

State investment banks and patient finance: An international comparison

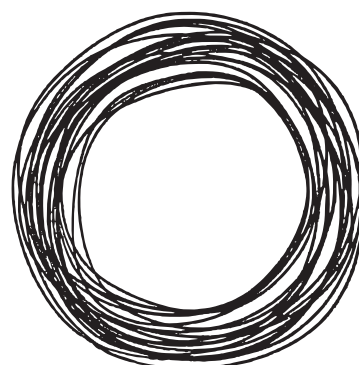
Policy Report

Laurie Macfarlane

Honorary Research Fellow,
UCL Institute for Innovation and Public Purpose (IIPP)

Mariana Mazzucato

Professor in the Economics of Innovation and Public Value
Director, IIPP



Working Paper
IIPP WP 2018-01

February 2018



About the Institute for Innovation and Public Purpose

The UCL Institute for Innovation and Public Purpose (IIPP) aims to develop a new framework for creating, nurturing and evaluating public value in order to achieve economic growth that is more innovation-led, inclusive and sustainable.

We intend this framework to inform the debate about the direction of economic growth and the use of mission-oriented policies to confront social and technological problems. Our work will feed into innovation and industrial policy, financial reform, institutional change, and sustainable development.

A key pillar of IIPP's research is its understanding of markets as outcomes of the interactions between different actors. In this context, public policy should not be seen as simply fixing market failures but also as actively shaping and co-creating markets. Re-focusing and designing public organisations around mission-led, public purpose aims will help tackle the grand challenges facing the 21st century.

IIPP is housed in The Bartlett, a leading Global Faculty of the Built Environment at UCL, with its radical thinking about space, design and sustainability.

Suggested citation

Macfarlane, L. and Mazzucato, M. (2018). 'State investment banks and patient finance: An international comparison'. *UCL Institute for Innovation and Public Purpose, Working Paper Series* (IIPP WP 2018-01).

<https://www.ucl.ac.uk/bartlett/public-purpose/wp2018-01>

State investment banks and patient finance: An international comparison

Laurie Macfarlaneⁱ and Mariana Mazzucatoⁱⁱ

Abstract

This report reviews the design features of eight international state investment banks from countries and regions across the world, and the role that each bank plays in its respective economy. Lessons are used to reflect on how SIBs can be designed to address the challenges and opportunities of patient strategic finance.

Key words: State investment banks, patient finance, public finance, mission-oriented policy, innovation

JEL codes: G20; O16; O3; L52

Acknowledgements

The authors would like to thank Professor Lavinia Barros de Castro, Harro Pitkänen, Anne-Kathrin Metzler, Daniel Mierow, Qiyuan Xu, Shuai Du and Christopher Knowles for participating in short informal interviews. This report was supported by the Scottish Government and an EU Horizon grant: ISIGrowth Nr. 649186.

ⁱ Honorary Research Associate, UCL Institute for Innovation and Public Purpose

ⁱⁱ Professor of Economics and Public Value, Director, UCL Institute for Innovation and Public Purpose

Table of contents

Executive summary	4
1. Introduction	7
2. Methodology	8
3. Mandate and mission	10
4. Organisational structure and ownership	18
5. Economic role	26
6. Investment activity	31
7. Governance	44
8. Sources of finance	50
9. Funding instruments	59
10. Risk and reward	72
11. Relationship to government policy	78
12. Conclusion	82

Executive summary

In countries that have achieved smart, innovation-led growth, the public sector has often played an important role providing patient, long-term finance. From technological breakthroughs such as the internet to societal challenges such as climate change, public investment has played a key role driving the direction of economic growth and innovation.

Across the world this has taken different institutional forms, but in many countries patient finance is increasingly coming from state investment banks. While the traditional functions of state investment banks were in infrastructure investment and counter-cyclical lending, some have taken on a new role as key global actors steering the path of innovation towards addressing contemporary challenges such as climate change.

In this paper, we compare the design features of eight state investment banks from countries and regions across the world, and explore how different design features impact the role that each bank plays in its respective economy. Lessons are used to reflect on how state investment banks (SIBs) can be designed to address the challenges and opportunities of patient strategic finance. Our conclusions are as follows:

- **Mandate and mission:** The overarching mandate is critical to the role that SIBs play in their economies. Mandates are often set out in law or in Articles of Association, and often change and evolve over time. Mission statements can also play an important role in providing directionality to activities. Some SIBs are ‘challenge-led’, with missions and mandates framed around specific societal challenges, whereas others are focused on more static outcomes such as ‘economic development’ and ‘competitiveness’ which do not signal a desired direction for the economy. An exciting area for future work relates to how the definition of missions can be opened up to a wider group of stakeholders, including movements in civil society. Understanding more democratic processes through which missions are defined can play a wider role in the process of rethinking the notion of public value.
- **Organisational structure and ownership:** While all the SIBs examined are majority public-owned, the specific ownership and organisational structures can vary widely. In some cases, ownership lies wholly with the central or federal government, while in other cases ownership is shared with local or regional governments, or private investors. Some smaller SIBs have relatively straightforward organisational structures, while larger SIBs often have multiple subsidiary arms which focus on different activities or business areas. The extent to which different ownership and organisational structures affect an SIB’s appetite for risk and investment patterns is an area for further study.
- **Economic role:** All SIBs examined play a capital development and countercyclical role, however in recent years some SIBs have gone further and are now playing key venture capitalist and mission-oriented roles. By placing state investment banks at the centre of the investment process, countries like Germany and China as well as the European Union have taken centre stage in confronting the key social and environmental challenges of the 21st century. By steering the path of innovation towards overcoming key challenges, these banks are not just fixing ‘market failures’; they are actively creating and shaping markets and

enabling activity that otherwise would not take place. How SIBs can optimally interact with other public agencies to drive innovation and contribute to the kind of 'networked entrepreneurial state' that has been responsible for many great technological breakthroughs, is an area for further study.

- **Investment activity:** The investment activities of SIBs vary between countries according to the bank's mandate, socio-economic circumstances and the stage of development. In some cases, SIBs specify sectors and activities that they do not support due to moral or ethical concerns around the activities, or because the sectors are already served by other public or private institutions in that country. Some SIBs have been criticised on the basis of 'picking winners', 'crowding out' or funding large incumbent companies. Part of the reason for this may lie in the absence of monitoring and evaluation frameworks which adequately capture the dynamic outcomes of mission-oriented investments and the additionality generated by these institutions. As a result, new monitoring and evaluation frameworks may be required in order to assess their performance. Criticism can also be averted by avoiding focusing on firms of a specific size or in a specific sector ('picking winners'), and instead investing in firms that are willing to invest in innovation ('picking the willing').
- **Governance:** Governance arrangements are vital to the success and legitimacy of SIBs. Achieving the right balance between political representation and independent decision making is a key challenge. It is important that management teams are free to make independent, long-term decisions free of day-to-day political interference. While political representation can help to maintain alignment with government policy and maintain a path of democratic accountability, steps should be taken to prevent undue political interference or capture by interest groups. The experience of some SIBs indicates that including a wider range of stakeholders can be beneficial.
- **Sources of finance:** There are many different ways that SIBs finance their operations, including taking savings and deposits from the public, raising funds in the domestic or international capital markets, borrowing from other financial institutions, using return on investments, receiving budget allocations from the national Treasury, managing public pension or social security funds, or receiving financing from the central bank. There is evidence that sources of finance can have an impact on the ability of SIBs to successfully meet their mandates. If a source of finance proves to be volatile or unstable, or vulnerable to political pressures, then it can impair the ability of an SIB to fulfil its mandate. An important and unresolved question is whether different sources of finance affect an SIB's appetite for risk and ability to invest in innovative projects.
- **Funding instruments:** Having different funding instruments available is important to best match the optimal finance for different types of projects. For SIBs with a broad mandate, it is important to have a range of instruments, covering both debt and equity, suited to different areas of the risk landscape. In this regard lessons can be learned from the SIBs that have become key players in the innovation system. Some SIBs have also created specific funding programmes that target particular issues, many of which help address key societal challenges. In addition to lending operations, offering advisory services such as strategic

planning, capacity building, and training programmes can help to create viable projects and encourage businesses to make investments that otherwise would not happen.

- **Risk and reward:** SIBs must be able to strike the right balance between balance risk and reward, ensuring that investments are structured across a risk-return spectrum so that lower risk investments help to cover higher risk ones. Where success occurs, an SIB should be able to reap some of the financial rewards in order to offset the inevitable failures. To help balance risk and reward, SIBs can use a number of return-generating mechanisms, including retaining equity or royalties, retaining a share of the intellectual property, using income-contingent loans, or attaching conditions to investments. Mechanisms should be designed to encourage a symbiotic and mutualistic type of public–private partnership.
- **Relationship with government policy:** Close alignment between SIBs and government policy can create a powerful synergy between policy, regulation and financing, which can be coordinated for maximum impact. For example, new government policies can be complemented with new financing instruments in order to transmit policy objectives more efficiently. Although potentially powerful, this relationship is highly dependent on effective governance arrangements to ensure that sound banking principles around maintained and undue political interference is avoided.

1. Introduction

Governments around the world are increasingly seeking economic growth that is smart (innovation-led), inclusive and sustainable. They are seeking to achieve this in a context of major social and environmental challenges such as tackling climate change, improving public health and adjusting to demographic changes.

In this context, industrial and innovation strategies can be key pillars to achieve transformational change. The case for building a modern industrial strategy around well-defined ‘missions’ that are focused on solving important societal challenges is compelling and increasingly recognised¹. This involves making strategic investments across many different sectors and nurturing new industrial landscapes to steer the path of growth and innovation. The structural of the financial system is key to achieving this goal.

Finance is not neutral; the type of finance available can affect both the investments made and the type of activity that occurs^{3 4}. The types of financial institutions and markets that exist have a material impact on activity in the real economy. Because innovation is highly uncertain, has long lead times, is collective and cumulative, it requires a specific type of finance. Uncertainty means that finance must be willing to bear high risks; the long-run nature of innovation and its cumulateness imply that the kind of finance must be patient⁵. By nature, financial returns from investment in innovative activities are not always assured, and it usually takes time before they can materialise. Thus, achieving smart, innovation-led growth requires not just any type of finance, but patient strategic finance.

Short-termism and risk-aversion means that the private sector will often not invest in higher-risk areas until future returns become more certain. Across the world the early stages of the innovation chain are disproportionately occupied by public sector actors. This early stage public investment helps to create and shape new markets, nurturing new landscapes which the private sector can develop further. From advances such as the internet and microchips to biotechnology and nanotechnology, many major technological breakthroughs – in both basic research and downstream commercialisation – were only made possible by direct public investment. In each of these areas the private sector only entered much later, piggybacking on the technological advances made possible by public funds⁶.

In countries that have achieved smart, innovation-led growth, the state has often supplied the patient strategic finance that the private sector was unwilling to provide⁷. In these places, the state has not just sought to fix market failures but has acted boldly to create new technological and industrial landscapes by acting as investor of first resort, not simply as lender of last resort. This has taken different institutional forms, but in many countries patient strategic finance is increasingly coming from state investment banks (SIBs), or development banksⁱⁱⁱ. Exact definitions of SIBs vary, but for the purposes of this study we define them as majority public-owned entities that have a mandate to pursue socio-economic goals in a defined geographical area, sector or market segment through the use of repayable financial instruments.

ⁱⁱⁱ The terms ‘development bank’ and ‘state investment bank’ are often used interchangeably. However, we prefer the later expression, to differentiate from ‘development finance institutions’, which are active in developing countries (e.g. providing aid). SIBs are active both in the developing and developed world.

Modern SIBs have their historical roots in the reconstruction plans for Europe following the Second World War. Many were established with support from the United States through the European Reconstruction Program (ERP), commonly known as the ‘Marshall Plan’. The aim was to create institutions that promoted financial stability through a flow of patient finance to fund the post-war reconstruction, and avoid the destabilising effects that speculative private finance could have on the economic recovery⁸. Since then, many new SIBs have been established across the world, and a recent survey identified at least 90 SIBs serving different countries and regions⁹.

While the traditional functions of SIBs were in infrastructure investment and counter-cyclical lending during recession when private banks cut back on lending, they have over time become more active as key players in the innovation system. In some countries, SIBs are key source of patient finance for innovative firms, often focusing on modern societal challenges with technological ‘missions’¹⁰.

In this paper, we compare the design features of eight state investment banks from countries and regions across the world, and explore how different design features impact the role that each bank plays in its respective economy. Lessons are used to reflect on how SIBs can be designed to address the challenges and opportunities of patient strategic finance.

2. Methodology

The institutional design of SIBs varies significantly between countries, as does as the political characteristics and the economic environments in which they act. The roles performed by SIBs, and their investment activities, also evolve over time in line with country-specific developments and challenges, as well as the wider institutional landscape.

In this paper, we draw on prior studies and data from several primary and secondary sources to compare the following features of SIBs from countries and regions across the world: mandate and mission; organisational structure and ownership; economic role; investment activities; governance; sources of finance; funding instruments; risk and reward; and relationship to government policy. The SIBs we examine are as follows:

- **KfW**: KfW, formerly KfW Bankengruppe (banking group) is a German public bank based in Frankfurt. Its name originally comes from Kreditanstalt für Wiederaufbau (‘Reconstruction Credit Institute’) and was established in 1948 after the Second World War as part of the ‘Marshall Plan’ to support post-war reconstruction. Since then the development of KfW Group has been closely connected to the economic development of the Federal Republic of Germany. Today its activities include SME support, export promotion, environmental protection, innovation and international development. In recent years KfW has been critical in supporting Germany’s economic transformation to a green economy, both in terms of supply (through the support of green technology firms) as well as demand (through the financing of solar and wind power). In total KfW has provided more than one trillion euros in loans over nearly seven decades¹¹. In 2016 KfW Group held €507 billion (£409 billion^{iv}) of assets and employed over 6,000 people¹².

^{iv} All figures in this paper are converted to sterling using the average exchange rate for 2016.

- **European Investment Bank:** The European Investment Bank (EIB) is the financing institution of the European Union. The EIB was founded in Brussels in 1958 when the Treaty of Rome came into force. It relocated to Luxembourg, its current headquarters, in 1968. With assets of €573 billion (£462 billion) and 2,500 employees, the EIB is the world's largest multilateral borrower and lender by volume, and works closely with other EU institutions to implement EU policy. The EIB does this through "lending, blending and advising"; providing finance, complementing EU finance and giving advice on programme or project design¹³. The EIB works closely with the other EU institutions, especially the European Parliament, the European Council and the European Commission.
- **Banco Nacional de Desenvolvimento Econômico e Social (BNDES):** BNDES is a Brazilian bank founded in 1952 to finance the construction of key infrastructure projects, expand industry and assist with the mechanisation of agriculture in Brazil. Although initially established to finance Brazil's catch-up strategies, over the course of the bank's history its operations have evolved in line with the Brazil's socio-economic challenges. BNDES' activities now include support for exports, technological innovation, sustainable socio-environmental development and the modernization of public administration. In recent decades, BNDES has had a catalytic role in promoting transformational investments in different phases of Brazil's development. In 2016 BNDES held R\$876 billion of assets (£181 billion) and employed nearly 3,000 people¹⁴.
- **China Development Bank:** The China Development Bank (CDB) was founded in 1994 as a policy financial institution under the direct leadership of the Chinese State Council. The CDB is dedicated to supporting China's economic development in key industries and underdeveloped sectors. In its formative years the CDB struggled with high levels of non-performing loans, but in the 2000s the CDB transformed itself into one of the most active SIBs, investing in regional economic development and industrial catching-up, supporting and nurturing new ventures and innovation development, and, later in the decade, targeting finance to projects aimed at 'green growth'¹⁵. With assets of RMB 14,340 billion (£1,576 billion) and nearly 9,000 employees, the CDB is the world's largest state investment bank.
- **Italy's Cassa Depositi e Prestiti:** The Cassa Depositi e Prestiti (CDP) was founded in 1850 for the protection and management of postal savings, investment in public works and the financing of government and public entities. The CDP has always played an important role in supporting household savings and promoting economic growth, but its sphere of activity has varied widely over the course of its history. Today the CDP is active across many areas including financing infrastructure, real estate, SMEs and strategically-important enterprises, and international expansion. In 2016 the CDP held €358 billion of assets (£289 billion) and employed just over 2,000 people.
- **Nordic Investment Bank:** The Nordic Investment Bank (NIB) is a multilateral bank established on 4 December 1975 through an intergovernmental treaty between Denmark, Finland, Iceland, Norway and Sweden. As of 1 January 2005, Estonia, Latvia and Lithuania became members of the Bank on equal terms with the original member countries. The aim was to set up an institution which could promote the integration of the

Nordic economies which at the time were separated by tight regulation of capital markets. The NIB has lending operations both inside and outside its member countries, and offers long-term loans and guarantees on competitive market terms to its clients in the private and public sectors. In 2016 the NIB had assets of €30.2 billion (£24.3 billion) and employed 192 staff.

- **Bpifrance:** Bpifrance is a public investment institution established in 2012 through the merger of a number of existing public funds and organisations in France. It is described as “a public group aiming at financing and developing companies, and acting in accordance with the public policies conducted both by the State and regional authorities”¹⁶. In practice, Bpifrance plays the role of investment bank, innovation agency, sovereign fund and export credit agency¹⁷. In 2016 Bpifrance had assets of €68.4 billion (£55.1 billion) and employed 2,500 staff.
- **Finnvera:** Finnvera is a specialised state-owned financing company and the official Export Credit Agency (ECA) of Finland. It aims to supplement private financial markets by providing businesses with loans, guarantees, venture capital investments and export guarantees. Finnvera was founded in 1999 through the merger of Kera Corporation, which provided loans and guarantees for domestic business activities, and the Finnish Guarantee Board, which provided export credit guarantees. The main objective of the merger was to improve the availability of financial instruments for Finnish companies through Kera’s regional offices and to obtain economies of scale through the merger¹⁸. In 2016 Finnvera had assets of €9.5 billion (£7.7 billion) and employed 376 staff¹⁹.

In reviewing these SIBs, we adopt an exploratory methodology by use of an open-ended, qualitative case study approach. With this method, we seek to explore how the different design features of each SIB impacts the role that they play in their respective economies, and how this affects each bank’s ability to successfully meet their mandates. For each design feature, we conclude with a discussion on how different approaches can affect both the challenges and opportunities of patient finance.

3. Mandate and mission

Most SIBs play a fundamentally different role in the economy to that of private financial institutions. However, not all SIBs have the same mandate or aim to achieve the same objectives. Any comparison of the role of SIB’s in their economies must therefore be based on what they are actually trying to achieve. In this section, we review the mandate of each SIB as well as any mission statements or strategies that provide directionality to the activities of the bank.

3.1 KfW

KfW’s legal mandate is set out in the ‘Law Concerning Kreditanstalt für Wiederaufbau’ as follows²⁰:

1. Promotional tasks, notably financing, in pursuit of a State mandate in the following areas:

- small and medium-sized enterprises, liberal professions, and business start-ups,
 - risk capital,
 - housing,
 - environmental protection,
 - infrastructure,
 - technical progress and innovations,
 - internationally agreed promotional programmes,
 - development cooperation,
 - other promotional areas specifically stated in laws, regulations, or published guidelines on
 - public economic policy that are assigned to KfW by the Federal Republic or by a Land.
2. Granting loans and other forms of financing to sub-national public authorities and special-purpose associations under public law.
 3. Financing measures with purely social goals and for the promotion of education;
 4. Granting other financings in the interest of the German and European economy. The tasks of KfW in this area include:
 - projects in the interest of the European Community that are cofinanced by the European Investment Bank or similar European financing institutions,
 - export financings outside the member states of the European Union, the other contracting states of the Agreement on the European Economic Area, and states with official status as candidates for accession to the European Union.

The KfW's global mission is to: "support change and encourage forward-looking ideas – in Germany, Europe and throughout the world." Lending and promotional activities are focused on three pre-established missions, or 'megatrends'²¹:

- climate change and environmental protection;
- globalisation; and
- demographic change.

In addition to these three megatrends, KfW also supports a number of 'trend-independent promotional themes' which include combating poverty, general corporate financing (especially small and medium-sized enterprises) and start-up financing.

3.2 European Investment Bank

The mandate of the EIB is set out in Article 309 of the Treaty on the Functioning of the European Union (TFEU) which states that the task of the EIB is to facilitate the financing of the following projects in all sectors of the economy²²:

- projects for developing less-developed regions;
- projects for modernising or converting undertakings or for developing fresh activities called for by the establishment or functioning of the internal market, where these projects

are of such a size or nature that they cannot be entirely financed by the various means available in the individual Member States;

- projects of common interest to several Member States which are of such a size or nature that they cannot be entirely financed by the various means available in the individual Member States.

Guided by the objectives of the Europe 2020 strategy of smart, sustainable, and inclusive growth²³, the EIB's current mission is "to support the achievement of EU policy goals, acting as the EU's catalyst for change in the drive to become a yet more dynamic inclusive green knowledge-based economy". The EIB's activities are aligned to two over-arching policy goals of social and economic cohesion and climate action, and four "primary public policy goals" of innovation, SMEs and Mid-cap financing, infrastructure and environment. In the 2017-2019 operational plan, particular emphasis is placed on projects supporting migration, youth employment, the digital economy and other innovation²⁴.

3.3 BNDES

The legal mandate of BNDES is set out in legislation which states that "BNDES is the main instrument to implement and carry out the Federal Government's investment policy, and its foremost purpose is to support programmes, projects, construction and services related to the country's economic and social development".²⁵

The legislation states that BNDES, directly or through subsidiaries, will carry out banking activities and financial operations of any kind, and in particular:

- finance economic development programmes, with the resources of the Social Integration Program;
- promote the application of resources linked to the PIS-PASEP Participation Fund, the Merchant Marine Fund - FMM and other special funds established by the Government;
- act as an agent of the Federal Government, the states, and municipalities, as well as of governmental agencies (autarquias), state-owned companies, mixed capital entities, state-owned foundations and private organizations;
- contract operations in Brazil or abroad, with foreign or international entities, being lawful to accept the form and clauses usually adopted in international contracts, including the commitment to resolve doubts and controversies by means of arbitration;
- finance the acquisition of assets and investments made by nationally-owned companies abroad, as long as they contribute to Brazil's economic and social development;
- finance and promote the exportation of products and services, including installation services, which comprise expenses incurred abroad related to exports;
- make non-reimbursable investments in educational and research projects or programmes, of a scientific or technological nature, including by donating technical or scientific equipment and technical publications to institutions dedicated to implementing such projects or programmes, or which have received financial collaboration from the BNDES for that specific purpose;
- make non-reimbursable investments specifically earmarked to finance projects of a social nature, in the areas of employment and income generation, urban services, health,

education and sports, justice, feeding, housing, environment, water resources, rural development and other areas in connection with regional and social development, as well as projects of a cultural nature in compliance with the regulatory rules issued by the Board of Executive Officers;

- contract technical studies and provide technical and financial support, including non-refundable, for the structuring of projects that promote Brazil's economic and social development;
- carry out, as an integral part of the National Financial System (Sistema Financeiro Nacional), any other operations in the financial or capital market, in accordance with the norms and guidelines of the National Monetary Council (Conselho Monetário Nacional); and
- use funds raised in the foreign market, provided that doing so contributes to Brazil's economic and social development, to finance the acquisition of assets and the implementation of projects and investments abroad by Brazilian companies, subsidiaries of Brazilian companies and foreign companies whose largest voting shareholder is, directly or indirectly, a natural person or legal entity domiciled in Brazil, as well as to acquire in the primary market securities issued by or under the responsibility of said companies.

In 2008, BNDES established a new mission to “foster sustainable and competitive development in the Brazilian economy, generating employment while reducing social and regional inequalities.”²⁶ As part of this new strategy, BNDES’ investments are guided by the interrelated themes that represent “the new challenges to be tackled”: innovation; socio-environmental development; and local and regional development, prioritising the less developed regions in Brazil²⁷.

