the EFSI for accelerating the economic recovery of the EU.

The launch of the Capital Markets Union further enhanced EU's efforts to overcome the challenge of addressing the European paradox of the 'big economy with small markets', encouraging "public sector risk-sharing" as a "catalyst for private sector investment" and "helping to promote scale, diversification and geographical reach" in the VC market (European Commission, 2015b:8). The VC initiatives under CMU sought to optimise the transaction costs of cross-border VC operations through a more accessible and cost-effective regulatory regime and broaden the participation of institutional investors by leveraging of funds-of-funds.

By 2015, 90% of EU venture capital investment was concentrated in 8 Member States, while the EUR 60m average size of EU funds (half the of that in the EU) limited the scale-up capabilities of portfolio firms and did not fit the investment profile of institutional investors. These structural problems prompted the EU to accelerate the implementation of two CMU initiatives. First, the EuVECA regulation was amended to allow larger funds to market themselves under the "EuVECA" designation across the EU and reduce the corresponding investment threshold. However, the European Court of Auditors concluded that "impact of EuVECA is that it increased registration of VC funds only in those MS with already attractive, integrated, and well-developed capital markets" (ECA, 2020). Second, a proposal for launching a Pan-European Fund-of-Funds programme (later called VentureEU) dating from 2010 finally came to fruition in 2017 as part of the CMU package. The programme mandated the EIF to invest EUR 410m FoFs programme into six private Pan-European VC FoFs able to supply scale-up funding and stimulate cross-border investments (European Commission, 2018). In line with the EU's new approach to prioritising sectors, the EIF set as its priority to allocate resources to funds specialised in investing in a broad range of high-tech sectors where the EU already has already shown strengths, such as life sciences, healthcare, and energy efficiency.

The first phase of the Juncker Commission also brought to the forefront raising concerns about the haemorrhage of EU start-ups to other global VC hubs and the acquisitive drive of US funds in the EU.[8] Although by the mid-2010s, the EU had significantly narrowed the funding gaps in the early stages of the start-up lifecycle, there was growing evidence that the technological leadership of American and Chinese companies, which allowed them to acquire potential challengers, monopolise data, attract scarce talent, and exert disproportionate control

[8] EU reports acknowledged that "there has been a strong movement of companies from the EU to the US" due to the growth constraints of EU-start-ups (EIB, 2021).

over digital agenda could threaten the innovation dynamics, industrial competitiveness, and the strategic autonomy of the EU as a global actor (European Commission, 2016). The rising concern that "new technologies that have been developed in Europe are commercialised elsewhere" has prompted a rethinking of its approach to funding innovation (European Commission, 2015). In the words of Andrus Ansip, the former Vice President of the European Commission for the Digital Single Market, "(t)he message Europe is sending its entrepreneurs now is: stay at home" (Commissioner Ansip, 2015).

This line of thinking can be traced to the strategic notes of the European Political Strategy Centre, the European Commission's in-house think tank established by President Juncker, which raised awareness about the increasing emergence of 'superstar' firms and the "winner-takes-all" logic of industrial competitiveness, warning that "EU lags behind in growth capital", which allows EU start-ups to "become the easy target of acquisitive foreign firms" (EPSC 2016, 2017). Amplified by data misuse and surveillance program scandals, these trends prompted the Juncker Commission to deploy its antitrust tools to keep foreign digital champions in check but also pay more attention to the scale-up constraints of EU start-ups, seeking to enable the growth of European GAFAs (European Commission, 2015b).[9]

Commissioner Carlos Moedas (Research and Innovation) was a crucial policy entrepreneur in this respect. In a 2015 speech, he laid out his "Open Innovation" vision for Europe that reflects a qualitative shift in the EU's embrace of the idea of engineering a pan-European innovation ecosystem that would synergistically integrate scattered policy instruments, funding programmes, research capabilities, talent, entrepreneurs, VC funds, investors, and exit venues. The transition from the EU's "knowledge transfer" paradigm to the "open innovation" paradigm enacted by Moedas implies the opening up of "innovation process to all active players so that knowledge can circulate more freely and be transformed into products and services that create new markets" (European Commission, 2015:11). Hence, innovation was no longer to be understood as a pipeline of inputs and outputs or as the product of predefined and isolated activities but rather as the outcome of a complex co-creation process that facilitates the market uptake of research findings.

This new discursive shift, in conjunction with the CMU initiatives, has outlined a vision for embedding the EU venture capital markets in the broader pan-European innovation ecosystem in order to create a pipeline of innovative scale-ups and unicorns that would enhance the EU's capacity to compete for technological leadership in critical areas. In EU policy circles, digital champions fostered in a pan-European ecosystem carried the promise of generating "market-creating disruptive innovations" that could help the EU make better commercial use of its scientific capabilities and human capital (European Commission, 2015:28). This strategic gearshift was later rendered visible in other EU industrial policy initiatives, such as the European Battery Alliance, the Gaia-X project, and the semiconductors alliances.