3.4 Finnvera

Finnvera’s mandate as defined in the Act on the State-Owned Specialised Financing Company²⁸ is as follows:

- to promote and develop the activities of enterprises, particularly small and medium-sized enterprises;
- to promote exports and internationalisation of enterprises; and
- contribute to the achievement of the State's regional policy objectives.

Finnvera’s operations are governed by policy goals determined by the Finnish State. Every four years the Ministry of Employment and the Economy sets policy goals for Finnvera. These goals apply to issues such as the offering of financial products, the focus of operations, the impact and efficiency of operations, and capital adequacy. Whenever necessary, these goals are adjusted yearly. When these goals are determined, attention is paid to the Finnish Government’s Programme, the Ministry’s corporate strategy, the policy objectives concerning the Ministry’s branch of administration, and the goals of EU programmes. Finnvera’s operations are also guided by its organisational vision and mission:

- Vision: Finnvera is a provider of financing for growth, competitiveness and internationalisation.
- Mission: By supplementing the financial market and by providing financing, Finnvera promotes the business of SMEs, the exports and internationalisation of enterprises, and the realisation of the State's regional policy goals.

3.5 China Development Bank

The CDB's purpose is to "serve national strategies" and its mission is to "enhance national power and improve the livelihood of the people"²⁹. The CDB's Articles of Association state that the bank's business scope includes³⁰:

- deposit taking from corporate customers;
- making short-, medium- and long-term loans;
- entrusted loans;
- making sub-loans with the support from small- and medium-size financial institutions;
- domestic and international settlement;
- acceptance and discount of negotiable instruments;
- issuance of financial bonds and other marketable securities;
- acting as agent for the issuance, repayment and underwriting of government bonds, financial bonds and debentures;
- trading in government bonds, financial bonds and credit bonds;
- interbank borrowing and lending;
- sale and purchase of foreign exchange on our own account or for customers;
- settlement and sale of foreign exchange;
- trading derivatives on our own account or for customers;
- letter of credit related business and issuance of guarantees;
- collection and payment agent and bancassurance business;
- safety deposit box services;
- asset management business;
- asset securitisation business;
- consultancy;
- banking business of our overseas branches authorised by us and permitted under local law;
- business such as investment and investment management, securities, financial leasing, banking and
- asset management legally carried out by our subsidiaries; and
- other business permitted by the banking regulatory authority under the State Council.

The CDB also has a set of core values which shape the bank's activities. These are³¹:

- Responsibility: a commitment to serving national strategies and contributing to economic and social development in China
- Innovation: ensuring sustained and dynamic business development at the bank
- Green growth: support of green, circular and low-carbon development, incorporating the notion of "green credit" into all aspects of its business operations

- Prudence: development of risk management and internal control systems unique to CDB to ensure prudent business growth and balance the relationship between development, risk, and profit.
- Win-win development: a prerequisite for inclusive growth.

In line with these values, the CBD's current objectives are to:

- Implement the national macroeconomic policies to drive coordinated development;
- Implement regional development strategy to realise coordinated and balanced development;
- Dedicate to green development and promote ecological civilisation;
- Carry out international cooperation to achieve opening up development (e.g. strategic cooperation in areas such as infrastructure with neighbouring countries); and
- Develop inclusive finance to aid sharing development (e.g. transformation of shanty towns).

3.6 Cassa Depositi e Prestiti

The CDP's mandate has varied widely over the course of its history, and has changed significantly in recent years. The CDP's current Articles of Association state that the corporate object of the bank is as follows³²:

- the granting of financing to the State, the regions, local authorities, public entities and public law bodies;
- the granting of financing to public or private entities for public-interest initiatives; to support the international expansion of enterprises and exports; for international development cooperation activities; to banks operating in Italy to permit them to grant loans secured by mortgages on residential properties for the purchase of primary residences or for renovation; and energy efficiency enhancement works;
- the granting of financing, preferably co-financed with banks, for:
 - works, systems, networks and infrastructure to be used for public interest;
 - investments in research, development, innovation, protection and leveraging of cultural assets, promotion of tourism, environment and energy efficiency, green economy;
- the acquisition of shareholdings transferred to or conferred on the Company with the decree of the Minister for the Economy and Finance;
- the acquisition, including indirectly, of equity investments in companies of major national interest – having a stable financial position and performance and adequate profit-generating prospects – that meet the requirements established by the Minister of the Economy and Finance
- the purchase of:
 - bank bonds backed by portfolios of loans secured by mortgages on residential properties
 - securities issued as part of securitizations of loans to small and medium-sized enterprises, with a view to expanding the volume of lending to small and medium-sized enterprises.

- the management of Cassa depositi e prestiti's functions, assets and liabilities, outstanding prior to the transformation, as well as the management of any other public function and activity of general interest assigned by way of a legislative, administrative or private deed;
- the supply of assistance and consultancy services in favour of public and private entities;
- the supply of consultancy services and study, research and analytical activities in the economic and financial fields.

In February 2017, the CDP announced a new mission: “We promote Italy’s future by contributing to economic development and investing in competitiveness.”³³ This is supported by the following core values:

- **Accountability:** We act with full awareness of our role at the service of the country. We assess the economic, social and environmental impact of our actions from a long-term perspective.
- **Skills:** Our wealth of knowledge and experience is a distinguishing factor in promoting initiatives in the many areas in which we operate. We invest in our people on an ongoing basis.
- **Collaboration:** We believe in teamwork, in the ability to listen and the strength of dialogue. This is the spirit that guides us, at home and abroad, in our relations with our partners, be they institutions, companies, territories or the financial system, in Italy and abroad.
- **Courage:** We are determined in our decisions, even the most difficult. We operate responsibly, but without fear, when we are convinced that the path we have taken is the right one to achieve the best result for the community

The CDP is currently in the process of developing a sustainability strategy orientated around the UN Sustainable Development Goals, and that this will involve adapting the bank’s mission and core values in order to integrate sustainability principles³⁴.

3.7 Nordic Investment Bank (NIB)

The NIB’s purpose as defined in its founding constituent documents is “to make financing available in accordance with sound banking principles and taking into account socio-economic considerations, to carry into effect investment projects of interest to the Member countries and other countries which receive such financing.”³⁵

The NIB's vision is to create “a prosperous and sustainable Nordic-Baltic region”, and its mission is “to finance projects that improve competitiveness and the environment of the Nordic and Baltic countries”³⁶. In order improve competitiveness of its member countries, the NIB finances projects that support productivity growth through:

- technical progress and innovation
- development of human capital
- improvements in infrastructure
- increased market efficiency

To improve the environment, NIB lends to projects that lead to:

- improved resource efficiency
- development of a competitive low carbon economy
- protection of the environment and its ecosystem services
- development of clean technology

3.8 Bpifrance

Bpifrance has two ‘general interest missions’ defined in law, which are to³⁷:

- promote and support innovation, particularly in the field of technology, and to contribute to technology transfer; and
- promote the development and financing of small and medium-sized businesses.

It also has a set of missions aimed at supporting sustainable growth, employment and competitiveness of the economy, which are that Bpifrance will³⁸:

- promote innovation, the priming, development, and internationalisation, transformation and transfer/buy-out of companies, by contributing to their financing through loans and equity financing;
- preferentially focus its action on female entrepreneurship, very small businesses, small and medium-sized businesses and intermediate-sized businesses, with a special focus on the industrial sector;
- invest prudently to finance long-term projects;
- support national industrial policy, in particular to support development strategies for industrial sectors;
- contribute to the development of growth sectors, conversion to digital technology and the promotion of a socially responsible economy;
- support the implementation of ecology- and energy-conscious transition measures; promotes the involvement of the banking system as a whole in the projects it supports;
- where necessary, conduct its activity in coordination with the European Investment Bank;
- provide a service and support offering for businesses to guide them throughout their development; and
- act to stabilise share ownership in competitive, high-growth major businesses supportive of the French economy.

3.9 Discussion

Most SIBs have their mandated sphere of activities set out clearly in law or in their Articles of Association, and it is common for these mandates to change and evolve over time. Many SIBs also have mission statements which provide directionality to the activities of the bank. Some SIBs are ‘challenge-led’ in that their mission and mandates are framed around specific societal challenges, whereas other are focused on more static outcomes such as ‘economic development’ and ‘competitiveness’ which do not signal a desired direction for the economy.

In all cases examined the mandate and mission statements are set by a combination of the government and senior management. One area for further exploration is how the definition of missions can be opened up to a wider group of stakeholders, including movements in civil society. Understanding more democratic processes through which missions are defined and targeted is tied to rethinking the notion of public value beyond the notion of the “public good”³⁹. In the past, the public good concept has been used to limit and constrain the activities of public actors, creating a static distinction between those activities for business, and those for policy. This means that ambitious policies – daring to reimagine the market rather than just fixing the public good problem – have then been accused of ‘crowding out’ private activity, whether the accused are innovation agencies, public banks or the BBC⁴⁰.

But rethinking the notion of public value cannot be the work only of the public sector, hence opening up this process to include a wider set of stakeholders. Establishing new ways of involving wider stakeholders in the definition of missions for SIBs, as well as the process of how to achieve them, has the potential to be an exciting future area of work.

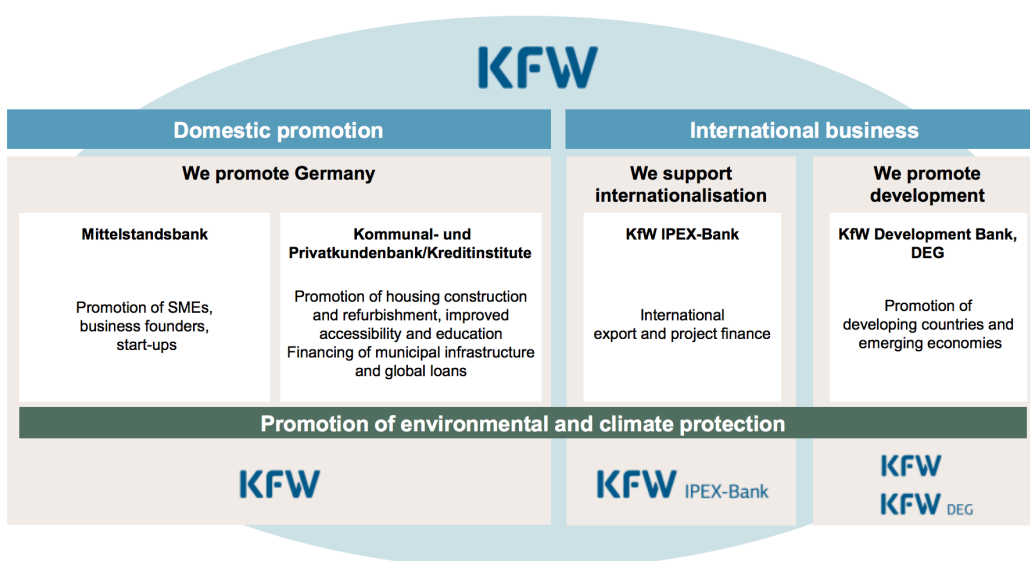
4. Organisational structure and ownership

While SIBs tend to be majority public-owned, the specific ownership and organisational structures can vary widely. Ownership may lie wholly with the central or federal government, shared with local or regional governments, or co-owned with private investors. In this section, we review the ownership arrangements of each SIB along with the organisational structure, including whether there are any subsidiary arms.

4.1 KfW

KfW Group is 80% owned by the Federal Republic of Germany, with the remaining 20% owned by the German Federal States or ‘Länder’. The organisation of KfW’s operations has changed throughout the years and the KfW Group is currently divided into four functional divisions.

Figure 1: KfW functional divisions



Source: KfW⁴¹

Two divisions are responsible for promoting investments in the German economy. The Mittelstandsbank (loosely translated as SME Bank) invests in small-and-medium sized enterprises, business start-ups and other commercial clients in Germany. Its provision of long-term finance at favourable rates contributes to maintaining the competitiveness and future viability of the German economy and creating and safeguarding jobs. The Mittelstandsbank remains an important financing partner in climate and environmental protection, particularly as part of Germany's Energiewende (energy transition) policy.

The Kommunal- und Privatkundenbank/ Kreditinstitute (Municipal and Private Client Bank/Credit Institute) focuses its promotional activities on the two megatrends "climate change and the environment" and "demographic change". It oversees KfW's housing programmes, energy efficiency and other investments in environmental and climate protection, educational finance for private clients in Germany, as well as financing for public investments in infrastructure projects and urban modernisation.

There is also a financial markets division which invests in securitisation transactions and green bonds to diversify and stabilise funding opportunities for SMEs in Germany and Europe. The other three divisions have an international orientation: the KfW IPEX-Bank is the export-import leg of KfW, promoting internationalisation of German companies and structuring finance for selected projects; the KfW Development Bank provides finance for governments and other governmental institutions in developing and emerging countries; and the KfW DEG (Deutsche Investitions- und Entwicklungsgesellschaft) provides finance for private companies in developing countries and emerging economies. In 2013, KfW established a foundation, the KfW Stiftung, which is responsible for promoting initiatives related to major societal challenges and will result in smart, sustainable and inclusive growth.

An important feature of KfW's operating model is breadth of expertise contained within its staff. In addition to staff with substantive financial expertise, KfW also employs experts with specific knowledge in areas such as agriculture, energy, transport, water, natural resources, and civil engineering. This differentiates KfW from the private banking sector, and means it can base investment decisions on a wider set of criteria than relying on market signals alone and assess the potential of firms and projects more robustly. It also enhances the ability of the KfW to crowd-in private investment, as KfW's endorsement of a project acts as a rubber stamp which gives private sector actors confidence to invest. The KfW's in-house technical expertise allows it to serve as an important conduit between the private sector and government policy⁴².

4.2 European Investment Bank

The EIB's shareholders are all the Member States of the European Union. Each Member State's shareholding is based on the relative size of its GDP at the time of its accession, although it was capped at a certain level so that the four largest economies (France, Germany, Italy and the United Kingdom) all have the same shareholding. Together with Spain, these countries represent more than 74% of the EIB's capital.

The EIB Group is also the majority shareholder in the European Investment Fund (EIF), with the remaining equity held by the EU (represented by the European Commission), as well as other European public and private entities. Established in 1994, the EIF is a specialist provider of risk finance to SMEs across Europe. It plays a crucial role in the creation and development of high-growth and innovative SMEs by facilitating access to equity for these companies across the entire life cycle of corporate innovation.

As with other SIBs, an important feature of EIB's operating model is breadth of expertise contained within its staff. In addition to staff with substantive financial expertise, the EIB also employs experts in areas such as science and engineering. Every prospective project is screened by a team of engineers and economists before being approved.

4.3 BNDES

BNDES is a 100% state-owned company established under private law. The so-called 'BNDES System' also includes three subsidiaries that complement BNDES's main structure⁴³:

- FINAME (the Special Agency for Industrial Financing), which is BNDES's export-import arm and was previously a fund for managing earmarked public resources for financing purchase, sales operations and exports of Brazilian machinery and equipment, as well as imports of goods of the same nature.
- BNDESPAR, which is responsible for capitalisation operations and equity investments in the Brazilian capital market.
- BNDES Plc, headquartered in London, which promotes the internationalisation of Brazilian companies and seeks to attract international investors to fund BNDES-led investment projects in Brazil.

In addition to staff with substantive financial expertise, the BNDES also employs a significant number of engineering experts. In 2016 17.2% 15.4% of BNDES' undergraduate level employees were economists, whereas 17.2% were engineers⁴⁴.

4.4 Finnvera

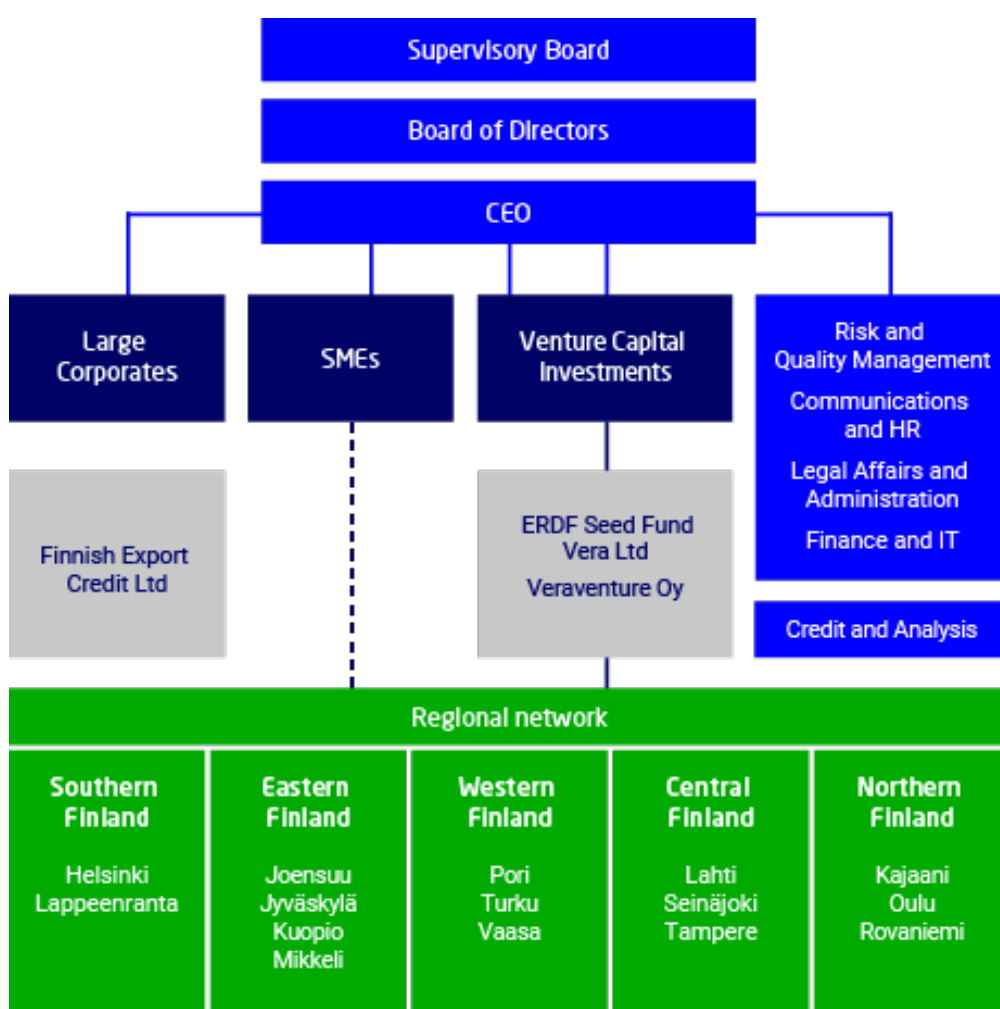
The Group's parent company is Finnvera plc, a public limited company entirely owned by the State of Finland and administered and governed by the Ministry of Employment and the Economy.

Finnvera provides financing for the business of SMEs, for exports and internationalisation, and helps implement the government's regional policy objectives. In its operations Finnvera is expected to attain economic self-sustainability, meaning that the income received from the company's operations must, in the long run, cover the company's operating expenses. The period for reviewing self-sustainability is 10 years for SME and midcap financing and 20 years for export financing. Finnvera also has three subsidiaries:

- Finnish Export Credit Ltd, which provides exporters and financial institutions with competitive export financing services such as financing for export credits and interest equalisation.
- Veraventure Ltd, which is the venture capital arm of Finnvera plc specialising seed, start-up, early stage, expansion, and investments on other funds.
- ERDF-Seed Fund Ltd, which manages investments made with assistance from the European Regional Development Fund (ERDF).

In 2012 the Ministry of Employment and the Economy announced that Finnvera was to gradually give up its venture capital investments, with responsibility for the development of early-stage venture capital investments transferring to Tekes Venture Capital Ltd, another state-owned firm.

Figure 2: Finnvera organisational structure



Source: Finnvera⁴⁵

4.5 China Development Bank

In January 2007, Prime Minister Wen Jiabao announced that the CDB and the other two policy banks – the Agricultural Development Bank of China and the Export-Import Bank of China –

would become commercial entities⁴⁶. In 2008, the bank was incorporated and converted into a joint stock company, and today the shareholders are:

- the Ministry of Finance of the People's Republic of China (36.54%);
- Central Huijin Investment Ltd (34.68%), a wholly state-owned limited liability company which represents the government as an investor in key state-owned financial institutions, and helps preserve and increase the value of state-owned financial assets;
- Buttonwood Investment Holding Co., Ltd. (27.19%), a limited liability company which is solely funded by the State Administration of Foreign Exchange, and mainly focuses on investments in domestic and overseas projects, equity investments, debt investments, fund investments, loan investments, and asset management and investments; and
- the National Council for Social Security Fund (1.59%), the operation arm of the National Social Security Fund.

All shareholder entities operate under the supervision of the Chinese State Council. The CDB also has three subsidiaries that complement the main structure:

- CDB Capital, an asset management company established in August 2009 which specialises in growth capital, pre-IPO investments, mergers and acquisition, and restructuring.
- CDB Securities, a securities subsidiary established in August 2010 specialising in securities brokerage, equity investment consulting; financial advisory related to securities trading and securities investment; securities underwriting and sponsorship; proprietary securities dealing; securities asset management; margin trading and other businesses approved by China Securities Regulatory Commission (CSRC).
- CDB Leasing, a non-banking financial institution purchased by the CDB in 2008 which it provides clients with customised financial leasing service solutions.
- China-Africa Development Fund (CAD Fund), an equity investment fund established in June 2007 dedicated to investments in Africa.

As with other SIBs, an important feature of the CDB's operating model is breadth of expertise contained within its staff. The CDB puts a high priority on staff training and expertise. At the end of 2016, 98% of the CDB's 8,939 staff held a bachelor's degree or higher, and 65% held a master's degree or higher. The bank also has a number of initiatives to continuously improve the quality and performance of staff and build strong expert teams, including a programme of cooperation with MIT, University of Michigan, Frankfurt University and Barclays Bank⁴⁷.

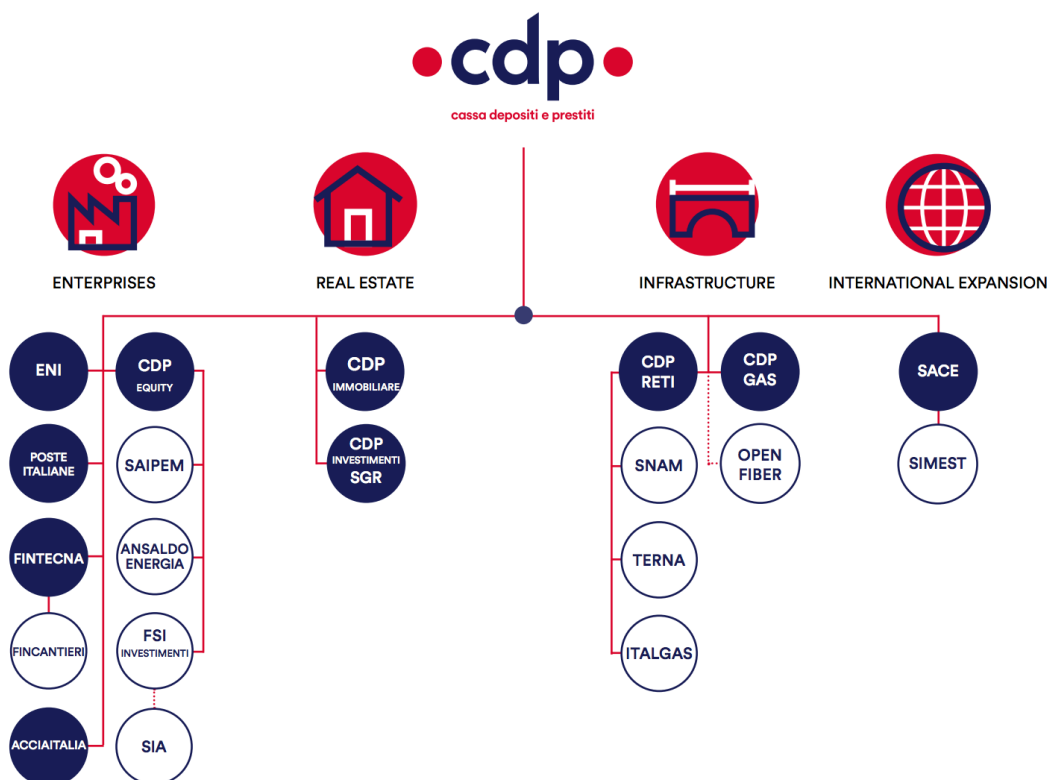
4.6 Cassa Depositi e Prestiti

CDP is a joint-stock company under public control, with the Ministry of Economy and Finance holding 82.8%, 60 banking foundations holding 15.9% and the Italian Treasury holding the remaining 1.3% of shares. In March 2017, it was reported that the Italian Economy Ministry was considering selling 15% of its stake in the bank⁴⁸.

The CDP group contains six subsidiary companies:

- SACE Group: an insurance and finance group operating in the areas of export credit, credit insurance, investment protection, financial guarantees, sureties and factoring. CDP acquired the entire share capital of SACE from the Ministry of Economy and Finance on 9 November 2012. As of 2016 the SACE Group includes SIMEST, a company focusing on the acquisition of equity investments in companies, the financing of Italian business operations abroad and the provision of technical assistance and advisory services to Italian companies that choose to expand their operations abroad.
- CDP Equity: a company that acquires equity investments, usually non-controlling interests, in companies of “major national interest” that have a stable economic and financial position and are capable of generating value for investors.
- Fintecna: a company established for the specific purpose of restructuring recoverable businesses. Today, the main equity investment held by Fintecna is its 71.64% controlling interest in Fincantieri, an Italian shipbuilding company based in Trieste. Fintecna’s operations presently include management of equity investments through steering, coordination and control activities; management of liquidation procedures; management of litigation, mainly arising from absorbed companies; and other operations, including support initiatives for communities affected by the earthquakes in Emilia in 2012 and in central Italy in 2016.
- CDP Immobiliare: a company focused on urban transformation, property management and construction. The mission of the company is to leverage its real estate assets through local urban growth and redevelopment projects that are also conducted in partnership with private investors.
- CDP Investimenti SGR: a company focused on the promotion, establishment and management of five real estate funds.

Figure 3: CDP group structure



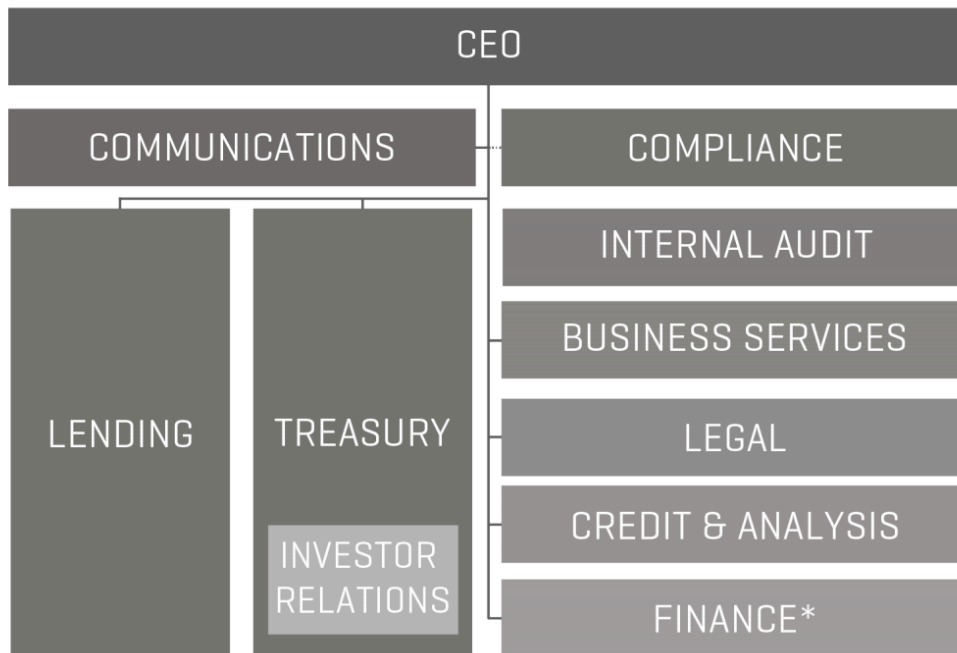
Source: CDP⁴⁹

As a joint stock company, the CDP has to give priority to profitability of its investments. Some studies have suggested that this impacts CDP’s investment patterns, given that CDP’s lending is mostly directed at supporting lower risk, established businesses rather than firms with great technological and growth potential but which are not yet profitable⁵⁰.

4.7 Nordic Investment Bank

The NIB is an international financial institution that is 100% owned by its member states – Denmark, Finland, Iceland, Norway, Sweden, Estonia, Latvia and Lithuania – which capitalised the bank in proportion to gross national income. The NIB is governed by the Agreement concerning the Nordic Investment Bank among its Member countries signed in 2004, and the Host Country Agreement concluded between the Government of Finland and the NIB in 2010. The NIB does not have any subsidiary arms.

Figure 4: NIB organisational structure



Source: Nordic Investment Bank⁵¹

4.8 Bpifrance

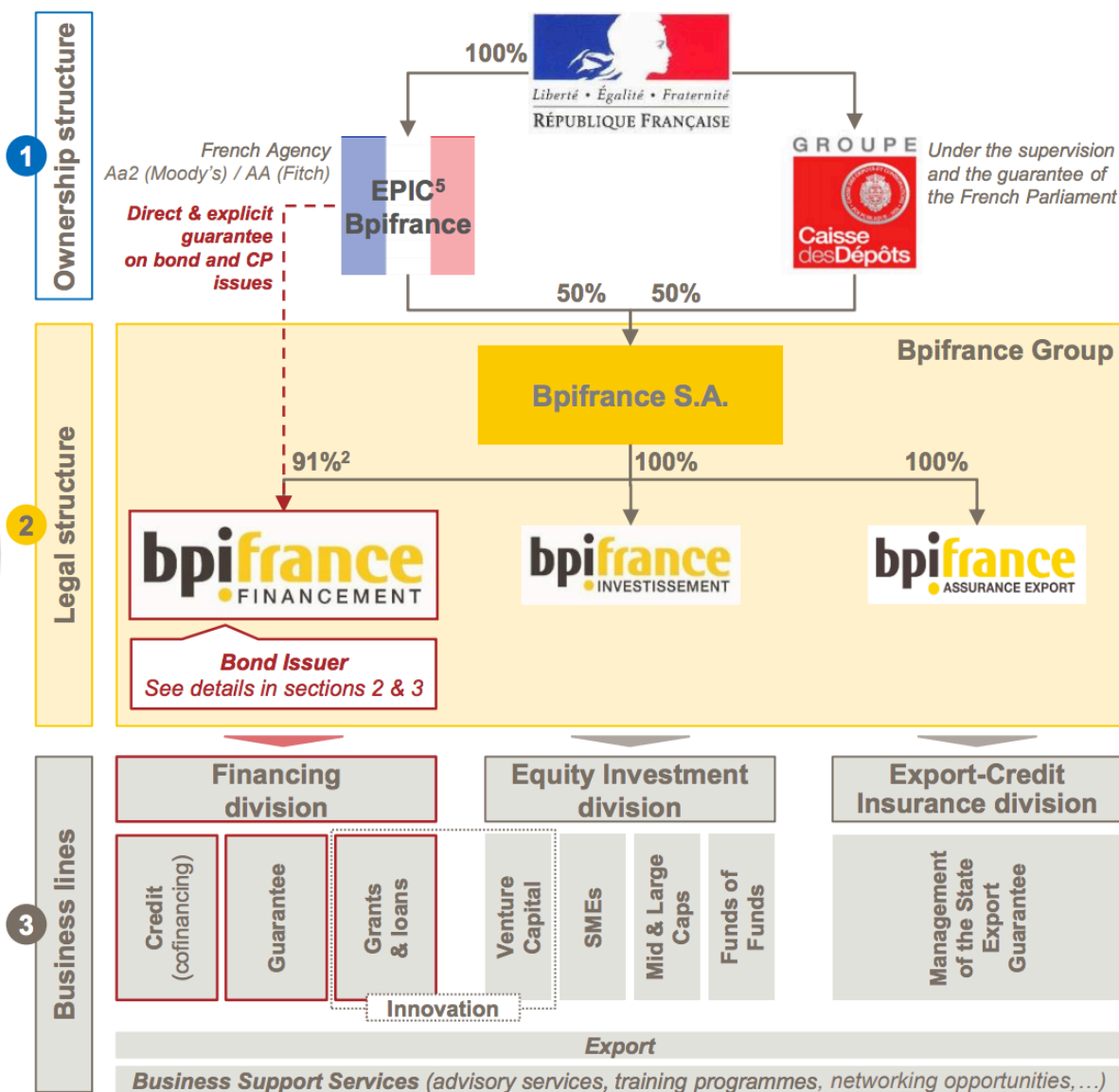
The Bpifrance S.A is the main holding company which is jointly owned by the French State and the Caisse des Dépôts, a public financial institution which has existed since 1816. Bpifrance S.A is structured around three main subsidiaries:

- Bpifrance Financement, a bank which is 91% owned by Bpifrance S.A. and is 9%-owned by commercial banks. Bpifrance Financement is referred to as the ‘financing division’ and has three business lines: credit, guarantees and innovation grants and loans.
- Bpifrance Participations, a holding company which is 100%-owned by Bpifrance S.A., which in turn owns an asset management company called Bpifrance Investissement.

Bpifrance Investissement is referred to as the 'equity investment division' and has four business lines: venture capital, SMEs, mid-caps and large companies, and fund-of-funds.

- Bpifrance Assurance Export, the export credit agency which was established in 2016 after management of French State export guarantees were transferred from Coface, a private company, to Bpifrance in order to create a single point of contact to support the internationalisation of French business.

Figure 5: Bpifrance organisational structure



Source: Bpifrance⁵²

4.9 Discussion

While all the SIBs examined are majority public-owned, the specific ownership and organisational structures can vary widely. In some cases, ownership lies wholly with the central or federal government, while in other cases ownership is shared with local or regional governments. In cases where SIBs are not 100% publicly owned, ownership is shared with private investors. Some SIBs have relatively straightforward organisational structures, while others have multiple

subsidiary arms which focus on different activities or business areas. Structural complexity appears to be linked to the size of the SIB.

An area for reflection is whether different ownership structures may affect an SIB's appetite for risk and investment patterns. On this issue, no conclusive conclusion can be drawn from this study, and this is an area for possible further research. One possible area for further study is the extent to which part-private ownership creates political pressure to deliver short-term returns, thus reducing the attractiveness of investing in higher-risk and longer-term areas. Another area is the extent to which sharing ownership between central governments and local or regional governments, as is the case with the KfW, can be beneficial.

A key difference between some SIBs and private banks is breadth of expertise contained within staff. In many cases this includes not only financial expertise but significant in-house engineering and scientific knowledge about the sectors the bank is active in. These SIBs are able to base investment decisions on a wider set of criteria, and are better placed to appraise social and environmental considerations. This also means that in some cases SIB staff are drawn on to provide expert advice on government policy design and implementation, as well as financing. Significant in-house expertise can also enhance the ability of the SIBs to crowd-in private investment by acting as a hallmark of quality.

5. Economic role

SIBs have played different roles throughout their histories, reflecting changing socio-economic circumstances and evolving stages of economic development. In this section, we assess the roles played by each SIB in their respective economies using the following typology developed by Mazzucato and Penna⁵³:

- **Countercyclical role:** In playing a countercyclical role SIBs direct finance to productive opportunities throughout the swings of business cycles, providing a counterbalance to the processes of financialisation and speculation. In this sense, this role provides the basis for all others; it underpins investments in the capital development of the economy, the full utilisation of labour resources, the creation of new technologies and sectors, and the direction of techno-economic change through mission-oriented investments
- **Capital development role:** SIBs' capital development role involves supply of capital to public goods areas such as infrastructure and new knowledge. In order to do this, a SIB may work as an agency to nurture knowledge development, invest in infrastructure, promote strategic trade (such as export finance, import substitution, securing sources of materials), prioritise investments in existing strategic sectors (reinforcing comparative advantages) and create 'national champions' that are able to compete in international markets.
- **Venture capitalist role:** Because the private sector does not often provide the long-term, patient finance that is required for innovation, SIBs have increasingly been mobilised to

provide capital for innovative firms and start-ups.

- **Mission oriented role:** In some cases, SIBs go beyond addressing market failures by promoting innovations that address key societal challenges, and making things happen that otherwise would not. Mission-oriented thinking requires understanding the difference between (1) sectors, (2) broad challenges, and (3) concrete problems that different sectors can address to tackle a challenge. Sectors define the boundaries within which firms operate, such as transport, health or energy. A challenge is a broadly defined area which a nation may identify as a priority (whether through political leadership, or the outcome of a movement in civil society). These may include areas like inequality, climate change, or the challenges of an ageing population. Missions, on the other hand, involve tackling specific problems, such as reducing carbon emissions by a given percentage over a specific year period. They require different sectors to come together in new ways⁵⁴.

5.1 KfW

The KfW plays all four economic roles discussed above, and each role roughly corresponds to the bank's group divisions. The Kommunal-und Privatkundenbank/Kreditinstitute and the IPEXBank are responsible for KfW's investments in capital development, infrastructure and exporting; the Mittelstandsbank is responsible for KfW's venture capital and innovation investments; and the Stiftung is fully concerned with mission-oriented initiatives and investments. All of KfW's divisions are guided by the three key challenges summarised in section 3.1: climate change and environmental protection, globalisation and technical progress and demographic change.

The fourth role – countercyclical – has been executed by the various KfW divisions, but since the Global Financial Crisis, has become an important aspect of the Mittelstandsbank's investments through the 'Special Programme'.

5.2 European Investment Bank

The EIB plays all four economic roles discussed above. It has played a key capital development role by financing key infrastructure projects and supporting industry, particularly in support of less-developed parts of the EU, and has been mobilised to play a major counter-cyclical role since 2012 to support the economic recovery in Europe⁵⁵. In 2012 the EU Member States decided to inject more capital into the EIB which meant that the EIB was able to lend an additional €60 billion at a time when private sector lending was contracting⁵⁶.

The EIB has also played a growing venture capitalist role, in particular through its majority shareholding in the European Investment Fund (EIF), which facilitates access to equity for high-growth and innovative SMEs, and a new joint initiative called InnovFin which aims to facilitate and accelerate access to finance for innovative companies or projects that deal with complex products and technologies, unproven markets and intangible assets⁵⁷.

In supporting the EU's Europe 2020 strategy which outlines a vision of Europe based on smart growth (developing an economy based on knowledge and innovation), sustainable growth

(promoting a more resource efficient and greener economy) and inclusive growth (fostering a high-employment economy delivering social and territorial cohesion) – the EIB is also playing a mission-oriented role⁵⁸. In particular, the EIB is playing a leading role in mobilising the finance needed to achieve the worldwide commitment to keep global warming below 2°C, and directs more than 25% of its total financing to climate change adaptation and mitigation, supporting low-carbon and climate-resilient growth⁵⁹.

5.3 BNDES

BNDES plays all four economic roles discussed above. BNDES has played a key capital development role by financing the construction of key infrastructure projects, expanding industry and assisting with the mechanisation of agriculture in Brazil – all of which have been crucial to Brazil’s catch-up strategy. Following the Global Financial Crisis BNDES also played a major counter-cyclical role by executing a major stimulus package to offset the effects of the downturn. In recent years BNDES has begun to play an important venture capitalist role, and many of BNDES’ venture capital investments are aimed at creating new technological landscapes and innovative solutions which fulfil a wider mission of achieving smart, sustainable and inclusive growth. As discussed in section 9.3, BNDES has developed an explicit toolbox for funding mission-oriented innovations. BNDES’ venture capitalist role forms the basis for a broader mission-oriented role.

5.4 Finnvera

In providing finance to SMEs, guaranteeing against risks arising from exports and helping to implement the government’s regional policy objectives, Finnvera plays a major capital development role. In March 2009, Finnvera introduced new ‘Counter-cyclical Loans and Guarantees’ to offset the shock of the Global Financial Crisis⁶⁰, demonstrating a clear counter-cyclical role.

While historically Finnvera has played a venture capital role, in 2012 the Ministry of Employment and the Economy announced that Finnvera was to gradually give up its venture capital investments, with responsibility for the development of early-stage venture capital investments transferring to Tekes Venture Capital Ltd, another state-owned firm. While Finnvera does seek to promote economic growth, it does not actively seek to influence the direction of growth, and does not promote policies that target the development of particular technologies that address given societal challenges. It therefore does not play a mission-oriented role.

However, it is important to note that Finland has a number of other public agencies which do play this role. The most important of these is the public innovation agency SITRA (Finnish National Fund for Research and Development), which helped to transform Finland from one of the lowest-technology economies in the Organisation for Economic Co-operation and Development (OECD) into a global leader in information and communication technologies (ICT) industries⁶¹.

5.5 China Development Bank

Since being established in 1994 the CDB has played a major capital development role. According to the United Nations, “from the time when the China Development bank was

established in 1994 to the end of 2005, nearly 90% of its lending was directed towards infrastructure in eight key industries - power, road construction, railway, petro-chemical, coal mining, telecommunications, public facilities, and agriculture”⁶². Through these activities the CDB has played a key role in financing China’s catch-up strategy. The CDB is also explicitly expected to play a counter-cyclical role, with its website stating that it will “support counter-cyclical development at critical times”⁶³. In 2009, the CDB increased loans by 88% to provide a stimulus to offset the shock of the Global Financial Crisis⁶⁴.

More recently the CDB has started to play a growing venture capitalist role, particularly through its investment arm, China Development Bank Capital Corporation Ltd, which specialises in growth capital, pre-IPO investments, mergers & acquisition, and restructuring. With its wider aim of promoting “innovative, balanced, green, open and inclusive development”⁶⁵, the CDB is now playing a mission-oriented role. In particular, the bank is the largest Chinese investor in environmental sustainability and green technology – at the end of 2016 the outstanding balance of green loans stood at RMB1.57 trillion, making the CDB one of the biggest green investors in the world⁶⁶.

5.6 Cassa Depositi e Prestiti

The CDP has long been a key source of finance for public infrastructure projects, and therefore plays a capital development role. CDP has also played a counter-cyclical role, particularly throughout the recent Eurozone crisis when the bank increased its support for the Italian economy. In 2012 CDP invested more than €22 billion, the highest ever amount and an increase of 35% compared with the €16.5 billion mobilised in 2011. The target lending for the 2011-13 period was revised upwards from €40 billion to €50 billion, underscoring CDP’s counter-cyclical role⁶⁷. CDP’s 2016-20 business plan commits to “pursuing a systemic and countercyclical approach” in its future investments⁶⁸.

The CDP only started lending to businesses in 2009, and since then support has mainly focused on supporting strategic national enterprises and helping Italian firms compete internationally. CDP has acquired minority stakes in two small venture capital funds, however both are relatively new and small in scale. As a result, CDP does not yet have a major programme for providing patient, long-term committed venture capital for innovative firms. Similarly, while CDP does seek to promote economic growth, it does not actively seek to influence the direction of growth, and does not promote policies that target the development of particular technologies that address given societal challenges. However, the CDP is currently in the process of developing a sustainability strategy oriented around the UN Sustainable Development Goals, and this may involve adapting the bank’s mission and core values, meaning that CDP may pivot towards a more mission-oriented role in future⁶⁹.

5.7 Nordic Investment Bank

The NIB has played a capital development role by financing infrastructure, human capital development and SMEs, as well as a counter-cyclical role during downturns. However, the NIB does not play a significant venture capital role. This is partly because the bank does not offer equity instruments or provide venture capital for high-tech start-ups. While the NIB does promote innovation by financing R&D, this tends to be via long-term loans and guarantees to established

firms, rather than venture capital or grants for more radical innovation⁷⁰. It is notable that many of the Nordic nations have separate state-owned venture capital funds, for example Vaekstfonden (Denmark), Argentum and Investinor (Norway), Finnish Industry Investment (Finland) and Industrifonden (Sweden).

Despite not playing a venture capitalist role, the part of the NIB's mandate that focuses on enhancing the environment means that some of the bank's activities take on a mission-oriented character. The NIB actively supports the transition to a low-carbon economy by financing green investments in areas such as energy, public transportation and buildings. Crucially, the NIB's environmental investments are not sector specific, as is evidenced by support for greening traditional industries such as steel⁷¹. The percentage of NIB's outstanding lending volume allocated to climate change mitigation was 22% in 2016⁷². As such, while the NIB is not primarily focused on promoting radical innovation or developing new technological landscapes, it is playing a mission-oriented role by directing its lending towards addressing a key societal challenge.

5.8 Bpifrance

Bpifrance plays all four economic roles discussed above. In providing finance to SMEs and guaranteeing against risks arising from exports, Bpifrance plays a major capital development role. Since being established in 2012 Bpifrance has invested counter-cyclically, playing a significant countercyclical role⁷³.

Bpifrance also plays a major venture capital role by promoting innovation and investing in venture capital funds. By directing this innovation towards key societal challenges such as France's Energy and Environmental Transition (EET), Bpifrance also plays a mission-oriented role.

5.9 Discussion

All SIBs examined play a capital development and countercyclical role. In most cases, this was the original rationale behind their creation. However, in recent years – and particularly since the Global Financial Crisis – some SIBs have gone further and are now playing key venture capitalist and mission-oriented roles. By placing state investment banks at the centre of the investment process, countries like Germany and China as well as the European Union have taken centre stage in confronting the key social and environmental challenges of the 21st century. By steering the path of innovation towards overcoming key challenges, these banks are not just correcting 'market failures'; they are actively creating and shaping markets and enabling activity that otherwise would not take place.

In assessing the economic role that each SIB plays in their respective economies it is important to consider the wider institutional landscape. The example of Finland is instructive. Both Finnvera and the Nordic Investment Bank operate in Finland, however neither play a mission-oriented role. But Finland has nonetheless been a pioneer of smart, innovation-led growth. This is largely due to the existence of a wider ecosystem of public institutions such as SITRA⁷⁴.

This reinforces the idea of the ‘networked entrepreneurial state’ which is not comprised of one ministry or agency calling the shots top-down, but rather by a set of decentralised interactions between different agencies across the entire innovation chain, in turn interacting with private actors⁷⁵. It is this approach that has also been at the centre of US innovation and competitiveness^{76 77}. An area for further research is how SIBs can most effectively interact with other public agencies to drive innovation and address key societal challenges.

6. Investment activity

As with their economic role, the investment activities of each SIB have evolved over time and vary based on socio-economic circumstances and stages of economic development. In this section, we examine the investments that each SIB has made in recent years, as well as sectors that each SIB is active in. Where information is available, we also consider the types of customers served by each SIB, and whether they are served directly or indirectly via intermediaries.

6.1 KfW

Initially the KfW channeled investment in the housing, agricultural, power, and heavy industrial sectors in order to aid the reconstruction of post-war Germany. Beginning in the 1960s, KfW assumed more global responsibilities, and began providing financing for foreign investments to secure primary commodities for German manufacturers as well as for international development aid projects. The KfW also began emphasizing SME financing, education, and more advanced industrial projects.

In recent decades, the KfW has expanded its activities into other areas such as housing efficiency projects and student loans, and has been instrumental in the reconfiguration of the German economy towards innovation and green technology. Today KfW’s lending and promotional activities are focused on three pre-established missions, or ‘megatrends’⁷⁸:

- Climate change and the environment: KfW finances measures to support renewable energies, improve energy efficiency, safeguard biodiversity and prevent and/or reduce environmental pollution. To address the special importance of this megatrend, KfW has set an environmental commitment ratio of around 35 % of total promotional business volume. The KfW has been played an instrumental role in the systemic greening of the German economy through the Energiewende policy, which aims to combat climate change, phase-out nuclear power, improve energy security by substituting imported fossil fuel with renewable sources, and increase energy efficiency⁷⁹. The KfW ‘Energy Transition Action Plan’ was launched in 2011, which had invested over €100 billion by the end of 2016⁸⁰.
- Globalisation and technological progress: KfW contributes to strengthening the international competitiveness of German companies by granting loans in the following areas, among others: research and innovation, projects to secure Germany’s supply of raw materials, and infrastructure and transport.