[9] European Commission, "Europe needs its own GAFAs" Report (2015). GAFA is a common acronym that stands for Google, Amazon, Facebook, Apple.

4.2. Juncker II: From Market-Fixing to Market-Shaping and Beyond

In the Juncker II Commission, the EU's VC policy was partially reframed in terms of a wider shift toward a mission-driven approach to public policy that seeks to intervene upon markets by shaping private expectations about future growth opportunities, leveraging public funds to unlock opportunities for commercial gains in emerging sectors, and steering the playing field according to long-term directions of change (Mazzucato and Penna 2016; Mazzucato and Semieniuk 2017).[10] Although the market failure framework has continued to play a role in guiding EU public investment strategies, providing a static justification for the allocation of public resources, greater public awareness of the urgency of societal challenges has shifted VC policy and the underlying intellectual references of the EU toward a "market-shaping" approach (Mazzucato, 2016).

The normative approach to mission-driven market shaping, understood as a way of "picking problems" - or "missions" - that cut across sectors and technologies and directing economic activity toward achieving those long-term missions, has mainly influenced the policy agenda of the DG Research and Innovation (Mazzucato 2018, 2019). The "mission-driven" intellectual framework also exercises a degree of influence over the incumbent Commission, e.g. serving as the backbone of the Horizon 2021-2027 framework (European Commission, 2021c). As Commissioner Gabriel (Innovation and Youth) announced, "Missions are a new tool for the European Commission" that provides guidance about "how to create solid and reliable mission investment strategies" and can "serve as a basis for cooperation [between the Commission and the EIB]" (EIB, 2020).

However, by maintaining analytical attention on the market, the market-shaping approach does not fully capture the extent to which the recent EU's growing public engagement with innovation ecosystems at the level of individual actors has been re-envisioned over the last years, particularly since the 2017 piloting of the European Innovation Council. Furthermore, the focus on shaping markets according to a mission-oriented agenda, although potentially revealing of the role of the EU in accelerating the twin green and digital transition, does not fully expose the implications of EU's recent quest for technological sovereignty.

The current ecosystem approach of the Commission, we argue, goes beyond direction-setting and leveraging of public funds, involving more direct engagement with the processes and content of innovation through more targeted interventions in strategic sectors, including via equity ownership in innovative start-ups, as well as via the "accompaniment" of market participants toward those long-term directions of change. By mobilising its resources and playing a more assertive role in processes of innovation, the EU aspires to incubate digital champions whose "market-creating disruptive innovations" could help "to safeguard its technological sovereignty" (European Commission, 2015:28; Commissioner Gabriel, 2021).

[10] This shift can be traced to the appointment of Prof. Mariana Mazzucato of UCL as EU Special Advisor for Mission Driven Science and Innovation by Commissioner Moedas.

A recent pioneering initiative that best captures the EU's greater engagement with innovation ecosystems and the individual activities of start-ups is the launch of the European Innovation Council in March 2021, after a pilot programme between 2017 -2021. The EIC marks the EU's shift from being a stakeholder in the VC landscape, which invests indirectly through Fund of Funds, to being a shareholder that takes equity stakes in innovative start-ups and scale-ups in strategic sectors. The EIC's investment arm, the European Innovation Council Fund is "the first ever EU investment fund dedicated to directly invest in and accompany the growth of potential game-changing EU start-ups and SMEs" taking direct equity stakes of up to EUR 15m direct in innovative start-ups and scale-ups, which will be managed by the EIB on behalf of the Commission, providing a more holistic approach to fostering start-ups by taking an ecosystem approach that goes beyond funding (Commissioner Gabriel 2021). Prior to that, the Commission's equity ownership was limited to that of a minority shareholder of the EIF (31%). However, the EIC epitomizes the EU's shifted toward picking winners directly in disruptive, deep tech and market-creating start-ups. The EIC reflects the more assertive role of the Commission in engaging with the market in line with its goal of exerting more "policy steer" and more control over its budgetary resources (Jones and Naqvi, 2020).

The EIC is the brainchild of Commissioner Moedas first announced in his 2015 "Open Innovation" vision. Though initially competing with Emmanuel Macron's proposal for a European innovation agency modelled after the US DARPA, which was supposed to work in a top-down fashion by prescribing awardees what technologies to work on, the way DARPA did, Moedes' more bottom-up and inclusive proposal was eventually endorsed by Macron, who became its vocal supporter (Macron, 2021). The EIC seeks to steer the strategic coordination of EU innovation ecosystems as a single pan-European ecosystem (Commissioner Gabriel, 2021). Its work is also supported by the European Institute for Innovation and Technology within the framework of the European Innovation Ecosystems initiative (European Commission, 2020b). The EIC integrates a broad range of VC tasks, from providing stage-specific funding instruments to nurturing start-ups through technical and managerial value-adding services under a one-stop shop.[11]