- Demographic change: KfW's objective is to address the consequences that result from a declining and aging population, including the following focus areas: age-appropriate infrastructure, vocational and further training, family policy and childcare as well as corporate succession.

In addition to these three megatrends, KfW also provides trend-independent general corporate financing (especially small and medium-sized enterprises) and start-up financing.

In 2016 KfW Group committed a total of €81 billion. Of this €55.1 billion was for financing German domestic development, of which €21.4 billion was SME finance and €33.7 billion was for municipalities and private customers. €24.9 billion was for international activities, of which IPEX represents €16.1 billion, KfW Development Bank represents €7.3 billion, and DEG represents €1.6 billion.

Table 1: Promotional business volume of KfW Group, 2016

	Functional division	Activity	EUR in billions
Domestic business	Mittelstandsbank (SME Bank)	Environment and energy	10.7
		Start-ups and general corporate finance	10.1
		Innovation financing business	0.6
	Kommunal- und Privatkundenbank/ Kreditinstitute (Municipal and Private Client Bank/Credit Institutions)	Housing	20.8
		Infrastructure	4.1
		Education and social development	2.3
		Funding of promotional institutions of the German Federal States (Landesförderinstitute)	4.4
		Individual financing of banks	2.1
	Financial markets	Securitisation transactions	1.0
		Green bonds	0.3
International business	KfW IPEX-Bank	Export and project finance	16.1
	KfW Development Bank	Finance for governments, other governmental and non-governmental institutions in developing and emerging countries	7.3
	KfW DEG	Finance for private companies in developing countries and emerging economies	1.6
Total			81.0

Source: KfW⁸¹

The KfW also has 'exclusion criteria' which prevent funding for projects which are likely to have unacceptable negative impacts on the environment, social conditions and governance. The criteria are as follows⁸²:

1. Production or activities involving harmful or exploitative forms of forced labour or child labour as defined in the ILO core labour standards.
2. Production, use of or trade in pharmaceuticals, pesticides/herbicides, chemicals, ozone depleting substances and other hazardous substances that are subject to international bans.
3. Trade in animals or animal products that are subject to the provisions of CITES (Convention on International Trade in Endangered Species of Wild Fauna and Flora).
4. Production of cosmetics etc. involving testing on animals.
5. Commercial logging operations for use in primary tropical moist forests.
6. Production of wood or wood products other than from sustainably managed forests (enterprises with less than 50% FSC-certified production are excluded, FSC "Forest Stewardship Council").
7. Production or trade in controversial weapons or important components for the production of controversial weapons (anti-personnel mines, biological and chemical weapons, cluster bombs, radioactive ammunition, nuclear weapons).
8. Production or trade in tobacco.
9. Drift net fishing in the marine environment using nets in excess of 2.5 kilometres in length.
10. Controversial forms of gambling: operation of casinos, production of devices or other equipment for casinos or betting offices or companies that generate turnover via online betting. (So-called "short odds" are defined as "controversial forms of gambling").
11. Any business activity involving pornography.
12. Production or distribution of racist, anti-democratic and/or neo-Nazi media.

6.2 European Investment Bank

The EIB supports sectors that "make a significant contribution to growth, employment, regional cohesion and environmental sustainability in Europe and beyond"⁸³. The EIB's activities are currently guided by the objectives underpinning the EU's Europe 2020, which outlines a vision of Europe's social market economy for the 21st century, orientated around⁸⁴:

- Smart growth: developing an economy based on knowledge and innovation.
- Sustainable growth: promoting a more resource efficient, greener and more competitive economy.
- Inclusive growth: fostering a high-employment economy delivering social and territorial cohesion.

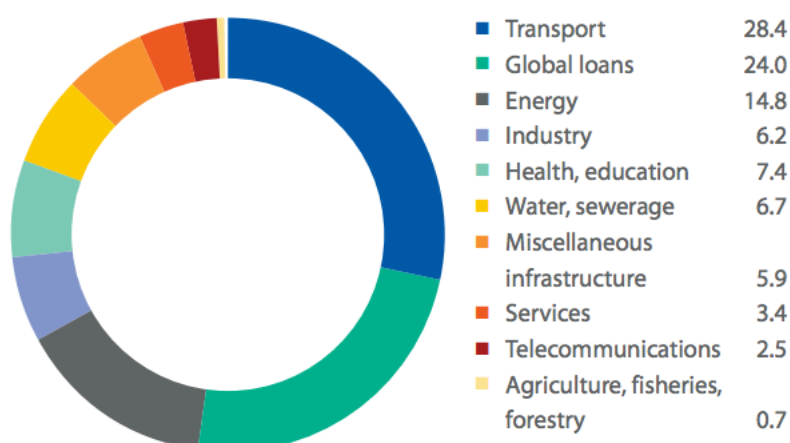
At present lending focuses on four priority areas⁸⁵:

- Innovation and skills: Investment geared towards innovation, skills and greater competitiveness is part of its mission to foster sustainable growth and jobs in Europe.
- Access to finance for smaller businesses: Financial products targeting small and medium-sized companies in order to drive of growth, innovation and employment in Europe.

- Infrastructure: Investment in infrastructure such as energy efficiency, transport, water and sustainable urban infrastructure to promote economic growth, sustainability and job creation.
- Climate and environment: Investment in climate change adaptation and mitigation, as well as improving the natural and human environment in areas such as biodiversity, clear air, clean water, sustainable transport, renewable energy and energy efficiency. In 2015 the EIB published its climate strategy which commits the bank to directing more than 25% of its total financing to climate change adaptation and mitigation, supporting low-carbon and climate-resilient growth⁸⁶.

In 2016 the EIB committed a total of €76.4 billion, of which 90% was directed to EU member states. The distribution of this investment by sector is shown in figure 6.

Figure 6: Distribution by sector of the stock of loans at end of 2016 (%)



Source: EIB⁸⁷

Note: A global loan is a line of credit to an intermediary financing institution or a bank, which subsequently lends the proceeds, at its own risk, to finance small and medium-sized projects being undertaken by private or public-sector promoters

The EIB also produces a list of sectors that are excluded from EIB lending⁸⁸:

- Ammunition and weapons, military/police equipment or Infrastructure;
- Projects which result in limiting people's individual Rights and freedom, or violation of human rights Projects unacceptable in environmental and social terms
- Projects in protected areas, critical habitats and heritage sites, without adequate compensation/mitigation
- Sex trade and related infrastructure, services and media; animal testing*); gambling and related equipment, hotels with in-house casinos; tobacco (production, manufacturing, processing, and distribution); and
- Activities prohibited by national legislation (genetically modified organisms; abortion clinics; nuclear energy)

The EIB provides support to private businesses, public sector enterprises, investment funds and other financial intermediaries. It does not have private customers or provide financial services to individual people. The smallest loan it will provide is £25,000.

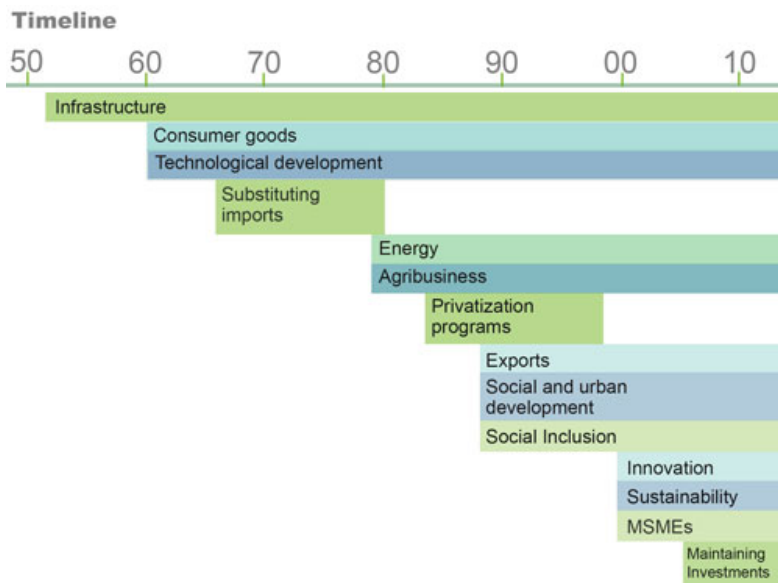
6.3 BNDES

Initially BNDES invested heavily in infrastructure, but beginning in the 1970s the bank expanded into a number of other areas. Notably, the BNDES played a fundamental role in promoting a strategy of import substitution by encouraging Brazilian companies to compete with imported products on the domestic market, and stimulating exports. In the 1980s, support expanded to energy sectors and agribusiness, and integrating social concerns with development policy.

In the 1990s, the BNDES emphasized its role in regional decentralisation through heavier investment in less developed regions in Brazil, as well as support for promoting exports among micro, small and medium-sized companies.

In the late 1990s BNDES began to promote environmental sustainability, and since then support for the green economy has dramatically increased. BNDES’ green investments include projects in renewable energy (biofuel, solar and wind energy), energy efficiency, sustainable transport (cargo and public, such as diffusion of electric and hybrid vehicles), and water, forest and waste management (including grants to local communities that protect their natural resources)⁸⁹.

Figure 7: Timeline on BNDES’ sectoral support

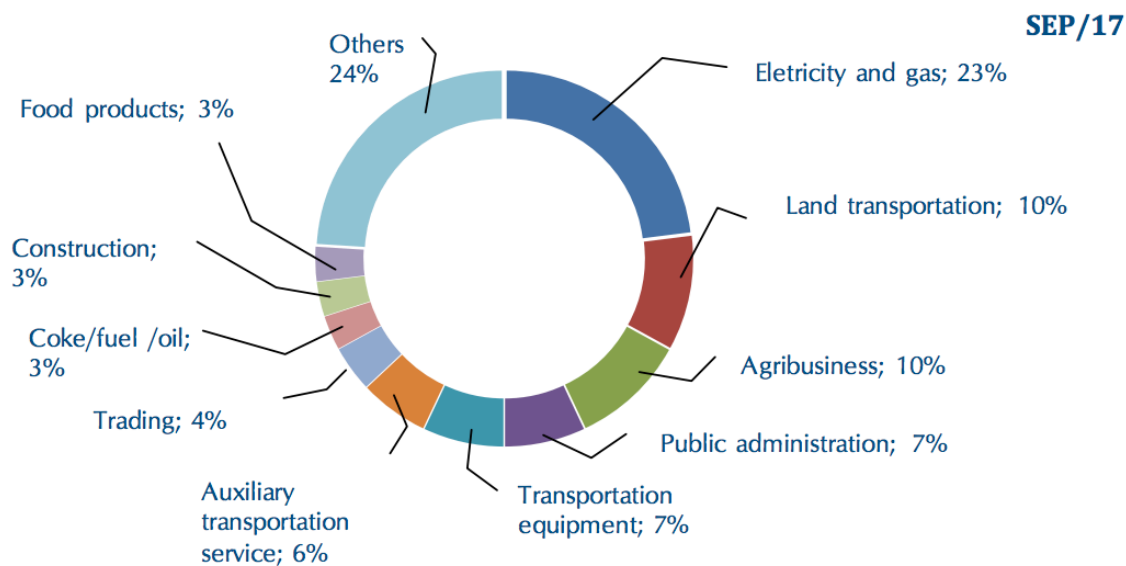


Source: BNDES⁹⁰

Today BNDES “aims at implementing, modernising or expanding undertakings of companies from almost all economic sectors.”⁹¹ The only economic sectors that cannot receive support from the BNDES are banking/financial activities, weapon trade, motels, saunas and establishments for adult entertainment, and gambling.

As at September 2017 BNDES' loan portfolio stood at R\$ 562,812 million, spread across different sectors as shown in figure 8.

Figure 8: BNDES loan portfolio by sector



Source: BNDES⁹²

According to the Central Bank of Brazil, BNDES provided approximately 70% of long-term bank credit (defined as loans with over three-year repayment period) during 2013-15⁹³. Some commentators have criticised BNDES for crowding out private sector bank lending and hampering the development of the local capital market, because BNDES' funding structure means that it is able to provide loans at subsidised rates⁹⁴. In a 2013 survey of the Brazilian economy the OECD stated that: "Further development of long-term credit markets is hampered by a lack of private participation, owing to an uneven playing field caused by strong financial support to the national development bank which dominates long-term lending."⁹⁵ Others have argued that BNDES' competitive advantage is not due to its funding structure but because it operates with low loan spreads compared to traditional private banks, which focus on high-yield, short-term loan segments in order to maximise return on equity, and thus have little interest in expanding low-yield long-term financing for businesses⁹⁶.

BNDES lends to private companies and individual entrepreneurs that are headquartered in Brazil, as well as public sector bodies. BNDES classifies companies according to their size, and the categories are applicable to all economic sectors. The classification by size is taken into consideration in specific financial support mechanisms of the BNDES, which are focused on a specific company size.

Table 2: BNDES company size classification

Classification	Annual Gross Operating Income
Micro Company	Less than or equal to R\$360 thousand
Small Company	More than R\$360 thousand and less than or equal to R\$3.6 millions

Medium Company	More than R\$3.6 millions and less than or equal to R\$300 millions
Large Company	More than R\$300 millions

Source: BNDES⁹⁷

BNDES has also been criticised of for lending to large, profitable firms⁹⁸. However, it is also true that some of the large Brazilian companies, like Embraer (aerospace), compete with large international competitors which receive large amounts of state support.

To apply for financing from the BNDES, the client is expected to meet the following minimum requirements:

- fiscal, tax and social obligations must be up-to-date;
- satisfactory registration must be presented;
- capacity to make payment;
- enough guarantees to cover the risk of the operation;
- client cannot be undergoing credit recovery;
- comply with legislation related to imports, in case of financing for imports of machinery and equipment; and
- comply with environmental legislation.

6.4 Finnvera

Finnvera's investment are currently made across three main business areas:

- SMEs and mid-cap financing: Finnvera's SME unit serves clients in a network of 15 branch offices covering the whole of Finland. It provides financing for enterprises at their start-up, growth and internationalisation stages.
- Large corporates: Finnvera's Large Corporates unit serves large export companies operating in Finland and is responsible for Finnvera's foreign risk-taking. It promotes Finnish exports by providing export credit guarantees and export financing solutions for enterprises and for banks that finance exports.
- Venture capital: Finnvera's venture capital activities focus on the development of the existing portfolio of companies, follow-on investments and exits. However, in 2016 Finnvera gave up most of its venture capital investment activities following a policy decision made by Minister of Economic Affairs. Finnvera implemented this by selling 80% of its holding in Seed Fund Vera Ltd to the Finnish company Innovestor Ltd. Before the transaction, the investments made by using ERDF assets were placed into a separate fund called ERDF-Seed Fund Ltd. Finnvera continues to manage ERDF-Seed Fund Ltd through its subsidiary Veraventure Ltd.

Finnvera provides financing for most sectors, except for farming, forestry and building developer's business. It does not as a rule provide financing for real estate investments, construction or renovation of rental housing or companies operating in the financing, investment or insurance sector⁹⁹.

6.5 China Development Bank

The CDB aims to promote investment in the following sectors¹⁰⁰:

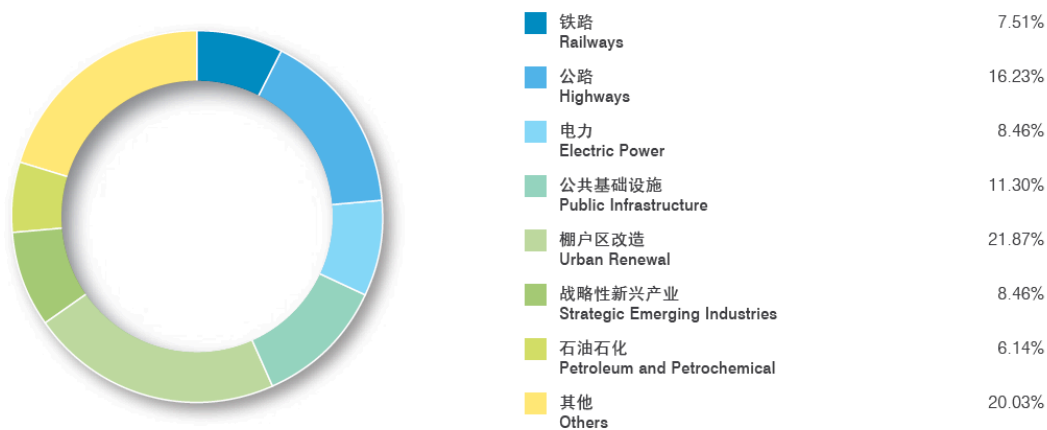
- Economic and social development, including infrastructure, basic industries, pillar industries, public services and management;
- New urbanization, urban-rural integration, and balanced regional development;
- Programs vital for national competitiveness, including energy conservation, environmental protection, high-end manufacturing, and the transformation and upgrading of traditional industries;
- Public welfare, including affordable housing, poverty alleviation, student loans, and inclusive finance;
- National strategies including those in science and technology, culture, and people-to-people exchange;
- International cooperation, including the Belt and Road Initiative, industrial capacity and equipment manufacturing projects, infrastructure connectivity, energy and resources, and Chinese enterprises “Going Global”;
- Initiatives that support China’s development needs and economic and financial reforms;
- Other areas as mandated by and aligned with national development strategies and policies.

More recently, the CDB has targeted “innovative, balanced, green, open and inclusive development”. In particular, the bank is the largest Chinese investor in environmental sustainability and green development, and incorporates the notion of “green credit” into all aspects of its business operations. In recent years CDB has dramatically increased green lending in areas including clean and renewable energy, green agriculture, green transportation, and industrial energy and water conservation. At the end of 2016 the outstanding balance of green loans stood at RMB1.57 trillion (£178 billion), making the CDB one of the largest green investors in the world¹⁰¹.

The CDB has played a particularly important role in financing overseas activities of Chinese state-owned enterprises as part of China’s ‘going out’ policy. Its foreign currency loans have spanned more than 90 countries and regions around the world. The CDB does not support export and imports as this is the responsibility of a separate public bank, and the Export-Import Bank of China.

In 2016, total outstanding loans amounted to RMB 10,318 billion. The composition of lending is shown in figure 9.

Figure 9: Breakdown of total outstanding loans by industry, 2016



Source: CDB¹⁰²

6.6 Cassa Depositi e Prestiti

The CDP's investment activity has varied widely over the course of its history, and has changed significantly in recent years. Between 1850 and 2003 CDP focused exclusively on making loans to Italy's local authorities – a function that it continues to play today. In 2009 CDP was authorised to expand its activities to provide support for SMEs in the form of targeted funding through the banking industry, as well as for social housing. In 2012, the CDP Group was established after the Ministry of the Economy and Finance (MEF) acquired the companies SACE, SIMEST and Fintecna and transferred share ownership to CDP.

In 2014, the CDP Group's remit was extended again to encompass investments in international cooperation, infrastructure, research and development, innovation, cultural heritage assets, tourism, the environment, energy efficiency and the green economy. In 2015 the Italian government and the European Union assigned CDP the status of National Promotion Institution, meaning that it became the entry point for funding under the EU "Juncker Plan" and advisor to government entities for efficient use of domestic and European funds.

Today the CDP group is structured around four business areas:

- Enterprise: Investment to promote the start-up, innovation and growth of companies and sectors, as well as the reconstruction of areas affected by natural disasters.
- Infrastructure: Investment to support public infrastructure in areas such as transport and telecommunication.
- Real estate: Investments in the real estate sector, targeting in particular social housing projects and urban redevelopment.
- International expansion: Investment to support Italian enterprises with the dual aim of promoting export growth and expanding business operations beyond Italian borders. The

CDP also supports the development of leading Italian companies in strategic sectors such as shipbuilding and the oil industry.

In 2016 CDP committed a total of €30 billion, which was allocated to each of the main business areas in the following proportions: 47% total to “International Expansion”, 35% to “Enterprises”, 17% to “Government and infrastructure”, and 1% to “Real Estate”

Table 3: New lending and investments broken down by business line, 2016

Business area	EUR in millions
Government and infrastructure	5.2
Enterprises	10.5
International expansion	14.2
Real estate	0.2
Total new lending and investment	30.1

Source: CDP¹⁰³

CDP’s clients are public bodies, businesses and households. The bank says that more than 10,000 public entities, 110,000 thousand companies and 11,000 thousand households have benefited from its programmes to support the economy¹⁰⁴.

6.7 Nordic Investment Bank

The NIB assesses all potential loans internally according to their contribution to the bank’s mandate. Only projects that contribute sufficiently to NIB’s mandate fulfilment qualify for loan approval. The NIB has a lending ceiling corresponding to 250% of the authorised capital stock and accumulated general reserve, meaning that it cannot lend more than 2.5 times its capital base. A NIB loan or guarantee for a project should generally not exceed 50 per cent of the total cost of the project.

Investments are currently made across the four business areas:

- Energy and environment: investment in areas such as wastewater treatment, electricity transmission, distribution networks and smart metering systems, heat generation, hydropower, biomass and industrial energy plants.
- Infrastructure, transport and telecoms: investment in areas such as urban transport projects, airports, educational infrastructure and water supply facilities.
- Industries and services: financing industrial research and development programmes, corporate investments in production facilities and acquisitions and real estate construction.
- Financial institutions and SME lending: NIB provides financing to banks and other financial institutions, which act as financial intermediaries on-lending the funds to their clients. This enables NIB to reach out to smaller counterparts and projects that the bank

cannot finance directly. The majority of such loans target small and medium-sized companies and renewable energy projects.

Table 4: New lending and investments broken down by business line, 2016

Business area	EUR in millions
Energy and environment	1,534
Infrastructure, transportation and telecom	1,198
Industries and services	912
Financial institutions and SMEs	720
Total new lending and investment	3,373

Source: NIB¹⁰⁵

The NIB calculates the total net emissions of greenhouse gases for all the projects it finances, and assesses all potential loans internally according to its mandate to improve the environment. The percentage of NIB's outstanding lending volume allocated to climate change mitigation was 22% in 2016¹⁰⁶.

6.8 Bpifrance

Bpifrance's investment activity is focused around three central pillars:¹⁰⁷

- Promoting French businesses: Bpifrance promotes the emergence of a fully integrated and effective ecosystem for financing and private investment in businesses. It aims to provide micro-businesses, SMEs and mid-caps with access to highly competent, specialized financiers and investors at all stages of development.
- Developing French businesses internationally: Bpifrance provides growing SMEs and mid-cap businesses with personalised international support, and along, with Business France, offers a package which facilitates access to information on foreign markets and tools for financing and insuring their export activities.
- Promoting new sectors and innovation: Bpifrance investments in growth sectors and sectors which support national industrial policy. This includes supporting France's Energy and Environmental Transition as well as four 'sectors of the future': health and the living world economy, transportation, eco-industries, and digital¹⁰⁸. Bpifrance invests across the innovation chain from the pre-R&D phase all the way through to the reinforcing of capital for established innovative firms.

In 2016 Bpifrance's outstanding investments totalled €42 billion.

Table 5: Bpifrance outstanding investments, 2016

Subsidiary	Business line	EUR in billions
Bpifrance Financement	Credit	12.3
	Guarantees	8.4
	Innovation grants and loans	1.28
Bpifrance Investissement	Venture capital	0.191
	SMEs	0.139
	Mid-caps and large companies	1.1
	Funds-of funds	0.729
Bpifrance Assurance Export	Export credit	17.9

Source: Bpifrance annual accounts

Bpifrance Financement, the financing division, invests in many sectors, with most loans going to the transport, industry, real estate and constructions sectors¹⁰⁹. Bpifrance Financement “networks” with banking and financial establishments, as well as equity investors; competitiveness clusters, research institutions, universities, engineering institutes, major companies; SATT (Technology Transfer Accelerator Companies), public or private business incubators and start-up hubs; chambers of commerce, industry and skilled trades; chartered accountants; federations and professional trade unions; associations involved in company creation assistance and support networks; public and private actors working to distribute information technology.

Bpifrance Investissement, the equity investment division, invests across many different sectors of the French economy. There is a particular focus on growth sectors, particularly biotechnology, digital technology and energetic and ecological transition, and scale up operations.

Bpifrance assists businesses of all sizes, primarily micro-businesses, SMEs, and mid-caps; but it also assists large caps that are considered strategic in terms of national or territorial economy, or employment. Bpifrance supports SMEs through a decentralised network of 37 regional offices, being in direct contact with the entrepreneurs and their partners. 90% of decisions are being made at regional level. Bpifrance assists businesses of all sizes, primarily micro-enterprises, SMEs and mid-caps. It also assists large firms that are considered strategic for the national economy, territorial integrity or employment.

6.9 Discussion

The investment activities of SIBs vary between countries according to the bank’s mandate, socio-economic circumstances and the country’s stage of development. Some SIBs are active in a wide range of sectors, while others restrict their activities to certain areas. In some cases, SIBs specify the sectors and activities that they do not support. This can be due to moral or ethical concerns around the activities. Banks that play a mission-oriented role tend to invest strategically across many different sectors.

As with the economic role that SIBs play, wider institutional landscapes also affect each the investment activities of each SIB. In some cases, certain sectors are not supported by SIBs because they receive long-term financing from other public institutions in that country. For example, in Germany and China there are separate public banks dedicated to agriculture (Landwirtschaftliche Rentenbank and the Agricultural Bank of China), and in China and many of the Nordic countries there are separate public institutions dedicated to supporting exports and internationalisation such as the Export-Import Bank of China, EKN (Sweden), EKF (Denmark) and GIEK (Norway). While many SIBs are active in similar sectors, the emphasis put on each varies widely.

Some SIBs have been criticised on the basis of ‘picking winners’, ‘crowding out’ or funding large incumbent companies. While there are instances where criticism is merited, often it is not based on a rigorous evaluation of the available evidence. Part of the reason for this may lie in the absence of monitoring and evaluation frameworks which adequately capture the dynamic outcomes of mission-oriented investments and the additionality generated by these institutions. As a result, new monitoring and evaluation frameworks may be required in order to assess the performance of mission-oriented SIBs, which could include an array of new indicators aimed at assessing the extent to which SIBs have been successful at catalysing activity that otherwise would not have happened¹¹⁰.

Criticism can also be averted by avoiding focusing on firms of a specific size or in a specific sector (‘picking winners’), and instead investing in firms that are willing to invest in innovation (‘picking the willing’). A good example of this is Germany’s Energiewende policy, which is not just about growing ‘green’ or new companies – it has required many sectors, including large ones such as steel, to transform themselves¹¹¹.

7. Governance

Governance arrangements are particularly important for SIBs. On the one hand, it is the distinct governance structures of SIBs that enable them to play a fundamentally different role in the economy compared to that of private financial institutions. SIB governance arrangements typically do not create pressure to deliver short-term returns, meaning that they can provide patient financing over a longer time horizon and prioritise wider social and environmental objectives. However, many of the problems that have commonly been associated with SIBs, such as weak performance, financial problems, unfair competition with the private sector, capture by interest groups, can be attributed to poor governance¹¹².

In this section we review the governance structures and key decision-making bodies for each SIB, focusing on the role of political representatives and their relative influence and control over operations.

7.1 KfW

KfW operates as an independent entity on a commercial basis. KfW has two key governing bodies. The Board of Supervisory Directors is responsible for the supervision of bank’s conduct, the appointment and dismissal of members of the Executive Board, the approval of the financial

statements as well as the planning and selection of the auditor. It comprises a mixture of political representatives and independent stakeholders¹¹³:

- the Federal Minister of Finance and the Federal Minister for Economic Affairs and Energy, who act as chairman and deputy chairman, alternating the roles on an annual basis;
- five other specified federal government ministers;
- seven members appointed by the Federal Council (Bundesrat);
- seven members appointed by the Federal Parliament (Bundestag);
- one representative each of the mortgage banks, the savings banks, the cooperative banks, the commercial banks, and a credit institution prominent in the field of business credit;
- two representatives of industry and one representative each of the municipalities, agriculture, the crafts, trade, and the housing industry;
- four representatives of the trade unions.

Aside from the 14 members appointed by the Bundesrat and the Bundestag, all members of the Board of Supervisory Directors are appointed by the Federal Government after consultation with stakeholder groups. At present 61% of the Board of Supervisory Directors are government representatives. The Board of Supervisory Directors takes its decisions by a simple majority of the votes cast, with each member having one vote. In case of a tie, the chairman has the casting vote.

The Executive Board is responsible for conducting the KfW's business, administering its assets in accordance with public laws, and implementing resolutions taken by the Board of Supervisory Directors. The members of the Executive Board are appointed and dismissed by the Board of Supervisory Directors and is made up of senior staff, including the chief executive.

The Mittelstandsrat (SME Advisory Council) specifies the mandate of KfW Mittelstandsbank, and takes decisions on proposals for the promotion of SMEs taking into consideration the overall business planning of KfW. The Mittelstandsrat consists of the Federal Minister for Economics and Technology as chairman, the Federal Minister of Finance as deputy chairman, the Special Representative of the Federal Government for Reconstruction of the Eastern Federal States, two representatives appointed by the Federal Council, four additional members appointed by the Federal Ministry for Economics and Technology, and one member each appointed by the Federal Ministry of Finance and the Federal Ministry for Environment, Nature Conservation and Nuclear Safety¹¹⁴.

7.2 European Investment Bank

The EIB has four statutory bodies. The most senior governing body is the Board of Governors, which lays down credit policy guidelines, approves the annual report and financial statements, gives authorisation, on a country-by-country basis, for the Bank to operate outside the EU and decides on capital increases. The Board of Governors comprises ministers designated by each of the 28 Member States, usually the Finance Ministers. The board is therefore comprised 100% of political representatives.

The Board of Directors approves every decision to grant finance (e.g. every loan or guarantee) and the borrowing programme, and consists of 29 Directors, with one Director nominated by each Member State and one by the European Commission. In order to broaden the Board of Directors' professional expertise, the Board is able to invite a maximum of six experts (three Directors and three Alternates), who participate in the Board meetings in an advisory capacity, without voting rights. The Board of Directors reviews borrowing and treasury operations and exerts control over the activities of the Management Committee, which is responsible for day-to-day management of the Bank under the authority of the EIB President and eight Vice Presidents. The Audit Committee is an independent body, directly answerable to the Board of Governors, which is responsible for verifying that the operations of the Bank have been conducted and its books kept in a proper manner.

7.3 BNDES

BNDES was initially established as a government agency, with the aim of developing and carrying out national economic development policies. However, in 1971, it was converted into a state-owned company in order to create flexibility to raise and invest funds and reduce political interference¹¹⁵. Today BNDES is a wholly-owned, federal government company governed by private law which is subject to the supervision of the Minister of Planning, Development and Management.

The most senior governing body of BNDES is the Advisory Board, which is responsible for approving the bank's policies and programmes and signing off financial accounts. The Advisory Board comprises:

- five members nominated by the Minister of Development, Industry and Foreign Trade (MDIC);
- a member nominated by Minister of Planning, Budgeting and Management;
- a member nominated by the Minister of Labor and Employment;
- a member nominated by the Minister of Finance;
- a member nominated by the Minister of Foreign Affairs;
- a representative of the BNDES' staff chosen among the active employees by means of a direct vote; and
- the President of the BNDES, who performs the duties of Vice-President of the Advisory Board.

BNDES' board is therefore dominated by political representatives, with 90% of appointees being nominated by government ministers and all requiring formal approval by the President of Brazil. BNDES' governance structure has been criticised for permitting political interference. According to a recent World Bank report, BNDES' Advisory Board is restricted by statute to only providing guidance (*orientação superior*), which has allowed governments to regularly interfere with BNDES' policies and operations¹¹⁶.

Day-to-day management of BNDES is the responsibility of the Board of Directors which consists of the President, the Vice-President and seven Managing Directors, all of which are appointed by the President of Brazil and subject to dismissal at their sole discretion¹¹⁷.

BNDES is expected to pay dividend of between 25% and 60% of adjusted net profits to the National Treasury each year¹¹⁸.

7.4 Finnvera

Finnvera's supreme decision-making body is the Supervisory Board which supervises the company's administration and oversees the company's financial statements and strategy. The Supervisory Board provides the Board of Directors with guidelines in matters that have far-reaching consequences or that are important as issues of principle. The Supervisory Board consists of at least eight and at most eighteen members which are elected at the General Meeting of Shareholders each year. At present, there are 18 members comprising¹¹⁹:

- 10 Members of Parliament from different political parties
- The Chief Economist of the Central Organisation of Finnish Trade Unions
- A Senior Adviser from the Finnish Confederation of Professionals
- The Managing Director of the Finnish Grocery Trade Association
- The Chief Economist of the Federation of Finnish Financial Services
- The Chief Executive of a Finnish financial services company
- A representative from the Finnish Business School Graduates
- A representative from the Confederation of Finnish Industries
- An employee of Finnvera

Finnvera's Board of Directors is responsible for the company's administration and approves the company's strategy and annual plans, the semi-annual reports and the financial statements, as well as the risk management principles. The Board of Directors ensures that the operations conform to law and meet the goals set by the owner; supervises and monitors the company's executive management; and appoints and dismisses the CEO and other members of the senior management. The Board of Directors also has the power to decide important individual cases of financing. Finnvera's Board of Directors currently consists of seven members, all of whom come from the private sector.

7.5 China Development Bank

The CDB's turnaround from a struggling bank in the late 1990s to a successful SIB today has been partly attributed to a transformation of its internal governance¹²⁰. Initially when the CDB was set up, the choice of projects to finance was politically driven, and the bank was often seen as a "cash machine" – a de facto extension of the treasury¹²¹. In 1998 non-performing loans stood at 40% of total assets, meaning that it was on the verge of bankruptcy¹²².

However, beginning in 1998 under the new leadership of Chen Yuan the CDB restructured the loans approval process by introducing three "firewalls" and an independent review committee.

The loans approval system decentralised the decision-making power which de-politicised the lending process by creating a system that separates the people in charge of the credit risk assessments from those responsible for the loan approval. Today the CDB selects many of the projects it finances on the basis of its own judgement without political interference, and often rejects project applications from powerful state bodies¹²³.

The most senior governing body of the CDB is the Board of Directors. In August 2017, the Board of Directors was expanded to include officials from government agencies including the National Development and Reform Commission (NDRC), Ministry of Finance (MOF), Ministry of Commerce (MOFCOM), and People's Bank of China (PBOC) as government agency directors. These directors act as coordinators in the making and implementation of major decisions, taking charge of the Bank's strategic planning and overall business development policies.

The new Board has 13 members, comprising three executive directors (including the Chairman), four government agency directors and six equity directors which are appointed by the shareholders. The CDB's board is therefore dominated by political representatives, with 100% of appointees being nominated by bodies that operate under the supervision of the Chinese State Council.

The Executive Management team is responsible for day-to-day management of the CDB and is composed of the president, vice presidents, secretary of the board of directors and other senior management officers. The president is accountable to the board of directors.

7.6 Cassa Depositi e Prestiti

The most senior governing body of the CDP is the Board of Directors, which is responsible for the management of the company and the definition of the group's strategy. The Board of Directors is elected by shareholders; the candidate which obtains the greatest number of votes is appointed Chief Executive Officer, while the candidate which obtains the second greatest number of votes is appointed Chairman. The Board of Directors consists of nine members, one of which is a representative of the Ministry for Economy and Finance. There are also five supplementary members who are responsible for the management of resources from postal savings, consisting of the Director-General of the Treasury, the Accountant General of the State and three representatives of the regions, provinces and municipalities (not political appointees).

In total, 3 of the 14 (21%) Board members are political representatives. However, as the Italian government is the majority shareholder it has the power to appoint and remove board members and CEOs if it wishes to do so. In 2015 Prime Minister Matteo Renzi replaced the Chairman and CEO of CDP with his new appointees as part of a strategy to get the CDO to play a more active role in supporting the economy¹²⁴.

7.7 Nordic Investment Bank

The NIB's supreme decision-making body is the Board of Governors which is composed of eight governors, one designated by each member country from among the Ministers in its government.

The Board of Governors appoints a Chairman for a term of one year according to the rotation scheme it has adopted. The board is therefore 100% occupied by political representatives, albeit from different countries.

All the powers that are not exclusively vested in the Board of Governors are entrusted to the Board of Directors. The Board of Directors is composed of eight directors and eight alternates appointed by each member country. The Board of Directors approves projects to be financed by the Bank, adopts the policy decisions concerning the operations of the Bank, in particular the general framework for the financing, borrowing and treasury operations and their management. The Board of Directors may delegate its powers to the President to the extent it considers appropriate. The President is responsible for conducting the Bank's current operations and is appointed by the Board of Directors for a term of five years at a time. The President is assisted in his work by the Executive Committee, the Credit Committee, the Asset and Liability Committee, the Finance Committee and the Business and Technology Committee (previously named ICT Council).

The NIB pays dividends to its owners: operating surpluses are transferred to a reserve fund until the amount equals 10% of the authorised capital stock, at which point the Board of Governors decides whether to pay a dividend to the shareholders¹²⁵.

7.8 Bpifrance

Across the Bpifrance Group there are three Boards of Directors which cover different business areas¹²⁶:

- The Board of Directors of Bpifrance consists of a Chairman, who is the Managing Director of Caisse des Dépôts; three representatives of Caisse des Dépôts; four representatives of the French state; two regional government representatives; and two employee representatives.
- The Board of Directors of Bpifrance Financement consists of a Chairman; an administrator appointed by the French state; two directors appointed at the request of the French State; three representatives of Caisse des Dépôts; two employee representatives; and two independent directors.
- The Board of Directors of Bpifrance Investissement consists of a Chairman; an administrator appointed by the French state; two directors appointed at the request of the French State; three representatives of Caisse des Dépôts; and three independent directors.

These Boards set the directions in terms of group activity and ensure their implementation in accordance with the applicable law. They also make sure that the group activity complies with risk regulatory requirements imposed to Bpifrance¹²⁷.

7.9 Discussion

Governance arrangements are key to the success and legitimacy of SIBs. In particular, achieving the right balance between political representation and independent decision making is a key challenge. While political representation can help to maintain alignment with government policy and maintain a path of democratic accountability, steps should be taken to prevent undue political interference or capture by interest groups. Some SIBs achieve this by appointing independent, non-political representatives on the most senior decision-making body.

The experience of the KfW and Finnvera indicates that including a wider range of stakeholders such as industrial trade bodies, trade unions and regional representatives can be beneficial as long as mechanisms are in place to make sure that none of these groups ask for special favours but remain objective evaluators. All SIBs examined have management teams that are free to make sound, long-term decisions, free of day-to-day political interference.

8. Sources of finance

Like all financial institutions SIBs must be able to finance their investments. For each SIB, we examine the sources of finance used, such as taking savings and deposits from the public, raising money in the domestic or international capital markets, borrowing from other financial institutions, using return on investments, receiving budget allocations from the national Treasury, managing public pension or social security funds, or receiving financing from the central bank.

8.1 KfW

Originally, KfW was funded with public resources and support from the United States through the European Reconstruction Program (ERP), commonly known as the ‘Marshall Plan’. However, KfW now raises over 90% of its funding on capital markets (EUR 72.8 billion in 2016) with a small percentage of its funding received from the federal government for reducing interest rates on certain types of loan (e.g. for energy efficiency projects)¹²⁸.

The funding raised on capital markets is diversified across different currencies: the Euro (55%), the US Dollar (34%) and six other international currencies (11%). This reflects the change in KfW’s official funding strategy, which became focused on ‘repositioning KfW as a European benchmark issuer in the global capital markets’.¹²⁹

KfW is also a major issuer of green bonds. In 2016 KfW issued €2.8 billion of Green Bonds in four different currencies (EUR, USD, AUD and GBP) which amounted to circa 4% of total funding in the year. With an outstanding volume of around €9.2 billion of green bonds as at 31 December 2016, KfW is one of the largest issuers of green bonds. Net proceeds from green bond issuances are used for financing projects for the power generation from wind, water, photovoltaics and biomass under KfW’s “Renewable Energies – Standard” programme.

The KfW benefits from a direct, explicit and unconditional guarantee from the Federal Republic of Germany, which means that all obligations of KfW in respect of loans extended to and debt securities issued by KfW, fixed forward transactions or options entered into by KfW – are underwritten by the state. This helps ensure that KfW receives the highest possible credit rating from all the major credit rating agencies¹³⁰.

In January 2015, the European Central Bank (ECB) introduced the Public Sector Purchase Programme (PSPP) which expanded the list of public bodies whose securities were eligible for purchase under the ECB's quantitative easing programme. Under the PSPP, KfW is included in the list of institutions whose securities are eligible for purchase¹³¹. However, ECB purchasing of KfW bonds is conducted only on the secondary market, as any primary market purchases would violate the prohibition of monetary financing laid down in Article 123 of the Treaty on the Functioning of the European Union¹³². In addition, there is no coordination between the asset purchases of the ECB and the investment activities of the KfW. As such, it is not considered to be direct central bank financing for the purposes of this study.

At the end of 2016, total outstanding funding stood at €454 billion, of which 83% came from the capital markets, 10% from the money market, 6% from other sources including the Federal Republic of Germany, and less than 1% from subordinated liabilities.¹³³

Table 6: KfW sources of funding, 2016

Source of funding	EUR in billions
Medium and long-term bonds and notes	375.5
<i>of which green bonds</i>	<i>0.6</i>
Short-term funds (commercial paper and deposits)	49.7
Other funding (including from the Federal Republic of Germany)	28.8
Subordinated liabilities	0.2
Total funding	454.2

Source: KfW¹³⁴

8.2 European Investment Bank

The EIB's lending activities are mainly financed via bond issuance in the international capital markets. The EIB's funding programme is founded on issuance in three core currencies, EUR, USD and GBP, which together accounted for 92% of the €66.4 billion raised in 2016.

The EIB is also a major issuer of green bonds in the Climate Awareness Bond (CAB) format. In 2016 the EIB issued €3.8 billion green bonds, and has issued a total of €15.2 billion green bonds since 2007 across 11 currencies, making it the largest overall issuer in the global green bond market.

The EIB has the highest possible credit ratings from the major ratings agencies, but does not benefit from a formal guarantee from the EU. EIB bonds products are purchased by both institutional and retail investors internationally. EIB bonds have also been purchased by the European Central Bank (ECB) under the Public Sector Purchase Programme (PSPP)¹³⁵. However, ECB purchasing of EIB bonds is conducted only on the secondary market, as any primary market purchases would violate the prohibition of monetary financing laid down in Article

123 of the Treaty on the Functioning of the European Union¹³⁶. There is no coordination between the asset purchases of the ECB and the investment activities of the EIB, therefore this is not considered direct central bank financing for the purposes of this study.

Some programmes are funded with contributions from the European Commission, particularly riskier projects which would otherwise jeopardise the EIB’s AAA credit rating. An example of this is the ‘Juncker Plan guarantee’ provided by the European Commission which makes it possible for the EIB to provide funds to support investments that have a higher risk profile, owing to their structure or nature¹³⁷.

Table 7: EIB sources of funding, 2016

Source of funding	EUR in millions
Bond issuance	470.9
<i>of which green bonds</i>	<i>15.2</i>
Borrowings from credit institutions	13.1
Borrowings from customers	2.0
Total funding	486.0

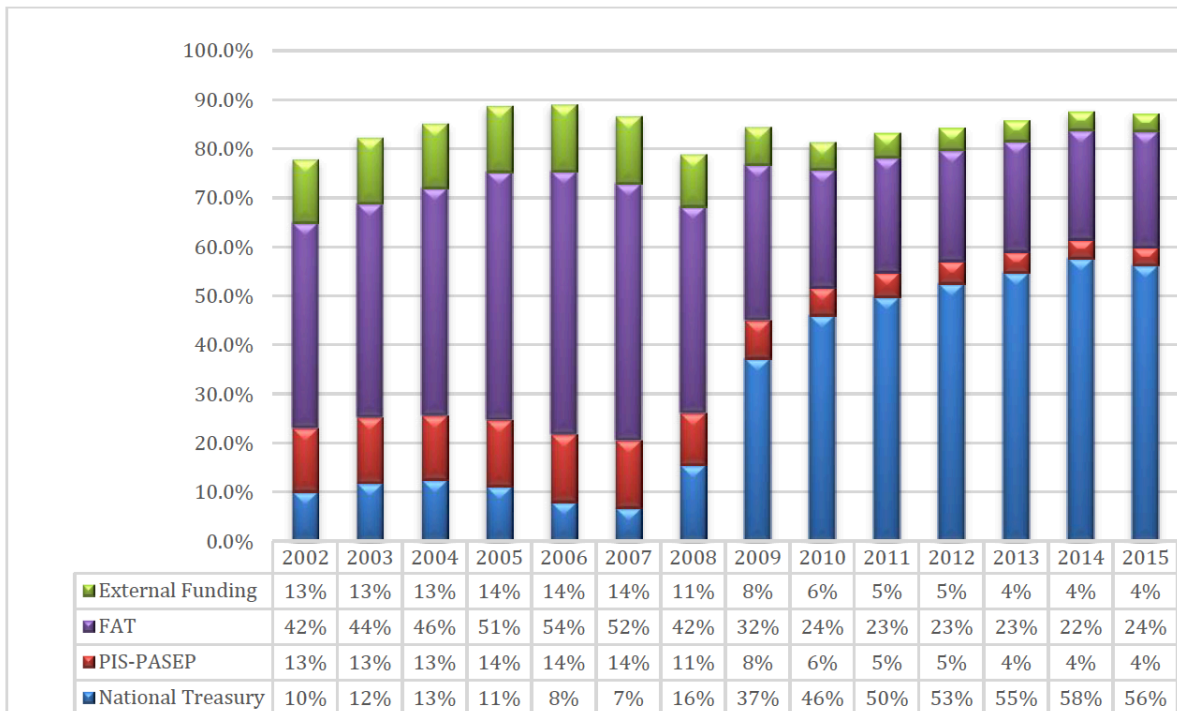
Source: EIB¹³⁸

8.3 BNDES

Until recently BNDES’ main sources of funding were two “quasi-public” funds (known as the PIS-PASEP and the FAT) which are associated with social insurance and workers’ safety nets. Small amounts of funding also came from returns of its outstanding loans and equity investments, as well as international borrowing, mainly from multilateral institutions¹³⁹.

However, the composition of BNDES’ funding has changed dramatically since 2009 after the bank significantly increased disbursements in order to counteract the retrenchment of private financing that followed the Global Financial Crisis. Because BNDES was unable to borrow from capital markets at a pace compatible with the expansion of its loan portfolio, funding became highly dependent on transfers from the National Treasury, which increased from below 10% of total liabilities to more than 50% of the total.

Figure 10: BNDES's funding structure (% of total liabilities)



Source: Studart and Ramos¹⁴⁰

After the impeachment of former president Dilma Rousseff in July 2016, a new government was formed which appointed a new leadership team at BNDES and implemented a new strategy. BNDES was asked to make an unanticipated repayment of the money it had borrowed from the National Treasury, starting with a payment of R\$ 100 billion (US\$ 30 billion) in December 2016. This transfer, which comprised of R\$ 40 billion in securities and R\$ 60 billion in cash, was justified by a political desire to reduce Brazil's overall national debt. This early payment was equivalent to 19% of the total amount that BNDES owes the Treasury, and over 120% of the bank's disbursements in 2016.