The EIC was rooted in the "rediscovery" of the so-called "European paradox", first coined in the mid-1990s, that although the EU is a world leader in science and research, other regions lead on innovation. However, its political roots can be found in the Commission's frustration about the lack of control over how its budgetary resources managed by intermediaries, such as the EIB and the EIF, are allocated, but also in the Member States' opposition to direct equity investments by the EIB. During the debates on the EFSI, proposals for a European Strategic Fund through which the EIB would directly invest in potentially strategic EU companies was rejected by the

[11] The EIC provides an integrated platform open to innovators across the EU through new instruments. Its unique features are: (1) The EIC pathfinder, which provides grants of up to 3 to 4 million euro for advanced research that supports the early-stage development of future technologies; (2) The EIC Transition channels grants of up to EUR 2.5 m to validate technology and develop market readiness; (3) The EIC Accelerator, worth EUR 1bn, allocates grants and provides up to EUR 15m in exchange for equity stakes in innovative start-ups whose products build on scientific discovery or technological breakthrough. It also provides business acceleration services, which include coaching, mentoring, expertise, training, but also access to global partners (leading corporates, investors, procurers, distributors, clients). Companies also get a "seal of excellence" - in line with the certifying function of VC. The pilot programme disbursed EUR 2.7bn within the Horizon 2020 framework, while the EIC for 2001-2027 framework has a total budget of over EUR 10bn.

Member States due to reticence over the EIB's role in controlling the strategic choices of the investee firms (Grégoire Chauvière Le Drian in AmCham, 2020:93). Hence, the EIC is the Commission's answer to these tensions.

By picking winners directly in emerging technologies and sectors and "accompanying" their evolution across the funding escalator, the Commission also sought to overcome what are perceived as some limitations of the EIF's business model as a fund-of-funds. Although the EIF has proved to be the driving force of the European VC industry for over two decades, there is a growing concern that its approach to the VC market might understate the problems of decentralisation and over-intermediation in VC operations, which leads to the proliferation of uncompetitive VC funds and to the increase in the transaction costs of start-ups. Furthermore, the EIF also does not provide non-financial resources to start-ups, an essential ingredient in VC performance. The EIF-backed funds are typically rather small, raising doubts about the synergies and network effects which these VC funds can harness compared to their American counterparts. By launching a European public VC fund, the Commission expects to bring more value-added to start-ups working on market-creating innovations, nurturing these entrepreneurial ventures until they can be passed on to the EIF's later-stage funding schemes.

The EIC is also an expression of the EU's recent shift toward more targeted support for emerging sectors and technologies, in particular fintech, deep tech, space technologies, blue economy, life sciences, health care and agribusiness, which also permeated the mandates of the EIF (EIF, 2021). The move toward strategic targeting can be explained both by geopolitical imperatives and by policy efforts to harness the value of integrating scattered resources into sectoral ecosystems, which can be helped to grow their own companies. Although the market-failure framework has not been completely abandoned, the EU's recent sectoral investment strategy aims to provide more targeted interventions and to engage deeper in areas in which the EU already has strengths, in line with the conclusions of its growing EU policy output on deep tech, artificial intelligence, cloud infrastructure, blue economy, and other emerging sectors (European Commission 2018, 2018b, 2021b).

In conjunction with the EIC, the Commission has also recently pioneered additional initiatives at the technological frontier. For example, the fierce competition in AI applications has prompted the Commission to capitalise on its talent pool of over 30 000 AI researchers by boosting its investment in AI, which in 2020 accounted for only 7% of global investment (EIB, 2021). In 2020, the EIB and the EIF also jointly launched the AI Co-Investment Facility, a EUR150m fund to support the European ecosystem of AI. The AI Co-Investment Facility builds on the EIB Group's expertise in the sector, developed through the existing EUR 100m pilot European investment fund for AI/Blockchain AI managed under the InnovFin Equity instrument (EIF, 2020). The EU has also made VC inroads in space science with a EUR 100m InnovFin Space pilot programme and has launched the Venture Centre of Excellence to strengthen the life science and health ecosystem (EIT Health, 2021; EIF, 2020).

Building upon the VC legacy of the Junker, "political Commission", Von der Leyen's "geopolitical Commission" has declared the 2020s "Europe's digital decade", setting as its goal to start "growing a pipeline of innovative scale ups" and "doubling the number of unicorns in Europe" by 2030 in order to better compete with global technological leaders, and achieve "technological sovereignty" (European Commission, 2021d:10). Most of the incumbent Commission's initiatives find their lineage in the previous administration. Just like as the EIC, which

finds its roots in the Commissioner Moedas' *Open Innovation Agenda*, the landmark 2020 initiative *ESCALAR* (European Scale-up Action for Risk Capital), a new fund-of-funds managed by the EIF which explicitly targets the growth of EU-based unicorns in emerging technologies, can be traced to Juncker's 2017 revision of the EU industrial policy strategy. However, the rhetorical tone of the new Commission reflects a more assertive role in shaping the activities of the VC market, in line with the new green transition and digital leadership priorities, continuing and dialling up the more assertive tones of the (late) Juncker Commission.