Table 8: BNDES sources of funding, 2016

Source of funding	R\$ in billions
National Treasury	439.8
FAT	232.7
PIS/PASEP	35.0
International borrowing	39.6
Other	73.9
Total funding	821.0

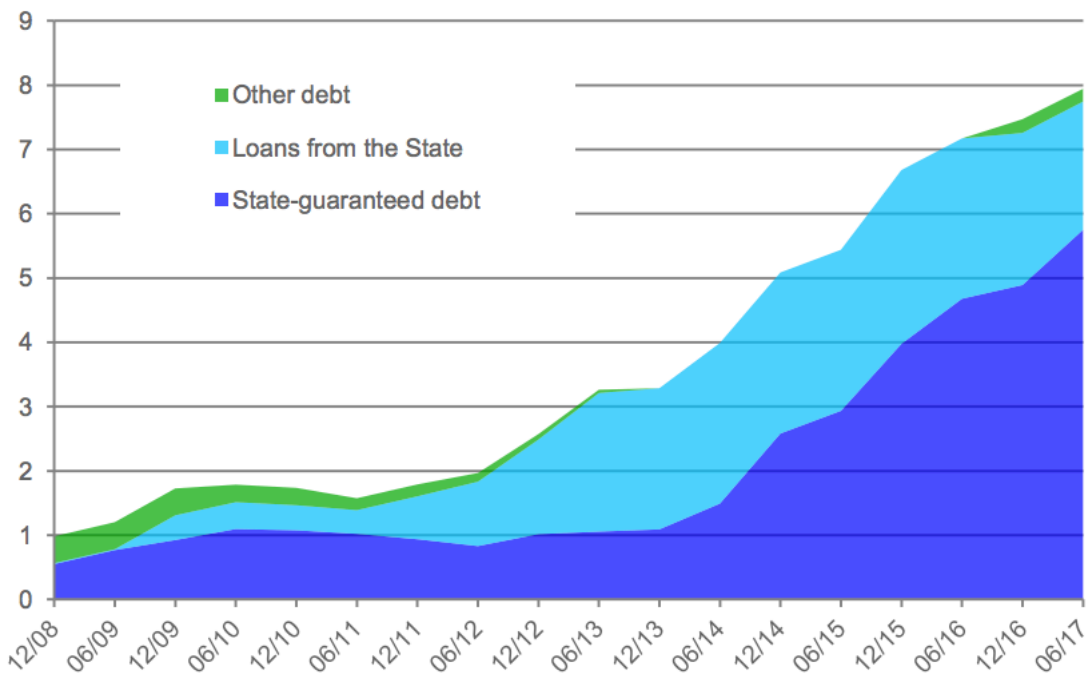
Source: BNDES¹⁴¹

8.4 Finnvera

Finnvera funds its activities primarily by issuing bonds under the Euro Medium Term Note (EMTN) programme guaranteed by the State of Finland. These bonds represent 72% of Finnvera Group debt, and have the same credit rating as the State of Finland: Aa1 from Moody's and AA+ from Standard & Poor's.

The maximum amount of Finnvera's debt obligations that may be guaranteed by the Republic of Finland is currently €15 billion.

Figure 11: Finnvera Group debt as at June 2017 (EUR billion)



Source: Finnvera¹⁴²

In April 2016, Finnvera issued a 10-year fixed-rate bond of one billion euros. By means of currency and interest rate swaps, Finnvera converts the funds acquired into euros or US dollars, depending on the final use of the funds.

Finnvera also receives interest and commission subsidies from the State as well as compensation for losses on credits and guarantees that Finnvera has granted on certain regional policy grounds.

Table 9: Finnvera sources of funding, 2016

Source of funding	EUR in millions
Bond issuance	4,892
Borrowings from credit institutions	213
Borrowings from other institutions (including state subsidies and grants received)	2,297
Total funding	7,396

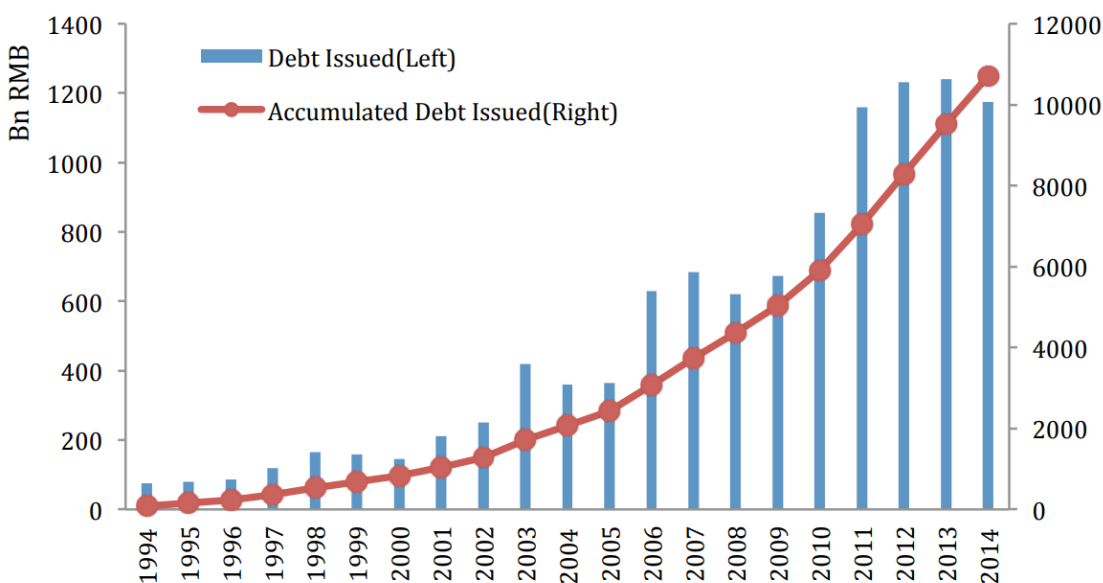
Source: Finnvera¹⁴³

8.5 China Development Bank

Today the CDB raises most of its finance via bond issuance, however the process of doing this has evolved over time. When the bank was founded in 1994, the People’s Bank of China (the Chinese central bank) forced other Chinese financial institutions to buy CDB bonds. This meant that whenever the CDB attempted to expand its business other commercial banks had to buy more CDB bonds. However, as the amount of non-performing loans on the CDB’s balance sheet grew, the commercial banks complained about this compulsory arrangement and demanded a higher interest rate¹⁴⁴.

Eventually this compulsory arrangement was withdrawn as the CDB’s financial performance improved and its bonds became traded openly in the market. Today CDB is the second largest bond issuers in China, after the Ministry of Finance. On March 20, 2015, the Chinese State Council confirmed permanent sovereign credit support for CDB bonds, turning what had been an implicit state guarantee into an explicit guarantee¹⁴⁵.

Figure 12: Debt issued by the China Development Bank



Source: Global Economic Governance Initiative¹⁴⁶

In recent years the CDB has also received direct central bank financing from the central bank, the Peoples Bank of China (PBoC). In 2014 the PBoC began lending directly to the CBD under an initiative called ‘pledged supplementary lending’ (PSL) which was designed as a new channel to inject liquidity into the economy and increase the money supply¹⁴⁷. Under PSL, the PBoC provides long-term loans to the CDB in order to support loans to sectors that struggle to obtain credit, including agriculture, small businesses, and shantytown redevelopment. By the end of 2016, the outstanding balance of PSL is RMB 2.1 trillion¹⁴⁸.

Table 10: CDB sources of funding, 2016

	RMB in billions
Bonds	7,898.5
Customer deposits	2,178.5
Deposits from banks and other financial institutions	2,212.4
Borrowings from governments and financial institutions	361.9
Other	526.5
Total funding	13,177.8

Source: CDB¹⁴⁹

8.6 Cassa Depositi e Prestiti

The main source of CDP’s funding is postal savings – bonds and passbook savings accounts that are guaranteed by the Italian government and placed through Poste Italiane SpA, the Italian postal service. Postal savings constitute a major share Italian household savings; almost 27 million clients own postal savings products, and in 2016 they amounted to 8% of total household financial assets. The rest of the CDP’s funding comes from other banks, short-term funding on the money market and its own bond issuance¹⁵⁰. A small amount of funding comes from the European Central Bank’s (ECB) long-term refinancing operation (LTROs).

CDP bonds are also eligible for purchase under the European Central Bank’s (ECB) Public Sector Purchase Programme (PSPP)¹⁵¹. However, PSPP purchases are conducted only on the secondary market, as any primary market purchases would violate the prohibition of monetary financing laid down in Article 123 of the Treaty on the Functioning of the European Union¹⁵². There is no coordination between the asset purchases of the ECB and the investment activities of the CDP, therefore this is not considered direct central bank financing for the purposes of this study.

Table 11: CDP sources of funding, 2016

Source of funding	EUR in billions
Postal savings	250.8
Other funding from customers	42.5
ECB refinancing	2.55
Short-term funding on the money market (Repos)	19.1
Other banks	5.4
Medium/long-term bonds	11.5
Total funding	331.8

Source: CDP¹⁵³

8.7 Nordic Investment Bank

The NIB acquires the funds for its lending by borrowing on the international capital markets. In 2016, the NIB raised an all-time high of €6.7 billion in new funding from the capital markets.

In light of the Bank's strong capital base, the quality of its assets and its status as an international financial institution, the major credit rating agencies have assigned NIB the highest possible credit rating which enables it to finance its operations at low cost. NIB issues bonds in 18 different currencies.

The NIB is also a major issuer of green bonds, which it calls 'NIB Environmental Bonds'. Since the implementation of its NIB Environmental Bond framework in 2011, the NIB has issued a total of €2.1 billion worth of green bonds which by 2016 had financed 45 eligible projects.

Table 12: NIB sources of funding, 2016

Source of funding	EUR in billions
Bond issuance	23.8
<i>of which green bonds</i>	<i>2.1</i>
Borrowings from credit institutions	1.3
Total funding	25.2

Source: NIB¹⁵⁴

8.8 Bpifrance

Bpifrance's activities are split between those that are undertaken on Bpifrance's own account, which are funded by bond issuance and retained earnings, and activities that are undertaken on behalf of the French state, which are funded from public sources including the French government, regional authorities and the European Union.

Bpifrance Financement issues bonds and commercial paper to finance its loan portfolio. Bpifrance Financement SA benefits, as a subsidiary, from an explicit guarantee from EPIC Bpifrance for its bond issues, which is 100% by the French state. As a result, the credit rating agencies assess Bpifrance as a government-related issuer.

Bifrance bonds are also eligible for purchase under the European Central Bank’s (ECB) Public Sector Purchase Programme (PSPP)¹⁵⁵. However, PSPP purchases are conducted only on the secondary market, as any primary market purchases would violate the prohibition of monetary financing laid down in Article 123 of the Treaty on the Functioning of the European Union¹⁵⁶. There is no coordination between the asset purchases of the ECB and the investment activities of Bpifrance, therefore this is not considered direct central bank financing for the purposes of this study.

As a credit institution, Bpifrance Financement is subject to banking regulations and has access to ECB refinancing

Table 13: Bpifrance sources of funding, 2016

Source of funding	EUR in billions
Bonds	22.1
Bilateral loans	8.7
Repurchase agreements	5.4
Commercial paper	3.1
Shareholder equity	22.9

Source: Bpifrance¹⁵⁷

Note: Bilateral loans are long-term partnerships with other public institutions (e.g. EIB, KfW)

8.9 Discussion

There are many different ways that SIBs can fund their business operations, including taking savings and deposits from the public, raising money in the domestic or international capital markets, borrowing from other financial institutions, using return on investments, receiving budget allocations from the national Treasury, managing public pension or social security funds, or receiving financing from the central bank.

Sources of finance can have an impact on the ability of SIBs to successfully meet their mandates. Here a number of factors can be considered. Firstly, sources of finance must be available on the scale required to meet the desired level of investment. The relative scale of the SIBs examined in this study varies widely: the assets of Finnvera amount £7.7 billion compared to £1,576 billion in the case of the CDB. Second, financing sources must be stable and readily available. If a source of finance proves to be volatile or unstable, or vulnerable to political pressures, then it can seriously impair the ability of the SIB to fulfil its mission – as the case of BNDES demonstrates.

A final consideration is whether different sources of finance may affect an SIB’s appetite for risk, and ability to invest in innovative projects. On this issue, no conclusive conclusion can be drawn from this study, and this is an area for possible further research. One possible area for further study is the extent to which sources of funding which draw heavily on household savings – such as postal savings in the case of Italy’s CDP – creates political pressure to minimise risk taking and thus reduce investment in radical innovation. Another area is the extent to which reliance on capital markets leads to lending decisions being influenced by the methodologies used by rating agencies to assign credit ratings. A final area for consideration is the potential role of central banks in financing SIBs, in particular given their much larger current balance sheets following the financial crisis of 2007-08.

9. Funding instruments

SIBs may lend using a variety of financial instruments, which in turn may depend on the type of economic activity being supported. For example, equity investments may be suitable for capital intensive, high risk projects, while debt instruments such as long-term loans may be better for lower-risk, incremental activities. In this section, we review the use of debt and equity instruments, as well as grants and guarantees. Where information is available, we also examine any specific products or programmes offered by each SIB, which are designed with the aim of promoting a specific type of economic activity under a set of standard conditions. We also examine whether SIBs offer non-financial support such as technical assistance.

9.1 KfW

Most KfW funding is provided through long-term loans with favourable interest rates, repayment schemes and collateral requirements. Loans are typically offered with more favourable conditions than commercial banks. KfW also offers some mezzanine/subordinated debt instruments, guarantees, and, in a limited number of cases, grants, notably for energy-saving investments in houses.

Table 14: KfW outstanding investments by instrument, 31 December 2016

	EUR in billions
Loans	376.3
Financial guarantees	2.6
Bonds and other fixed income securities	30.1
Equity investments	2.6

Source: KfW¹⁵⁸

Specific funding instruments vary according to both the type of customer, the stage of financing and the purpose of the financing. KfW creates programmes that target particular issues, many of which help address key societal challenges. These programmes are then split into sub-programmes, each of which have specific funding instruments.

Table 15: KfW funding instruments

Customer	Activity	Examples of funding instruments
Companies	Business start-up and secession	<ul style="list-style-type: none"> • Long-term subordinated loans at subsidised interest rates for recent start-ups who do not have enough equity • Long-term loans at favourable interest rates to help establish or grow new companies
	Innovation	<ul style="list-style-type: none"> • Loans at favourable interest rates for firms promoting digitisation and innovation. • Subordinated loans for firms developing new products and processes
	Energy and the environment	<ul style="list-style-type: none"> • Long-term, low interest loans for investments in environmental protection measures, energy efficiency measures and renewable energy programmes • Grants covering up to 40% of costs for certain investments (e.g. facilities which recover or avoid waste heat)
	Business expansion and consolidation	<ul style="list-style-type: none"> • Targeted loans for investments in structurally lagging regions of Germany, terms of up to 20 years with favourable interest rates • Refinancing lines to encourage equity investment in SMEs seeking to broaden their capital base
Private customers	Construction of new homes	<ul style="list-style-type: none"> • Loans at favourable interest rates to help construct a new energy-efficient home.
	Home renovation and energy-efficient modification	<ul style="list-style-type: none"> • Grants and loans at favourable interest rates to improve the energy efficiency of existing homes • Grants and loans at favourable interest rates to make properties more accessible for the elderly and disabled
	Education and training	<ul style="list-style-type: none"> • Long-term loans to help finance the living expenses of students or fund a study semester abroad
Public institutions	Municipal and social care	<ul style="list-style-type: none"> • Long-term loans to finance investments in municipal and social infrastructure such as schools, hospitals and transport
	Urban redevelopment	<ul style="list-style-type: none"> • Long-term loans to invest in the construction, purchase and renovation of energy efficient non-residential buildings • Grants for organisations who install a fuel cell system in new or existing buildings
	Social commune	<ul style="list-style-type: none"> • Loans at favourable interest rates to rebuild existing municipal buildings, traffic facilities and public space to improve accessibility for the elderly and families
	Housing	<ul style="list-style-type: none"> • Long-term loans and grants to construct new energy efficient housing
International financing	Exports	<ul style="list-style-type: none"> • Export finance to support lending for German exports to emerging and developing countries.
	Shipbuilding	<ul style="list-style-type: none"> • Fixed-rate loans for the purchase of German built ships to support German shipyards in the face of global competition

Source: KfW¹⁵⁹

In most cases, KfW loans are distributed through savings banks, cooperative banks and commercial banks, which assess the loan applicant and their plan, before deciding whether to fund the project and apply for a KfW loan. In some cases, KfW may assume a significant part of the liability. One exception to the on-lending principle applies to grants, which are available for energy-saving investments in homes which can be applied for directly with KfW and are disbursed directly by KfW to the recipients. Public borrowers such as cities and municipalities also borrow directly from KfW.

Since 2005 KfW has been the second largest investor in the High-Tech Gruenderfonds (HTGF), Germany's largest and most active venture capital fund. In April 2015, KfW established a new promotional instrument, the ERP Venture Capital Fund, to invest in young German technology companies indirectly, via selected German and European venture capital funds¹⁶⁰. In 2016 KfW established Coparion, a standalone venture capital firm which invests directly in innovative start-ups and young technology companies¹⁶¹. In June 2017 KfW announced that a new subsidiary will be launched to substantially expand KfW's activities in the field of equity finance. Commencing operations in mid-2018, the new subsidiary will improve the venture capital offering for innovative technology-oriented enterprises in the start-up and capital-intensive early growth phase¹⁶².

In addition to its investment programmes, the KfW also provides support in the form of technical assistance. KfW's mandate establishes that KfW shall provide 'advisory services and the implementation of promotional measures in the field of technical progress and innovations' for the promotional areas of (a) SMEs, liberal professionals and start-ups and (b) risk capital¹⁶³. In practice, this means that KfW performs a coordinating role in the German system of innovation. This is particularly visible in Germany's Energiewende programme, in which KfW engages in non-financial activities such as lobbying, networking, information and consulting¹⁶⁴. These service-side measures also include training of external consultants in energy efficiency, which is a pre-requisite for being listed in KfW's energy efficiency expert database (a network of experienced consultants that is available for firms willing to invest in energy efficiency).

9.2 European Investment Bank

The EIB offers a range of instruments including senior loans, junior or subordinated loans, intermediated loans / credit lines, equity funding and guarantees. The EIB does not typically provide more than 50% of the financing for any project. Under its Statute, the EIB is authorised to have maximum loans outstanding equivalent to two and a half times its subscribed capital¹⁶⁵.

Table 16: EIB outstanding investments by instrument, 31 December 2016

	EUR in billions
Loans	547.7
Financial guarantees	10.1
Bonds and other fixed income securities	15.6
Equity investments	4.9

Source: EIB¹⁶⁶

The EIB structures its products according to the categories of “lending, blending and advising” – providing finance, complementing EU finance and giving advice on programme or project design¹⁶⁷.

Table 17: EIB funding instruments

Activity	Product	Description
Lending	Project loans	Loans for large individual projects where total investment costs exceed €25 million, and for research and innovation programmes.
	Intermediated loans	Loans to local banks and other intermediaries which subsequently "on-lend" to the final beneficiaries: SMEs, midcap businesses, large businesses, local authorities, national administrations and public-sector bodies.
	Venture capital	Managed by the European Investment Fund (EIF), the EIB sets-up, manages and advises venture capital fund-of-funds, and offers conditional and subordinated loans.
	Venture debt	Loans for innovative and high-risk companies where the financing needed is between EUR 7.5 million to EUR 50 million.
	Equity and fund investments	Investments in equity funds which have a strategy addressing EU priority objectives such as infrastructure and environment, carbon funds and energy efficiency and renewables.
	Microfinance	Support for microfinance institutions, fund managers and other industry stakeholders who are addressing specific market failures and promoting sustainable and responsible financial services for smaller businesses and low income self-employed.
Blending	Structured finance	Support for priority projects using certain instruments with a higher risk profile than normal, such as loans and guarantees incorporating pre-completion and early operational risk and mezzanine finance. Provided by the Structured Finance Facility (SFF).
	Guarantees	Guarantees covering risks of large and small projects, as well as loan portfolios to make them more attractive to other investors or to provide potential economic and regulatory capital relief.
	Project Bond Initiative	A joint initiative by the European Commission and the EIB, its objective is to stimulate capital market financing for large-scale infrastructure projects in transport, energy and ICT sectors by underwriting the subordinated tranche and this enhancing the credit quality of the senior debt.
	InnovFin	A range of loans, guarantees and equity-type funding which are tailored to the meet the needs of innovative firms and research institutions.
Advising	Advisory services	Technical and financial advice to help clients develop and implement investment projects and programmes, strengthen the economic and technical foundations of an investment and catalyse funding from other sources. In delivering advisory services, the EIB relies on its staff expertise in key areas such as infrastructure financing, climate change mitigation and adaptation, urban development and SME support.

Source: EIB¹⁶⁸

9.3 BNDES

BNDES mainly invests through long-term loans with favourable interest rates, repayment schemes and collateral requirements. Loans are typically offered with more favourable conditions than commercial banks. BNDES also uses equity instruments and venture capital funds, always maintaining a minority stake¹⁶⁹.

Significantly, BNDES does not make use of guarantees or offer technical assistance. A recent World Bank review of BNDES' activities concluded that the absence of technical assistance and consultancy services represents a major missing element in BNDES' business activities¹⁷⁰. According to the study, BNDES' well-trained staff could be instrumental in combining finance and technical assistance to subnational governments, which generally have a deficit of competence at the technical level to address the challenges of designing and effectively deploying new projects.

Table 18: BNDES outstanding investments by instrument, 31 December 2016

	R\$ in billions
Loans	610.9
Financial guarantees	0
Bonds and other fixed income securities	93.4
Equity investments	78.4

Source: BNDES¹⁷¹

Funding instruments can be divided into products and programmes, which typically target particular sectors or issues.

Products provide finance for eligible firms under a set of general rules. Most of these are credit lines which have pre-specified conditions (such as interest rate and payment term), however BNDES also offers equity (and quasi-equity) instruments and, in some cases, grants. At the end of 2016, BNDES offered 10 products which are summarised in table 11.

Table 19: BNDES products

Product	Description
FINEM	29 different credit lines segmented by various sectors including infrastructure, energy; industry, trade, services, and agriculture sectors; social and urban development; internationalization; innovation; environment; and capital goods.
FINAME	3 credit lines for the production and acquisition of domestic machinery and equipment accredited by BNDES.
AUTOMATICO	3 credit lines for the modernization of fixed assets as well as research, development, and innovation in the sectors of industry, infrastructure, trade, services, agriculture, forestry, fisheries, and aquaculture.
BNDES Card	Based on the concept of a credit card and aims at financing investments of micro, small, and medium enterprises (MSMEs) and individual microentrepreneurs.
FINAME AGRICOLA	Credit line for the acquisition of machinery, equipment and computer goods and new domestic automation in the agricultural sector
EXIM	7 different credit lines to finance the export of various domestically produced goods and services.
CAPITAL MARKET (Mercados de Capitais):	Equity instruments made through BNDES' wholly owned subsidiary BNDESPAR, including direct investment in firms and investment in funds.
GRANTS (NÃO REEMBOLSÁVEL)	Non-refundable support (granta) for social, cultural and environmental projects, or innovation projects that generate employment and income.
MICRO CREDIT (MICRO CRÉDITO)	Credit for formal and informal microentrepreneurs.
FINAME LEASING	Financing the purchase of machinery, equipment, computer, and automation goods intended for financial or operating leases

Source: BNDES¹⁷²

BNDES' programmes are support mechanisms for specific sectors, each of which offer different instruments to suit customer needs. Many programs were supposed to be temporary but have not been discontinued after their expected life.

The first program, 'Prosoft', was established in the 1990s which focused on companies in the software sector¹⁷³. Then in the 2000s Prosoft model was then replicated for the pharmaceutical sector in the form of a new programme, 'Profarma'. Since then, the evolution of BNDES'

programs have closely followed Brazilian government’s industrial policy. In particular the Trade, Technology and Industrial Policy plan (2003 to 2007), the Productive Development Policy plan (2008 to 2010) and the Brasil Maior Plan (2011 to 2014) gave increasing emphasis to innovation and strategic sectors including IT, pharmaceuticals and health, oil and gas, defence, aerospace, and renewables. In this way, BNDES started to fund smart growth embedded in its promotion of industrialisation.