5. Discussion and Conclusion

As this paper has shown, the evolution of the VC market in the EU has been strongly shaped through the role that public funds played, in particular those operating at the EU level. This intervention, which emerged initially from the turbulent history of the VC market in the EU, has come to be a main feature of the current VC market, building the basis for the public policy goal of steering breakthrough technological innovations to the phase of commerciality, captured in the chase for "unicorns. This feature arose from the public interventions from 2001 onwards, when the investments by public actors were crucial in keeping the momentum in the VC market, building up volume, market depth and expertise of VC teams in the process. This maturation of the VC market occurred due to the persistent investment of public funds, both strong national ones (e. g. Bpi, Vaekstfonden in Dk, Almi in Sweden) and European institutions, in particular the EIF, which came to be the largest player within the EU. This system of public interventions evolved into an interlocked network structure, establishing links between national funds and the EIF, establishing the basis for a much more ambitious EU policy agenda, which now no longer seeks to fix the market failures that plague the VC market (fragmentation, pro-cyclicality), but in addition to direct the VC market to bring about technological breakthroughs deemed to be of strategic importance.

This transition in the public policy stance of the EU, from fixing markets to an active industrial policy stance, which consciously "picks winners" and seeks to drive them to market breakthroughs is a momentous change in EU public policy, revealing a new, more assertive public policy role for the European Commission. It points to a different positioning of the EU towards markets, whereby it is not the EU that seeks to generate well-functioning markets, which left to their own are supposed to fix the problems of the EU, but rather of markets as tools which the EU can use to gain technological sovereignty and maintain a place at the technological frontier in the context of a now made explicit system competition with the US and China. This new mode of intervention represents the latest in the attempt of the EU to "govern through financial markets" (Braun et al 2018), a further step in its move from "governance to government" (Epstein and Rhodes 2018), now reserving for itself a very conscious, active role as a market participant (EIC, EIF), rather than merely an enabler.

In the context of these public interventions and the evolution of VC eco-systems, Europe's problems today are no longer a lack of start-ups. Instead, as the EIC vice chair of the advisory board puts it, "Europe doesn't have a start-up problem. We produce more start-ups than the U.S. Europe has a scale-up problem and a deep tech finance problem" (CNBC, 2021). In other words, the problem of intervention that has been posed in the European

public policy space is the problem of unicorns: they are snapped up, go to UK and/or the US rather than further developing within the EU. A second problem is that the market is regionally highly concentrated in a few European cities (Berlin, Paris, Stockholm), which means that different countries are set to differentially benefit from EU interventions, potentially limiting the political consensus behind large scale EU public policy interventions.

The question then becomes how the EU is seeking to address these two interlinked problems and whether it is actually indeed the EU which has come to be the central driver of flows and developments in the EU VC market or whether it is the strong nation-states in the West which instrumentalise the EU to benefit themselves. This possible tension of the two levels is linked to the policy problem that the current lack of integration hinders the exploitation of the economies of scale in a big market. Fragmentation of resources across countries hampers scaling up and developing champions in strategic fields. Economies of scale derived from concentration, integration and proximity of talent and financing are the foundations of successful experiences of innovation ecosystems. The Commission recognises that efforts at European, national, and regional level should be coordinated to create an ecosystem along the entire innovation value chain. That means creating connected, specialised innovation clusters with universities, start-ups, large corporations, investors, and the public sector located in close proximity and fully cooperating.

In this context, the recent framing of EU public policy interventions in the VC market around the notion of a Pan-European Ecosystem is an attempt to overcome this regional/national level of considerations and instead push for a solution which is optimal from an EU point of view. Hence, the question arises where this new trope structuring EU policies comes from and what its implications are for the set up and enactment of EU VC policy? The question hence arises where this new trope structuring EU policies comes from and what its implications are for the set up and enactment of EU VC policy? To what extent has this qualitative shift been inspired by practices of regional players, such as Bpifrance (Thiemann and Volberding 2021) and the broader global trends in how VC policy is conceived? How does it in turn structure the collaboration between EU and national level public funds and thereby, how does the new imaginary of a Pan-European Ecosystem structure the actual European ecosystem? There is undoubtedly a contradiction between the pan-European ecosystem and the local competition between ecosystems, whereby e. g. Berlin and Paris are competing for the most successful start-ups, a competition fuelled by such public institutions as the public incubator of Bpifrance in Paris. How do EU level policy makers seek to integrate these tensions in a viable pan-European ecosystem? Future research should hence study how the attempt of the Commission to establish a pan-European ecosystem is shaped by tactical/strategic interaction by the Member States. As we know, EU initiatives are filtered through local priorities, which shape the effects of EU initiatives. Hence the question arises, which consequences in terms of actual policy effects arise from the attempt to shape a pan-European ecosystem of innovation and how these are shaped by the EU-national interaction.

References

Aernoudt, S.R. (1999) "European policy towards venture capital: Myth or reality?", *Venture Capital: An International Journal of Entrepreneurial Finance*, vol. 1, no. 1, p. 55.

Ansip, A. (2015) "European Commission Creates Plan for Europe to Challenge US Tech Dominance", Web:https://www.datacenterknowledge.com/archives/2015/04/27/european-commission-creates-plan-for-europe-to-challenge-us-tech-dominance (Accessed 2 August 2021).

Avnimelech, G. (2009) "VC Policy: Yozma Program 15-Years Perspective". Available at SSRN: https://ssrn.com/abstract=2758195 or http://dx.doi.org/10.2139/ssrn.2758195.

Bickerton, Chris J. (2012) European integration: From nation-states to member states. Oxford University Press.

Block, F. (2008) "Swimming against the current: The rise of a hidden developmental state in the United States", *Politics & society*, 36(2), pp.169-206.

Bottazzi, L. and Da Rin, M. (2002) "Venture capital in Europe and the financing of innovative companies", *Economic Policy*, 17(34), pp.229-270.

Braun, B., Gabor, D., Hübner, M. (2018) "Governing through financial markets: Towards a critical political economy of the Capital Markets Union". *Competition & Change*, 2018-04, 22(2), p.101-116.

Caisse des Dépôts (2015) "European Venture Fund Investors Network", Web: https://www.caissedesdepots.fr/fileadmin/PDF/05._actualite/evfin_brochure_15_decembre.pdf (Accessed 3 August 2021).

Chiapello, È. (2017) "Financialization of Public Policies", *Mondes en développement*, 178(2), pp. 23-40.

Clauser, M., Long de Lugo, C., Menant, L. (2020) "Chasing European Unicorns: How to position the European innovation ecosystem to the forefront?", *AmCham France*, Web: amchamfrance.org/wp-content/uploads/2020/11/AmCham---CHASING-EUROPEAN-UNICORNS---digital.pdf (Accessed 18 August 2021).

CNBC (2021) "Europe's $12 billion tech fund is 'beginning to work quite well' after early setbacks, advisor says", Web: https://www.cnbc.com/2021/02/12/hermann-hauser-europes-12-billion-tech-fund-is-beginning-to-work-.html (Accessed 15 July 2021).

Cochrane, John H. (2005) "The Risk and Return of Venture Capital," *Journal of Financial Economics*, 75, 3-52.

Commission of the European Communities (1985) "Industrial innovation: A guide to Community action, services and funding", Web: http://aei.pitt.edu/45325/1/A7103.pdf (Accessed 18 July 2021).

Commission of the European Communities (1995) "The Commission Paves the Way for a European Strategy to Stimulate Innovation", IP/95/1438, https://ec.europa.eu/commission/presscorner/detail/en/IP_95_1438 (Accessed on 25 July 2021).

Commission of the European Communities (1995) "Reporting on the feasibility of the creation of a European Capital Market for smaller entrepreneurially managed growing companies", COM (95)498, Web: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:51995DC0498&from=MT (Accessed 25 July 2021).

Commission of the European Communities (1998) "Risk Capital: A Key to Job Creation in the European Union", SEC(1998)552, Web: http://aei.pitt.edu/6987/1/003657_1.pdf (Accessed 28 July 2021).

Commission of the European Communities (2003) "Communication on the Implementation of the Risk Capital Action Plan), COM(2003)654, Web: https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2003:0654:FIN:EN:PDF (Accessed 25 July 2021).

Da Rin, M., Nicodano, G. and Sembenelli, A. (2006) "Public policy and the creation of active venture capital markets", *Journal of Public Economics*, 90(8-9), pp.1699-1723.

Endrejat, V., & Thiemann, M. (2020) "When Brussels meets shadow banking-Technical complexity, regulatory agency and the reconstruction of the shadow banking chain". *Competition & Change*, 24(3-4), 225-247.

Epstein, R., Rhodes, M. (2018) "From governance to government: Banking union, capital markets union and the new EU", *Competition & change*, 22(2), pp.205-224.

European Commission & United States Department of Commerce International Trade Administration (2005) "Working group on venture capital Final report", Web: https://ec.europa.eu/docsroom/documents/3308/attachments/1/translations/en/renditions/native (Accessed 28 July 2021).

European Commission (2006) "Conference Report on the Risk Capital Summit 2005: Investing for Growth and Competitiveness in Europe", Web: https://ec.europa.eu/docsroom/documents/3309/attachments/1/translations/en/renditions/native (Accessed 30 July 2021).

European Commission (2010a) Cross-border venture capital in the European Union", Web: https://ec.europa.eu/docsroom/documents/1382/attachments/1/translations/en/renditions/native (Accessed 7 August 2021).

European Commission (2010b) "EUROPE 2020 - A strategy for smart, sustainable and inclusive growth", COM(2010) 2020 final, Brussels, 3 March, https://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROS0%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf (Accessed on 1 August 2021).