At the end of 2016, BNDES offered 40 programmes, including¹⁷⁴:

- 15 programs supporting agriculture and agroindustry;
- 2 programs are specifically targeted at innovation (MPME Inovadora and THAI), however a number of others contribute towards innovation including Profarma and Saúde in the health cluster; Procult in the cultural and creative sectors and Fundo Clima, which targets climate change.
- 3 programs support municipalities affected by natural disasters (Propae, PMAT Automático, and PER).
- 15 programs targeting specific industries including plastics (Proplastico); consumer goods (Prodesign); paper (Propapel); software (Prosoft); and capital goods (Pro BK, Procaminhoneiro, and Moderfrota).

The wide variety of products and programs offered by BNDES means that it is able to invest along the entire innovation chain, from basic and applied research to the early-stage funding of companies. As shown in Figure 13, BNDES toolbox funding covers different areas of the innovation chain, organised around four categories: variable and fixed income; variable income; fixed income; and non-refundable resources)¹⁷⁵.

Figure 13: BNDES’ innovation funding toolbox

	Funding programmes/tools	Focus
Variable income (equity) & fixed income	Innovative capital	Business strategy/model
	Technological innovation	Innovation project
	Productive innovation	
Variable income (equity)	Prosoft, Profarma, Protvd, Pro-aeronautics and Pro-engineering	Strategic sectors
	Investment (VC) funds	Establishment of highly innovative enterprises
Indirect participation in investment funds		
Criatec (seed money)		
Fixed income	BNDES card	Innovative projects by SMEs
Non-refundable resources	Funtec (technology fund)	Funding for research institutes (basic R&D) in targeted areas of future potential and national interest

Source: Mazzucato and Penna¹⁷⁶

Borrowers may request funding directly from BNDES (direct support) or through accredited financial institutions (indirect support, or on-lending). The type of support depends on the purpose and value of funding. On-lending is conducted through a network of accredited public and private banking agents constitute approximately half of BNDES’ lending

operations¹⁷⁷. As BNDES does not have branches, on-lending allows resources to reach beneficiaries in all Brazilian municipalities through financial institutions. When BNDES lends through intermediaries, the partner banks conduct project analyses and take on the credit risk. Usually on-lending is used to support all financing operations for isolated purchases of machinery and equipment of up to R\$20 million. Above R\$20 million, borrowers deal directly with BNDES.

9.4 Finnvera

Finnvera mainly supports businesses through the provision of loans, domestic guarantees and export guarantees. As noted above, in 2016 Finnvera gave up most of its venture capital investment activities following a policy decision made by Minister of Economic Affairs. In 2016, Finnvera was accepted as an intermediary organisation for the European Fund for Strategic Investments (EFSI), operating under the European Investment Bank.

The State of Finland covers some of Finnvera’s credit and guarantee losses. This enables Finnvera to take more risk in its lending operations than commercial banks would generally accept.

Table 20: Finnvera outstanding investments by instrument, 31 December 2016

	EUR in millions
Loans	5,827
Financial guarantees	251
Bonds and other fixed income securities	2,042
Equity investments	39

Source: Finnvera¹⁷⁸

Specific funding instruments vary according to both the type of customer, the stage of financing and the purpose of the financing. Finnvera creates programmes that target particular issues for firms.

Table 21: Finnvera funding instruments

Activity	Product	Description
Loans	Finnvera Loan	Intended for newly established and existing small and medium-sized enterprises. It can be used to finance domestic construction, machinery and equipment investments, energy and environment projects, working capital needs, and various ownership arrangements.
	Entrepreneur Loan	A personal loan to an entrepreneur that can be used to finance investments in the share capital of a limited company and/or in the fund of invested unrestricted shareholder's equity. An Entrepreneur Loan can also be used to finance purchases of shares of an existing limited company.
	Internationalization Loan	Intended for financing the business operations of a Finnish SME abroad.
	Bond financing	Finnvera may mark bonds issued by companies that meet the EU definition of an SME or larger companies with a maximum turnover of 300 euros in their latest approved Financial Statements.
	Growth Loan	A mezzanine product for SMEs and midcap companies to help the financing of major growth or internationalisation projects and corporate restructuring.
	Export Receivables Loan	Intended for refinancing the export receivables of Finnish enterprises engaged in the export of capital goods.
Guarantees	Start Guarantee	Intended for newly launched enterprises that are owned by private individuals and meet the SME definition applied by the EU. Another criterion is that no more than three years has passed since their entry into the Trade Register.
	Ship Guarantee	Intended as security for credits granted to Finnish companies engaged in shipping or shipbuilding. Can be granted to companies irrespective of their size or ownership.
	Finnvera Guarantee	Intended for SMEs as security for domestic financing in such areas as investments and/or working capital and business and company acquisitions.
	Internationalisation Guarantee	Intended to serve as collateral for financing the business operations of a Finnish SME abroad.
	Export Guarantee	An instrument for covering domestic needs for collateral in exports.
	Environmental Guarantees	Can be granted as security for credits that are used for environmental protection investments, renewable energy projects or projects improving energy efficiency.
Export credit guarantee	Letter of Credit Guarantee	Protects a bank from commercial and/or political and/or sovereign risks related to a confirmed Letter of Credit.
	Bond Guarantee	Under a Bond Guarantee, the exporter can insure a bid bond, an advance payment bond, a performance bond or a maintenance period bond issued by a bank in favour of a foreign buyer.
	Credit Risk Guarantee	A Credit Risk Guarantee insures the exporter against credit loss related to an export transaction.

Source: Finnvera¹⁷⁹

9.5 China Development Bank

The CDB mainly provides medium to long-term loans that serve China's major long-term economic and social development strategies. However, through its investment arm CDB Capital Corporation the CBD also provides equity investments and mezzanine finance, particularly in support of technological start-ups and innovative enterprises.

Table 22: CDB outstanding investments by instrument, 31 December 2016

	RMB in billions
Loans	8,712.8
Financial guarantees	1,605.4
Bonds and other fixed income securities	609.9
Equity investments	15.9

Source: CDB¹⁸⁰

The CDB operates on both a direct and indirect lending model, and has a network of 40 branches across the Chinese mainland. In addition to its investing operations the CDB also does project planning, design and research. The CDB has developed major economic and social development plans both for governments at various levels and major corporate clients¹⁸¹. In 2016, the CDP developed provincial-level financing plans for 24 provinces and municipalities and cooperation plans for 70 key regions, aiming to assist local governments to improve the feasibility and operability of their plans. The Bank also conducted research on regional development and produced number of province-specific and regional reports¹⁸².

9.6 Cassa Depositi e Prestiti

Most of CDP's funding is in the form of long-term loans to public entities and SMEs. In recent years CDP has started to offer more equity instruments and has invested both directly and indirectly (via investment funds and investment vehicles) in the energy, transport networks and real estate sectors. CDP Equity, a subsidiary arm, has acquired minority holdings in a number of companies of significant national interest which present adequate income-earning and growth prospects. In 2016 CDP's equity stakes amounted to €32 billion, or 4% of the FTSE Italy All-shares¹⁸³.

CDP also owns minority stakes in two small venture capital funds – Fondo Italiano d'Investimento FII Venture (€80 million investment) and Fondo di Fondi Venture Capital (€125 million investment). In addition, CDP offers range of export finance options including export credit facilities and guarantees through its subsidiary SACE Group.

CDP also uses subsidised instruments to promote specific activities such as the installation of energy efficiency measures in school and university buildings.

Table 23: CDP outstanding investments by instrument, 31 December 2016

	EUR in billions
Loans	103.0
Financial guarantees	2.8
Bonds and other fixed income securities	49.0
Equity investments	32.5

Source: CDP¹⁸⁴

9.7 Nordic Investment Bank

The main instruments used by the NIB are long-term loans and guarantees at commercial rates. Corporate loans in NIB's member countries constitute the main part of NIB's lending activities in terms of volume. For lending to SMEs, the NIB operates on an indirect lending model by providing credit lines to commercial banks, with restrictions on how the funds are to be used.

The NIB also offers project and structured finance for projects that make a strong contribution to the fulfilment of its mission. NIB often provides financing in cooperation with other international financial institutions and public and private sector lenders.

Unlike other SIBs the NIB does not currently offer equity investments. While the NIB recently committed to lend more to SMEs and mid-sized corporates in future as part of its strategy review, including via new risk-sharing products, there are no plans to enter the equity market¹⁸⁵. It is notable that many of the Nordic nations have separate state-owned venture capital funds, for example Vaekstfonden (Denmark), Argentum and Investinor (Norway), Finnish Industry Investment (Finland) and Industrifonden (Sweden).

Table 24: NIB outstanding investments by instrument, 31 December 2016

	EUR in billions
Loans	16.6
Financial guarantees	0.3
Bonds and other fixed income securities	6.6
Equity investments	0

Source: NIB¹⁸⁶

In addition to ordinary lending, the NIB has two special lending facilities which are guaranteed by the member states. Under the Project Investment Loan facility (PIL), member states guarantee 90% of each loan up to a total amount of €1,800 million, and the NIB maintains a Special Credit Risk Fund facility to cover the its own risk on PIL loans. The NIB will assume 100% of any losses incurred under an individual PIL loan up to the amount available in the Special Credit Risk Fund. Only thereafter would the NIB be able to call in the member countries' guarantees. The second special facility, the Environmental Investment Loan facility (MIL), sees member states guarantee 100% of loans outstanding under the MIL facility up to a statutory ceiling of EUR 300 million.

9.8 Bpifrance

Bpifrance mainly supports businesses through the provision of loans, but it also provides grants, guarantees and equity finance.

Table 25: Bpifrance outstanding investments by instrument, 31 December 2016

	EUR in billions
Loans	32.3
Financial guarantees	6.4
Bonds and other fixed income securities	6.7
Equity investments	15.0
Grants	2.0

Source: Bpifrance¹⁸⁷

Note: Data for grants reflects 'Innovation aid' which covers grants, repayable advances and interest-free loans

Bpifrance's funding instruments are spread across five business areas which are designed to cover each phase of business development: innovation, financing, guarantees, equity investment and internationalisation.

Table 26: Bpifrance’s funding instruments

Activity	Examples of funding instruments
Innovation	<ul style="list-style-type: none"> • Innovation aid: grants, repayable advances, interest-free loans • Seed loans in preparation of fundraising • Innovation loans to facilitate the launch of innovative products and services • Equity investment, either directly or through partner fund
Financing	<p>Co-financing with banks:</p> <ul style="list-style-type: none"> • Mid-term and long-term loans • Property leasing contracts • Equipment leasing contracts <p>Long term guarantee-free development loans, to finance intangible assets and working capital:</p> <ul style="list-style-type: none"> • Growth loan, 10 years loan • Subsidised Green and Digital loans • Profit-sharing loans <p>Strengthening cash flow of firms:</p> <ul style="list-style-type: none"> • Refinancing publicly or privately-held receivables. • Pre-financing of the Tax Credit for Competitiveness and Employment (CICE) or the Research Tax Credit (CIR)
Guarantees	<p>Provide banks with a guarantee of 40% to 60%, to encourage them to finance SMEs in the riskiest phases:</p> <ul style="list-style-type: none"> • Creation • Transfer • Innovation • International Expansion • Development
Equity investment	<p>Minor stakes in growth businesses, from the seed phase to transfer, often alongside national or regional local funds:</p> <ul style="list-style-type: none"> • Equity acquisition, irrespective of company size • Convertible bonds <p>Investing alongside private and public actors, in capital investment funds, which are investing in SMEs:</p> <ul style="list-style-type: none"> • More than 260 partner funds, of which 95 are regional funds
International	<p>Support export projects with the help of Business France:</p> <ul style="list-style-type: none"> • Development or establishment support (Business France) • Prospecting, credit and currency exchange insurance (Bpifrance) • International growth loan (Bpifrance) • Equity investment (Bpifrance) • Guarantees on bank financing devoted to international activity (Bpifrance)

Source: Bpifrance¹⁸⁸

9.9 Discussion

Different types of investment activity require different types of finance. Having different funding instruments available is important to manage the balance of risk and reward effectively across a portfolio, and to best match the optimal finance for different types of projects. In order to provide the bank with the flexibility required to fulfil a broad mandate, it is important to have a range of instruments, including both debt and equity, suited to different areas of the risk landscape. In this regard lessons can be learned from the experience of BNDES and the Bpifrance, which have become key players in the innovation system, structuring funding instruments across each part of the business life-cycle, from start-up to internationalisation.

Some SIBs, such as the KfW, create programmes that target particular issues, many of which help address key societal challenges. These programmes offer loans to customers which meet certain criteria, often with advantageous terms.

In addition to lending operations, many SIBs offer advisory services such as strategic planning, capacity building, and training programs help to create viable projects and encourage businesses to make investments that otherwise would not happen.

10. Risk and reward

Because innovation is uncertain, for every success there will likely be many failures. In some cases, returns arise slowly and are negative in the beginning, while in other cases returns never materialise. Acting as lead investor necessarily means absorbing a high degree of uncertainty and accepting failures when they happen.

This highlights the importance for SIBs to find the right balance between balance risk and reward, and of structuring investments across a risk-return spectrum so that lower risk investments help to cover higher risk ones¹⁸⁹. It also highlights the importance of being able to capture some of the reward (the ‘upside’) that is made possible by the risk-taking and investment of SIBs in order to cover the inevitable losses (the ‘downside’).

Some economists maintain that returns from public investment accrue to the public sector through the knowledge spillovers that are created, and via the taxation system due to new jobs being generated, as well as taxes being paid by companies benefiting from the investments. However, the evolution of the patenting system has made it easier to take out patents on upstream research, meaning that knowledge dissemination can effectively be blocked and spillovers cannot be assumed¹⁹⁰. At the same time, the global movement of capital means that the particular country or region funding initial investments in innovation is by no means guaranteed to reap all the wider economic benefits, such as those relating to employment or taxation.

In this section, we review mechanisms employed by SIBs to capture rewards to compensate for the risks being taken. These rewards can either be financial, for example from holding equity

stakes in firms, or non-financial, for example by attaching specific conditions to loans and investments.

10.1 KfW

The main mechanism used by KfW to capture upside from supporting innovative firms is equity finance. As outlined in section 9.1, KfW has significantly increased its activities in the field of equity finance in recent years, and recently created a new subsidiary which will improve the venture capital offering for innovative technology-oriented enterprises in the start-up and capital-intensive early growth phase.

The KfW DEG, the subsidiary responsible for providing finance to private companies in developing countries and emerging economies, has also established an innovative framework to ensure that projects it supports makes a material contribution to development. KfW DEG uses its 'Development Effectiveness Rating' (DERa), a multidimensional index-based development metric, to rate the development contribution of potential projects before they receive investment, and then to monitor the performance of projects after they have received investment. The DERa is designed to assess contribution to the United Nations Sustainable Development Goals (SDGs), and includes data on the following five categories¹⁹¹:

- Decent jobs
- Local income
- Market and sector development
- Environmental stewardship
- Community benefits

Based on these assessments, DEG is able to build its impact reporting and steer the overall development quality of its portfolio.

10.2 European Investment Bank

The European Investment Bank makes extensive use of equity finance to capture the upside from supporting innovative firms, mainly through its majority shareholding in the European Investment Fund (EIF) which facilitates access to equity for high-growth and innovative SMEs.

In recent years the EIB has also entered into a number of loan agreements with innovative companies which involve risk-reward sharing mechanisms. In 2014, the EIB put €75 million towards six drug development projects with Belgian biopharmaceutical company UCB to put up as part of a new 'at risk co-development funding' scheme set up under Horizon 2020 to finance R&D projects across Europe¹⁹². The scheme means that the EIB shares the risks and potential rewards inherent to drug development. The EIB invested directly in UCB's R&D expenditures relating to specified R&D programmes and over a specified time frame. Through this investment, the EIB acquired and co-owned (with UCB) part of the intellectual property (IP) that would be jointly developed under the specified programme during the specified time frame. UCB was required to make payments to the EIB if and when predefined milestones were successfully achieved, for example if a pre-specified programme met its clinical endpoint or regulatory

approval was obtained. At the end of the partnership, UCB will ultimately re-acquire all the co-owned IP.

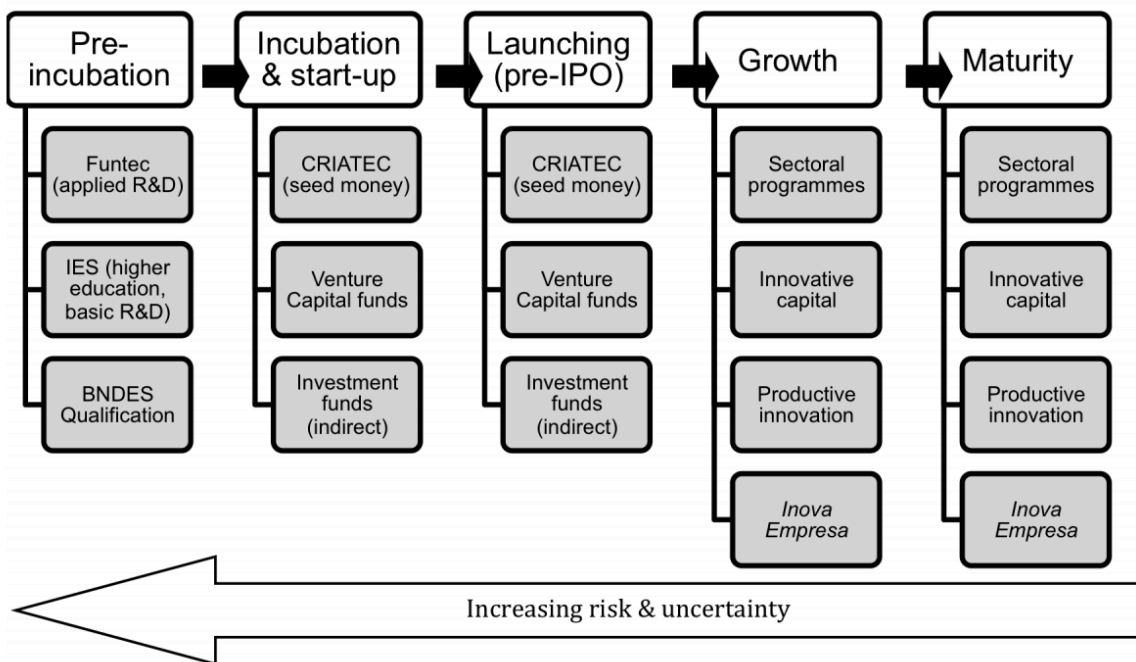
In 2017, the EIB provided €75 million to Evotec to invest in research and development of treatments for serious illnesses¹⁹³. The loan is guaranteed by the European Fund for Strategic Investments (EFSI), the central element of the Investment Plan for Europe, the so-called Juncker Plan. The EIB funding supports Evotec’s Innovate strategy through a unique, innovative and flexible financing structure including a “moderate reward-sharing component” for the EIB. The €75 million total loan financing will be invested into R&D over a period of four years and will mature seven years after draw down. The transaction is the first large success-sharing investment under EFSI in any industry anywhere in Europe, and represents EFSI’s first contingent investment, whereupon the bank shares the risk of its client’s research & development (R&D) success.

10.3 BNDES

BNDES’s strategy of making equity investments in innovative enterprises has established a strong link between risk-sharing and reward-sharing, helping to promote a type of risk–reward nexus that is conducive to the capital development of the Brazilian economy. The upside gained from successful investments contribute to BNDES’s profits, which translate into dividends to the Brazilian Treasury and returns to Brazilian workers’ social security funds (FAT).

As shown in figure 14, BNDES has developed a specific suite of innovation tools and programmes which focus on different areas of the risk landscape.

Figure 14: BNDES’s funding programmes for different areas of the risk landscape



Source: Mazzucato and Penna¹⁹⁴

BNDES varies collateral and repayment obligations according to the risk/uncertainty of the project or investment. The FUNTEC programme sees BNDES fulfil the role of angel investor, making non-repayable grants without any collateral requirements¹⁹⁵. The recipients of funds are only required to fulfil their technological mission and establish an intellectual property sharing agreement. BNDES's expectation is that the recipients return to the Bank for a loan repayable once the production of prototypes has been made possible.

In the case of small innovative firms in their incubation, start-up or launching stages, BNDES adopts innovation funding based on equity investments, and funding applications are evaluated in the light of potential future results rather than a firm's credit score. This requires BNDES to employ not only finance specialists but also experts in the sectors which it invests in. During these stages, BNDES also engages in the management and governance of the firm. Although BNDES does not hold majority stakes in these young companies, a standard condition attached to BNDES' funding is participation in the firm's board of directors and direct access to corporate information^{196 197}. BNDES therefore not only acts as a financier but is also directly involved in development of firms' business plans until its IPO, which, is BNDES's preferred withdrawal option.

Since 2008, an important portion of BNDES' equity investments have taken place through the CRIATEC investment fund, which supplies seed capital for innovative start-up companies that develop disruptive technologies in high-tech and new sectors. In contrast public R&D grants that are non-reimbursable, CRIATEC aims to achieve capital gains through long-term investment in early stage companies that have an innovative profile and offer high return prospects¹⁹⁸.

10.4 Finnvera

Finnvera used to play a significant venture capital role, capturing the upside from its investments from the development of new companies, follow-on investments and exits. However, in 2016 Finnvera gave up most of its venture capital investment activities following a policy decision made by Minister of Economic Affairs, selling 80% of its holding in Seed Fund Vera Ltd to the Finnish company Innovestor Ltd.

It is not clear whether Finnvera uses any tools to capture the upside of its investments beyond receiving interest payments on loans made. A recent review of Finnvera's activities found that the company would benefit from taking higher risks where potential rewards are big¹⁹⁹.

10.5 China Development Bank

As discussed in section 9.5, the CBD makes equity investments through its subsidiary CDB Capital Corporation, particularly in support of technological start-ups and innovative enterprises. We have not been able to identify the conditions attached to the CDB's equity investments.

In 2014, it was reported that the CDB made a loan of RMB7.9 billion to a company called Quanlin Paper which was secured against a portfolio of secured against a portfolio of 110 patents and 34 trademarks²⁰⁰. The deal represents an innovative approach to balancing between balance risk

and reward, however because few details about the transaction are publicly available it is not possible to assess its impact.

10.6 Cassa Depositi e Prestiti

The CDP makes equity investments through its subsidiary arm CDP Equity. However, CDP Equity mainly acquires minority holdings in companies of significant national interest which are economically and financially stable and present adequate income-earning and growth prospects. It does not focus on early stage firms with great technological and growth potential. As of 2016 CDP Equity had invested a total of €3.7 billion in a portfolio comprising minority holdings in 11 companies.