European Commission (2010c) "Europe 2002 Flagship Initiative Innovation Union", SEC(2010) 1161, Web: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52010DC0546&from=EN (Accessed 3 August 2021).

European Commission (2011) "Communications on the Single Market Act", April 2011, Web: http://ec.europa.eu/internal_market/smact/docs/20110413-communication_en.pdf (Accessed 3 August 2021).

European Commission (2014) "Boosting open innovation and knowledge transfer in the European Union", DG Research and Innovation, Web: https://op.europa.eu/en/publication-detail/-/publication/5af0ec3a-f3fb-4ccb-b7ab-70369d0f4d0c (Accessed 15 August 2021).

European Commission (2015a) "Europe needs its own GAFAs", DG Research and Innovation, Web: https://ec.europa.eu/research-and-innovation/en/horizon-magazine/eu-needs-its-own-gafas-report (Accessed 13 August 2021).

European Commission (2015b) *An Action Plan on Building a Capital Markets Union*, Web: https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52015DC0468&from=HU (Accessed on 10 August).

European Commission (2016) "Assessing the Potential for EU Investment in Venture Capital and Other Risk Capital Fund of Funds", DG Innovation and Research, Web: https://op.europa.eu/en/publication-detail/-/publication/8557bb3e-e10a-11e5-8a50-01aa75ed71a1 (Accessed 7 August 2021).

European Commission (2020a) "European Innovation Ecosystems", Web: https://ec.europa.eu/info/research-and-innovation/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/european-innovation-ecosystems_en (Accessed 17 August 2021).

European Commission (2020b) "Deeptech Report", DG Research and Innovation, Web: https://euagenda.eu/upload/publications/2020_-_eic_-_deep_tech_europe_-_updated_01022021.pdf.pdf (Accessed 5 August 2021).

European Commission (2021a) "EU support to innovation: Commissioner Gabriel welcomes CEOs of successful European unicorns", Press Corner, Web: https://ec.europa.eu/commission/presscorner/detail/en/mex_21_1521 (Accessed 29 July 2021).

European Commission (2021b) "2030 Digital Compass: the European way for the Digital Decade" https://eur-lex.europa.eu/resource.html?uri=cellar:12e835e2-81af-11eb-9ac9-01aa75ed71a1.0001.02/DOC_1&format=PDF (Accessed 30 July 2021).

European Commission (2021c) "Horizon Europe Work Programme 2021-2022", Web: https://ec.europa.eu/info/funding-tenders/opportunities/docs/2021-2027/horizon/wp-call/2021-2022/wp-12-missions_horizon-2021-2022_en.pdf (Accessed 1 August 2021).

European Commission (2021d) *Europe's Digital Decade*, Web: https://eur-lex.europa.eu/resource.html?uri=cellar:12e835e2-81af-11eb-9ac9-01aa75ed71a1.0001.02/DOC_1&format=PDF (Accessed 1 August 2021).

European Council (1980) "Conclusions of the European Council Luxembourg", December 1980, Web: http://aei.pitt.edu/1415/1/Luxembourg_dec_1980.pdf (Accessed 18 July 2021).
European Council (2000) "Presidency Conclusions", Lisbon, 23-24 March, Web: https://www.europarl.europa.eu/summits/lis1_en.html (Accessed 25 July 2021).
European Council (2001) "Presidency Conclusions Stockholm European Council March 2001), Web: https://ec.europa.eu/commission/presscorner/detail/en/PRES_01_900 (Accessed on 28 July).

European Council (2011) "Presidency Conclusions Brussels European Council February 2011), Web: https://data.consilium.europa.eu/doc/document/ST-2-2011-INIT/en/pdf (Accessed on 28 July).

European Council (2012) "Presidency Conclusions", Web: https://data.consilium.europa.eu/doc/document/ST-76-2012-INIT/en/pdf (Accessed 29 July).

European Council (1997) "Conclusions of the Extraordinary European Council Meeting on Employment" Luxembourg, Web: https://www.consilium.europa.eu/uedocs/cms_data/docs/pressdata/en/ec/00300.html (Accessed 25 July 2021).

European Court of Auditors (2020) "Special Report No 25/2020: Capital Markets Union – Slow start towards an ambitious goal", Web: https://www.eca.europa.eu/Lists/ECADocuments/SR20_25/SR_CMU_EN.pdf (Accessed 11 August 2021).

European Court of Auditors (2019) "Special report No 17/2019: Centrally managed EU interventions for venture capital: in need of more direction", Web: https://www.eca.europa.eu/Lists/ECADocuments/SR19_17/SR_Venture_capital_EN.pdf (Accessed 10 August 2021).

European Institute of Technology (2020) "Venture Centre of Excellence", Web: https://eithealth.eu/project/venture-centre-of-excellence/ (Accessed 3 August 2021).

European Investment Bank (2006) "Evaluation of EIF funding of Venture Capital Funds – EIB/ETF Mandate" https://www.eib.org/attachments/ev/ev_eif_funding_of_venture_capital_funds_en.pdf (Accessed 26 July 2021).

European Investment Bank (2021) "EIB Investment Report 2020/2021: Building a smart and green Europe in the COVID-19 era". Web:
https://www.eib.org/attachments/efs/economic_investment_report_2020_2021_en.pdf (Accessed 29 July 2021).

European Investment Bank/Mazzucato (2020) "The EIB and the new EU missions framework"
https://www.eib.org/attachments/press/eib-and-new-eu-missions-framework-report-18-nov-en.pdf (Accessed 12 August 2021).

European Investment Bank (2021) "New EIB report: €10 billion investment gap in artificial intelligence and blockchain technologies is holding back the European Union", Web: https://www.eib.org/en/press/all/2021-181-new-eib-report-eur10-billion-investment-gap-in-artificial-intelligence-and-blockchain-technologies-is-holding-back-the-european-union. (Accessed 12 August 2021).

European Investment Fund (2001) *Annual Reports 2000 - 2020,* Web:
https://www.eif.org/news_centre/publications/all/index.htm.

European Investment Fund (2014) "General Meeting approves capital increase of EIF – Increased support for SMEs across Europe", Web: https://www.eif.org/who_we_are/news/2014/capital-increase.htm (Accessed 11 August 2021).

European Investment Fund (2020) "AI Co-Investment Facility", Web: https://www.eif.org/what_we_do/equity/ai-co-investment-facility/index.htm. (Accessed 13 August 2021).

European Parliament (2012) "Potential of Venture Capital in the European Union, DG for Internal Policies, PE 475.088, Web:
https://www.europarl.europa.eu/RegData/etudes/etudes/join/2012/475088/IPOL-ITRE_ET%282012%29475088_EN.pdf (Accessed 7 August 2021).

European Private Equity & Venture Capital Association (2010) "Closing gaps and moving up a gear: The next stage of venture capital's evolution in Europe", EVCA Venture Capital White Paper.

European Private Equity & Venture Capital Association (2011) "Accelerating Innovation: Using Public Sector Capital to Attract Private Sector Investors to the European Venture Capital Industry", Position Statement.
Funding", Web: http://aei.pitt.edu/45325/1/A7103.pdf (Accessed 25 July 2021).

European Venture Capital Association, *Yearbooks 1995 - 2015*, Brussels: EVCA.

Gompers, P. and Lerner, J. (2001) "The venture capital revolution", *Journal of economic perspectives*, *15*(2), pp.145-168.

Gompers, P., Kovner, A., Lerner, J. and Scharfstein, D. (2008). Venture capital investment cycles: The impact of public markets. *Journal of financial economics*, *87*(1), pp.1-23.

Gompers, P.A. and Lerner, J. (2004) *The venture capital cycle*. MIT press.

Griffith-Jones, S. and Naqvi, N. (2020) Industrial policy and risk sharing in public development banks: Lessons for the post-COVID response from the EIB and EFSI. Global Economic Governance Programme, University of Oxford.

Guerini, M. and Quas, A. (2016) "Governmental venture capital in Europe: Screening and certification", *Journal of Business Venturing*, *31*(2), pp.175-195.

Huang Z and Tian X. (2020) "China's Venture Capital Market", in Amstad, M., Sun, G. and Xiong, W., 2020. *The Handbook of China's Financial System*. Princeton University Press.

Jabko, N. (2006) *Playing the Market: A Political Strategy for Uniting Europe*, 1985-2005. Ithaca, NY: Cornell University Press.

Jones E, Kelemen R.D. and Meunier S. (2016) "Failing forward? The euro crisis and the incomplete nature of European integration", *Comparative Political Studies* 49(7):1010-1034.

Juncker, J-C. (2019) "Review of the Juncker Commission", European Commission, Web: https://ec.europa.eu/info/sites/default/files/review-juncker-commission-brochure.pdf (Accessed 3 August 2021).

Juncker, J-C. (2014) "A New Start for Europe", Web: https://ec.europa.eu/info/sites/default/files/juncker-political-guidelines-speech_en.pdf (Accessed on 10 August).

Kaplan S. and Stromberg, P. (2003) "Financial contracting theory meets the real world: An empirical analysis of venture capital contracts", *Review of Economic Studies*, 70, 281-315.

Klingler-Vidra, R. (2014) "The public venture policy menu: Policies public authorities can take", *Venture Findings*, *1*(1), pp. 36-42.

Klingler-Vidra, R. (2018) The venture capital state: the Silicon Valley model in East Asia. Cornell University Press.

Lerner J. (2002) "When Bureaucrats Meet Entrepreneurs: The Design of Effective `Public Venture Capital' Programmes", *The Economic Journal*, 112(477), pp. 73-84.

Lerner, J. (1999) "The Government as Venture Capitalist: The Long-Run Impact of the SBIR Program", *The Journal of Business,* 72(3), pp. 285-318.

Lerner, J. (2009) Boulevard of Broken Dreams: Why Public Efforts to Boost Entrepreneurship and Venture Capital Have Failed and What to Do about It. Princeton: Princeton University Press.

Lin, L., 2021. *Venture Capital Law in China*. Cambridge University Press.

Macron, E. (2021) "Speech by Emmanuel Macron at the at the European Innovation Council Launch Ceremony", Web: https://www.youtube.com/watch?v=UeB-wPksDxk (Accessed 20 July 2021).

Majone, G. "The rise of the regulatory state in Europe", *West European Politics* 17, no. 3 (1994): 77-101.

Majone, G. 1997. "From the Positive to the Regulatory State: Causes and Consequences of Changes in the Mode of Governance", *Journal of Public Policy*, 1997-05, Vol.17 (2), p.139-167

Mazzucato, M. (2013). The Entrepreneurial State: Debunking Public vs. Private Sector Myths. Anthem Press.

Mazzucato M. & Caetano C.R. Penna (2016) "Beyond market failures: the market creating and shaping roles of state investment banks", *Journal of Economic Policy Reform*, 19:4, 305-326.

Mazzucato, M. (2018) "Mission-oriented research & innovation in the European Union A problem-solving approach to fuel innovation-led growth", *DG Research and Innovation,* Web: https://ec.europa.eu/info/sites/default/files/mazzucato_report_2018.pdf (Accessed 18 July 2021).

Mazzucato, M. (2019) "Governing Missions in the European Union", DG Research and Innovation, Web: https://ec.europa.eu/info/sites/default/files/research_and_innovation/contact/documents/ec_rtd_mazzucato-report-issue2_072019.pdf (Accessed 18 July 2021).

Mazzucato, M. Gregor Semieniuk (2017), Public financing of innovation: new questions, *Oxford Review of Economic Policy*, Volume 33, Issue 1, Pages 24-48.

Mertens, D. and Thiemann, M. (2018). Market-based but state-led: The role of public development banks in shaping market-based finance in the European Union. *Competition &*

Change, 22(2), pp.184–204.

Mertens, D. and Thiemann, M. (2019). Building a hidden investment state? The European Investment Bank, national development banks and European economic governance. *Journal of European Public Policy*, 26(1), pp. 23–43.

Mertens, D, M. Thiemann, and P.Volberding (2021) "Introduction: The Making of the European Field of Development Banking". In The Reinvention of Development Banking in the European Union: Industrial Policy in the Single Market and the Emergence of a Field, edited by D. Mertens, M. Thiemann, and P. Volberding. Oxford: Oxford University Press.

Moedas, C. (2015) *Open Innovation, Open Science, Open to the World*, Web: http://publications.europa.eu/resource/cellar/3213b335-1cbc-11e6-ba9a-01aa75ed71a1.0001.02/DOC_2 (Accessed 11 August).

NVCA 2001, *NVCA Yearbook 2001*, National Venture Capital Association.

O'Mara, M.P. (2019) The Code: Silicon Valley and the Remaking of America. New York: Penguin Press.

OECD (1996) "Venture Capital and Innovation, GD(96)169, Web: https://www.oecd.org/sti/inno/2102064.pdf (Accessed on 4 August 2021).

OECD (1997) "Government Venture Capital for Technology-Based Firms", GD(97)201, https://www.oecd.org/sti/inno/2093654.pdf. (Accessed on 3 August 2021).

Rubio, E., and M. Thiemann (2021) "United in Diversity? Interests, Preferences, and Patterns of Engagement of Public Development Banks in the Implementation of the EU Budget". In The Reinvention of Development Banking in the European Union: Industrial Policy in the Single Market and the Emergence of a Field, edited by D. Mertens, M. Thiemann, and P. Volberding. Oxford: Oxford University Press.

The Small Business Innovation Research and Small Business Technology Transfers (2019) "About", August 2021, https://www.sbir.gov/about (Accessed 5 August 2021).

Thiemann, M., and P. Volberding (2021) "The Rise of Bpifrance: The Rebirth of a Dirigiste State?". In *The Reinvention of Development Banking in the European Union:* Industrial Policy in the Single Market and the Emergence of a Field, edited by D. Mertens, M. Thiemann, and P. Volberding. Oxford: Oxford University Press.

Von der Leyen, U. (2020) "Political Guidelines", European Commission, Web:https://ec.europa.eu/info/sites/default/files/political-guidelines-next-commission_en_0.pdf (Accessed on 4 August 2021).

Vogel, S.K. (2018) Marketcraft: How governments make markets work. Oxford University Press.

Weber, S. and Posner, E. (2000) Creating a pan-European equity market: the origins of EASDAQ. *Review of International Political Economy*, 7(4), pp. 529–573.
Weiss, L. (2014) *America Inc.?*. Cornell University Press.