The CDP publishes ‘Corporate Governance and Responsible Investment Principles’ which set out its expectations with regards to the corporate governance and social responsibility practices of companies it invests in²⁰¹. These Principles inform how CDP exercises its voting rights in the governance of companies it has a stake in, and concern the following topics:

- Shareholders responsibility and rights
- Corporate Governance Structure
- Remuneration
- Reporting, accounts and audit
- Sustainable Business Practices
- Engagement and communication

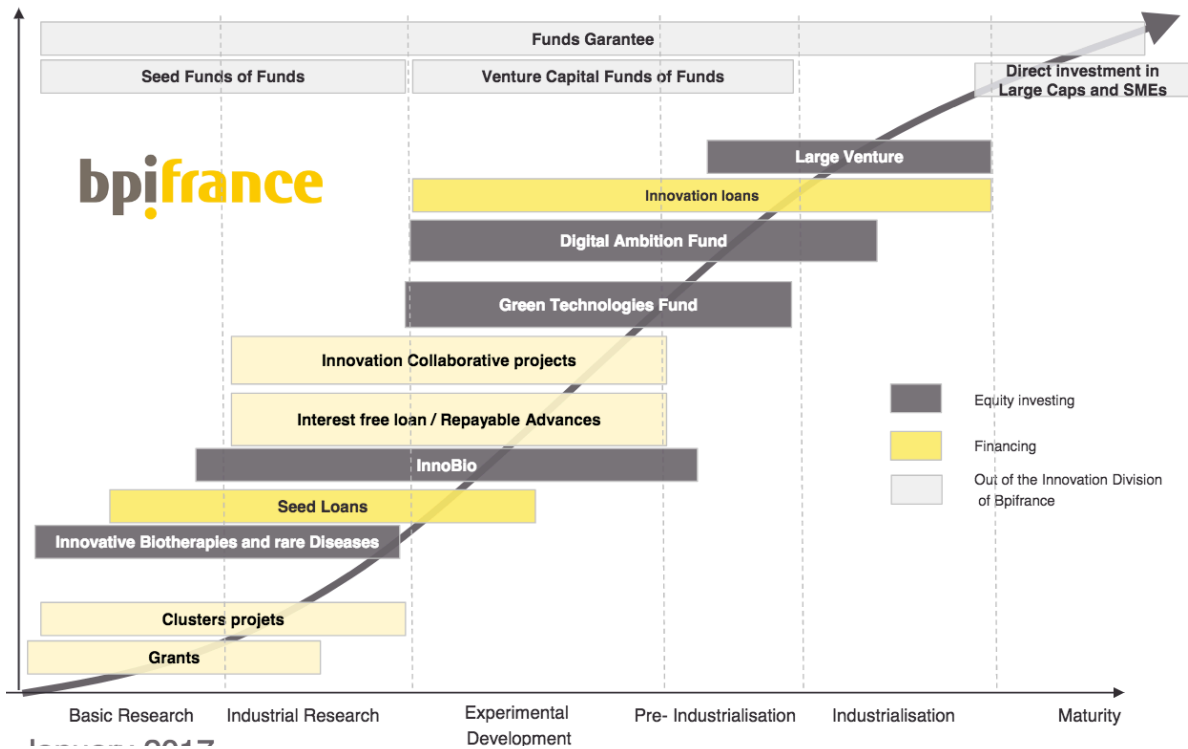
10.7 Nordic Investment Bank

As discussed in section 9.7, the NIB does not make equity investments. It is not clear whether the NIB uses any tools to capture the upside of its investments beyond receiving interest payments on loans made.

10.8 Bpifrance

Bpifrance employs a number of mechanisms to capture the upside from supporting innovative firms. The most significant of these is equity finance, which it makes through various programmes at different stages of the innovation chain.

Figure 15: Bpifrance innovation financing



Source: Bpifrance²⁰²

Bpifrance also has a number of innovative instruments which help to balance risk and reward. One of these is 'profit sharing development loans', which provide long-term finance to SMEs to fund the product launch phase. If the launch is successful and the product becomes profitable, Bpifrance receives a share of the profits.

Another instrument used by Bpifrance is 'repayable advances', which are similar to grants but which place an obligation on the beneficiary to repay all or an agreed part of the money under certain circumstances. Repayable advances can be viewed as a form of income-contingent loan.

10.9 Discussion

There is a strong case for arguing that, where technological breakthroughs have occurred as a result of targeted SIB interventions benefiting specific companies, the SIB should reap some of the financial rewards over time to cover the inevitable losses. Already some SIBs are employing mechanisms which enable them to do this. Firstly, many SIBs retain equity in the innovative companies they support, just as private venture capital firms do. Most SIBs do not hold a controlling stake, but some, such as BNDES, attach conditions to their investments such as having representation on the firm's board of directors and access to corporate information.

Another mechanism used by some SIBs relates to the ownership of intellectual property. Some SIBs have established agreements which enable them to retain ownership of a small proportion of the intellectual property their support helped to create. For example, the EIB has entered agreements whereby it co-owns the intellectual property being developed by companies with the EIB's financial support, and BNDES often includes intellectual property sharing agreements in

the conditions attached to its support. While an SIB should never hold a large enough proportion of the value of an innovation to deter its diffusion, there is a strong case that retaining ownership over some of some the intellectual property can help to create a healthy and symbiotic relationship between public and private, which reflects the public contribution.

Some SIBs have also tried to balance risk and reward by attaching specific conditions to loans and investments. Both the EIB and Bpifrance offer products whereby a company is only required to pay a loan or grant back if and when it makes profits above a certain threshold. These products are therefore similar in design to the ‘income-contingent loans’ received by students.

Lessons on how to achieve a more symbiotic and mutualistic type of public–private partnership can also be drawn from other fields. Bell Labs, one of the greatest private research and development (R&D) labs in modern history, owes its origin to the US government insisting that AT&T, a telecoms monopoly throughout much of the twentieth century, reinvested its profits back into production, innovation, and big innovation beyond that needed by the company²⁰³. In doing so, the state received a social return for giving a monopoly right to the company: reinvestment creates greater spillovers. An area for further study is whether SIBs could attach similar conditions to investments to incentivise desirable corporate practice – including in areas such as employment practice and environmental impact.

Perhaps more radically, conditions could be attached regarding the price or design of products that emanate from SIB support. This may be of particular relevance in the case of sectors such as pharmaceuticals, which often rely heavily on public support²⁰⁴. More work is required to establish which mechanisms are most effective at encouraging a symbiotic and mutualistic type of public–private partnership.

11. Relationship to government policy

SIBs are created in the first instance by governments, and in many cases governments continue to exert influence over features such as governance, ownership and sources of finance. However, an important consideration is the extent to which the operations of the SIB support wider government policy objectives. In this section we examine the extent to which day-to-day operations of each SIB are aligned with government economic and innovation policy.

11.1 KfW

KfW is tasked with implementing policy objectives of the German government, and receives the full financial backing of the federal government to do so which enables it to borrow cheaply on capital markets. The KfW works closely with the Ministries of the German Federal government in developing new promotional programmes and initiatives to ensure they comply with wider government strategies²⁰⁵.

The KfW also regularly assists the government in selecting targeted policy areas and designing projects as well as financing them²⁰⁶. With its staff of technical experts, the KfW is well placed to provide objective advice to the government on the best way to achieve desired policy outcomes. This close operational relationship between the KfW and the German government creates a

powerful synergy which means that policy, regulation and financing can be simultaneously coordinated for maximal societal benefit impact. Similarly, the KfW has on occasion complimented new government regulations (e.g. environmental regulations), with new financing instruments in order to transmit policy objectives more efficiently.

This close relationship between the KfW and government policy has been instrumental to the systemic greening of Germany's economy. By financing both the supply side (through the support of green technology firms) and the demand side (through the financing of solar and wind power) the KfW has been a key driving force behind the German government's Energiewende policy²⁰⁷.

11.2 European Investment Bank

The overarching role of the EIB is to finance investment projects that help implement EU policy objectives. In order to do this the EIB works closely with the other EU institutions, especially the European Parliament, the European Council and the European Commission. As outlined in section 4.2, the EIB's current activities are guided by the objectives of the Europe 2020 strategy of smart, sustainable, and inclusive growth.

In 2014, the EIB was tasked with helping to deliver the Investment Plan for Europe, sometimes referred to as the 'Juncker Plan'²⁰⁸. The plan has three objectives: to remove obstacles to investment; to provide visibility and technical assistance to investment projects; and to make smarter use of financial resources. The EIB supports two key pillars of the plan:

- the **European Fund for Strategic Investments** (EFSI), which provides an EU guarantee to mobilise private investment in projects which are strategically important for the EU²⁰⁹.
- the **European Investment Advisory Hub** which provides targeted technical support to identify, prepare and develop investment projects across the European Union, thereby helping proposed investment projects become a reality²¹⁰.

11.3 BNDES

BNDES has an explicit mandate to carry out government policy. The bank's basis in law states that BNDES "is the main instrument to implement and carry out the Federal Government's investment policy, and its foremost purpose is to support programmes, projects, construction and services related to the country's economic and social development."²¹¹

As noted above, the evolution of BNDES' targeted programmes have closely followed Brazilian government's industrial policy. The evolution of BNDES' targeted programmes have closely followed Brazilian government's industrial policy. In particular the Trade, Technology and Industrial Policy plan (2003 to 2007), the Productive Development Policy plan (2008 to 2010) and the Brasil Maior Plan (2011 to 2014) gave increasing emphasis to innovation and strategic sectors including IT, pharmaceuticals and health, oil and gas, defence, aerospace, and renewables.

BNDES has on occasion received criticism for allowing too much political influence over lending decisions, and offering favourable terms to politically connected clients.²¹²

11.4 Finnvera

The Enterprise and Innovation Department of the Ministry of Economic Affairs and Employment is responsible for the ownership and industrial policy steering of Finnvera. The Ministry of Economic Affairs and Employment supervises and monitors Finnvera's operations and sets goals for the company for a period of four years. These apply to issues such as the focus of operations, the impact and efficiency of operations, and capital adequacy. When determining these goals, attention is paid to the Finnish Government Programme, the Ministry's corporate strategy, the policy objectives concerning the Ministry's branch of administration, and the objectives of EU programmes²¹³.

11.5 China Development Bank

The CBD's overarching purpose is to "serve national strategies" and the bank has an explicit objective to implement the government's macroeconomic policies. The CDB is actively involved in the planning and implementation of the Chinese government's Five-Year Plans, and works with relevant government agencies in the formulation of major national plans for strategic emerging industries.

In 2016, the CDB aligned its strategies and operations with the 13th Five-Year Plan of local governments, and developed provincial-level financing plans for 24 provinces and municipalities in the 13th Five-Year Plan Period and cooperation plans for 70 key regions, aiming to leverage its financing advantage to assist local governments to improve the feasibility and operability of their plans. The bank also conducted research on regional development, which resulted in a considerable number of province-specific and regional reports²¹⁴.

11.6 Cassa Depositi e Prestiti

Historically the CDP's narrow sphere of activity has meant that it has played a limited role with regards to government policy. However, in 2015 CDP was declared a formal promotional bank, and Prime Minister Renzi appointed Claudio Costamagna, former chairman of Goldman Sachs in Europe, and Fabio Gallia, who was chief executive of BNP Paribas in Italy, as part of a wider strategy to get the CDP to play a more active role in the economy.

The CPD's new business plan for 2016-2020 includes €160 billion of investment across different areas of the economy²¹⁵. However, analysis of the plan has found no clear strategy in terms of links to a coherent industrial policy²¹⁶. As discussed in section 4.6, an open question is the extent to which this is related to the CDP's status as a joint stock company that has to give priority to profitability.

11.7 Nordic Investment Bank

As a multilateral bank spanning eight different Nordic and Baltic countries, there is no formal link between the activities of the NIB and the economic policy of the member countries. However, when assessing projects the NIB does consider the economic policy priorities of the country in question, and the bank maintains regular contact with each government owner. Moreover, the NIB's mandate can evolve over time reflecting changing government priorities. One example of this is that the bank is currently considering whether to add climate adaptation to mandate.

The NIB's founding statutes also state that investments in the member countries must be made in consultation with the authorities of the country concerned, who have a veto power over investments in their country²¹⁷. This means that in practice member countries can act to prevent specific investments if they are deemed to be in opposition to domestic industrial policy.

11.8 Bpifrance

Bpifrance's activities are closely aligned with the economic policy of the French state. Supporting national industrial policy is at the heart of all Bpifrance's missions, and it concentrates its interventions on the development of certain sectors or industrial fields which are seen as crucial to preserving or enhancing the competitiveness of the French economy²¹⁸.

Bpifrance is also at the heart of France's innovation policy, providing direct financial support as well as working closely with other stakeholders including research institutions, universities, engineering institutes, major companies, SATT (Technology Transfer Accelerator Companies), public or private business incubators and start-up hubs and the French chambers of commerce.

11.9 Discussion

Most of the SIBs examined have a formal duty to support government policy. Most do this by focusing lending on sectors or missions that have been prioritised through industrial policy.

In some cases, close alignment between SIBs and government policy has created a powerful synergy between policy, regulation and financing, which has been simultaneously coordinated for maximum impact. For example, In Germany new government policies have been complemented with new financing instruments in order to transmit policy objectives more efficiently. This close alignment between the KfW and government policy has been instrumental to the systemic greening of Germany's economy through the Energiewende policy²¹⁹.

Although potentially powerful, this relationship is highly dependent on effective governance arrangements to ensure that sound banking principles around maintained and undue political interference is avoided. The case of BNDES serves an example of how allowing too much political influence over lending decisions can damage the reputation stature of a SIB.²²⁰

12. Conclusion

This paper has reviewed the design features and activities of eight state investment banks from different countries and regions, and assessed their contributions to the challenges and opportunities of patient strategic finance. While the institutional design of SIBs varies significantly between countries, a number of key lessons can be drawn:

- **Mandate and mission:** The overarching mandate is critical to the role that SIBs play in their economies. Mandates are often set out in law or Articles of Association, and often change and evolve over time. Mission statements can also play an important role in providing directionality to the activities of the bank. Some SIBs are ‘challenge-led’, with missions and mandates framed around specific societal challenges, whereas others are focused on more static outcomes such as ‘economic development’ and ‘competitiveness’ which do not signal a desired direction for the economy. An exciting area for future work relates to how the definition of missions can be opened up to a wider group of stakeholders, including movements in civil society. Understanding more democratic processes through which missions are defined can play a wider role in the process of rethinking the notion of public value.
- **Organisational structure and ownership:** While all the SIBs examined are majority public-owned, the specific ownership and organisational structures can vary widely. In some cases, ownership lies wholly with the central or federal government, while in other cases, such as the KfW, ownership is shared with local or regional governments. Where SIBs are not 100% publicly owned, ownership is shared with private investors. Some smaller SIBs have relatively straightforward organisational structures, while larger SIBs often have multiple subsidiary arms which focus on different activities or business areas. An area for further study relates to whether different ownership and organisational structures may affect an SIB’s appetite for risk and investment patterns.
- **Economic role:** All SIBs examined play a capital development and countercyclical role, however in recent years some SIBs have gone further and are now playing key venture capitalist and mission-oriented roles. By placing state investment banks at the centre of the investment process, countries like Germany and China as well as the European Union have taken centre stage in confronting the key social and environmental challenges of the 21st century. By steering the path of innovation towards overcoming key challenges, these banks are not just correcting ‘market failures’; they are actively creating and shaping markets and enabling activity that otherwise would not take place. An area for further exploration relates to how SIBs can optimally interact with other public agencies to drive innovation and contribute to the development of the kind of ‘networked entrepreneurial state’ that has been responsible for many great technological breakthroughs.
- **Investment activity:** The investment activities of SIBs vary between countries according to the bank’s mandate, socio-economic circumstances and the stage of development. In some cases, SIBs specify sectors and activities that they do not support due to moral or ethical concerns around the activities, or because the sectors are already served by other

public or private institutions in that country. Some SIBs have been criticised on the basis of ‘picking winners’, ‘crowding out’ or funding large incumbent companies. Part of the reason for this may lie in the absence of monitoring and evaluation frameworks which adequately capture the dynamic outcomes of mission-oriented investments and the additionality generated by these institutions. As a result, new monitoring and evaluation frameworks may be required in order to assess the performance of mission-oriented SIBs, which could include an array of new indicators aimed at assessing the extent to which SIBs have been successful at catalysing activity that otherwise would not have happened. Criticism can also be averted by avoiding focusing on firms of a specific size or in a specific sector (‘picking winners’), and instead investing in firms that are willing to invest in innovation (‘pick the willing’).

- **Governance:** Governance arrangements are key to the success and legitimacy of SIBs. In particular, achieving the right balance between political representation and independent decision making is a key challenge. It is important that management teams are free to make sound, long-term decisions, free of day-to-day political interference. While political representation can help to maintain alignment with government policy and maintain a path of democratic accountability, steps should be taken to prevent undue political interference or capture by interest groups. Some SIBs achieve this by appointing independent, non-political representatives on the most senior decision-making body. The experience of the KfW and Finnvera indicates that including a wider range of stakeholders such as industrial trade bodies, trade unions and regional representatives can be beneficial as long as mechanisms are in place to make sure that none of these groups ask for special favours but remain objective evaluators.
- **Sources of finance:** There are many different ways that SIBs finance their operations, including taking savings and deposits from the public, raising money in the domestic or international capital markets, borrowing from other financial institutions, using return on investments, receiving budget allocations from the national Treasury, managing public pension or social security funds, or receiving financing from the central bank. There is evidence that sources of finance can have an impact on the ability of SIBs to successfully meet their mandates. The case of BNDES demonstrates that if a source of finance proves to be volatile or unstable, or vulnerable to political pressures, then it can seriously impair the ability of the SIB to fulfil its mandate. An important and open question is whether different sources of finance affect an SIB’s appetite for risk and ability to invest in innovative projects.
- **Funding instruments:** Having different funding instruments available is important to manage the balance of risk and reward effectively across a portfolio, and to best match the optimal finance for different types of projects. SIBs with a broad mandate tend to offer a wide range of instruments, including debt and equity, which are suited to different areas of the risk landscape. Lessons can be learned from the experience of Bpifrance and the EIB which have become key players in the innovation system. Some SIBs, such as the KfW, have also created specific funding programmes that target particular issues, many of which help address key societal challenges. In addition to lending operations, offering advisory services such as strategic planning, capacity building, and training programmes

help to create viable projects and encourage businesses to make investments that otherwise would not happen.

- **Risk and reward:** SIBs must be able to strike the right balance between balance risk and reward, structuring investments across a risk-return spectrum so that lower risk investments help to cover higher risk ones. There is a strong case for arguing that, where success occurs as a result of SIB investment, the public sector should reap some of the financial rewards. It is often assumed that and when innovation is successful, a share in the gains will flow back to society through taxation. While this is right in theory, it does not always happen in practice due to changes in intellectual property regimes and tax avoidance. In order to ensure that both risks and rewards are shared fairly, SIBs can use a number of return-generating mechanisms, including retaining equity or royalties, retaining a share of the intellectual, using income-contingent loans, or attaching conditions to investments to incentivize desirable corporate practice. More work is required to establish which mechanisms are most effective at encouraging a symbiotic and mutualistic type of public–private partnership.
- **Relationship with government policy:** Most of the SIBs examined have a formal duty to support government policy. Most do this by focusing lending on sectors or missions that have been prioritised through industrial policy. Close alignment between SIBs and government policy can create a powerful synergy between policy, regulation and financing, which can be simultaneously coordinated for maximum impact. For example, new government policies can be complemented with new financing instruments in order to transmit policy objectives more efficiently. Although potentially powerful, this relationship is highly dependent on effective governance arrangements to ensure that sound banking principles around maintained and undue political interference is avoided.

References:

- ¹ Mazzucato, M. (2017). 'Mission-Oriented Innovation Policy: Challenges and Opportunities'. Working Paper IIPP WP 2017-01. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/moip-challenges-and-opportunities-working-paper-2017-1.pdf>
- ² Mazzucato, M. and Penna, C.C.R., (2016). 'Beyond market failures: the market creating and shaping roles of state investment banks'. *Journal of Economic Policy Reform*. 19:4, pp. 305-326.
- ³ O'Sullivan M. (2004), 'Finance and Innovation', in J. Fagerberg D. C. Mowery R. R. Nelson, (eds), *The Oxford Handbook of Innovation*, New York, Oxford University Press.
- ⁴ Mazzucato M. (2013), 'Financing Innovation: Creative Destruction vs Destructive Creation', *Industrial and Corporate Change*, 22, 851–67.
- ⁵ Lazonick W. & Mazzucato, M. (2013) 'The Risk-Reward Nexus in the Innovation Inequality Relationship: Who Takes the Risks? Who Gets the Rewards?' *Industrial and Corporate Change*, 22(4):1093–1128.
- ⁶ F.L.Block and R.M.Keller,. (2011). 'State of Innovation: The U.S. Government's Role in Technology Development'. Boulder, CO: Paradigm Publishers
- ⁷ Mazzucato, M. (2013). 'The Entrepreneurial State'. Anthem Press.
- ⁸ World Bank. (2015). History. Available at: <http://go.worldbank.org/65Y36GNQB0>. [Accessed 15 November 2017]
- ⁹ Luna-Martinez, J. and L.Vicente, L. (2012) 'Global Survey of Development Banks', World Bank Policy Research Working Paper
- ¹⁰ Mazzucato, M. and Penna, C. C. R. (2015) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ¹¹ <https://www.kfw.de/KfW-Group/About-KfW/Identit%C3%A4t/Geschichte-der-KfW/>
- ¹² KfW (2016). 'Financial report 2016'. Available at: https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./3_Finanzberichte/Finanzbericht-2016-D
- ¹³ European Investment Bank. (n.d.) 'European Investment Bank: The Governance' Available at: http://www.eib.org/attachments/general/governance_of_the_eib_en.pdf [accessed 24 November 2017]
- ¹⁴ BNDES. (2016). 'BNDES Annual report 2016'. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Hotsites/Relatorio_Anual_2016_en/assets/bndes_ra2016_web_00_complete.pdf
- ¹⁵ Sanderson, H. and Forsythe, M. (2013) 'China's Superbank: Debt, Oil and Influence – How China Development Bank is Rewriting the Rules of Finance', Singapore: John Wiley & Sons
- ¹⁶ Article 1 of Act No. 2012-1559 dated 31 December 2012 on the creation of Bpifrance
- ¹⁷ Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ¹⁸ Finnish Ministry of Trade and Industry. (2004). 'Finnvera Plc: An International Evaluation'. Available at: [http://ktm.elinar.fi/ktm_jur/ktmjur.nsf/All/25A27F1D95DBB295C2256E380032E512/\\$file/ju1eloeng.pdf](http://ktm.elinar.fi/ktm_jur/ktmjur.nsf/All/25A27F1D95DBB295C2256E380032E512/$file/ju1eloeng.pdf)
- ¹⁹ Finnvera (2016). 'Annual Report Annual Review 2016'. Available at: http://annualreport2016.finnvera.fi/media/finnvera_annual_report_eng.pdf
- ²⁰ KfW. (n.d.). 'Law Concerning Kreditanstalt für Wiederaufbau'. Available at: https://www.kfw.de/Download-Center/KfW-Gesetz-und-Satzung-sowie-Gesch%C3%A4ftsordnungen/Law-concerning-KfW-and-KfW-By-laws/KfW_Gesetz_E.pdf [accessed 25 November 2017]

-
- ²¹ KfW. (n.d.). 'Sustainability guidelines of KfW Bankengrupp'. Available at: https://www.kfw.de/Download-Center/Konzernthemen/Nachhaltigkeit/englisch/Umwelt-u-Sozialeitsaetze_E.pdf [accessed 25 November 2017]
- ²² European Investment Bank. (n.d.) 'European Investment Bank: The Governance' Available at: http://www.eib.org/attachments/general/governance_of_the_eib_en.pdf [accessed 24 November 2017]
- ²³ European Investment Bank. (n.d.) Webpage. Available at: <http://www.eib.org/projects/priorities/index.htm> [accessed 25 November 2017]
- ²⁴ European Investment Bank. (2016). 'The EIB Group Operational Plan 2017-2019'. Available at: http://www.eib.org/attachments/strategies/operational_plan_2017_2019_en.pdf
- ²⁵ BNDES. (n.d.) 'BNDES Bylaws'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/BNDES_bylaws.html [accessed November 24 2017]
- ²⁶ BNDES. (n.d.). 'Mission, Vision and Values'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/mission.html accessed November 24 2017]
- ²⁷ BNDES. (n.d.). 'Mission, Vision and Values'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/mission.html accessed November 24 2017]
- ²⁸ Parliament of Finland. (1998). 'Act on State Special Financing Company'. Available at: <http://www.finlex.fi/fi/laki/ajantasa/1998/19980443>
- ²⁹ China Development Bank. (2015). 'China Development Bank Sustainability Report'. Available at: https://www.unglobalcompact.org/system/attachments/cop_2016/335091/original/CHINA_DEVELOPMENT_BANK_SUSTAINABILITY_REPORT_2015.pdf?1478253427
- ³⁰ China Development Bank. (2016). 'Announcement of the Bank's New Articles of Association Approved by the State Council'. Available at: <http://www.hkexnews.hk/listedco/listconews/SEHK/2017/0116/LTN20170116669.pdf>
- ³¹ China Development Bank. (n.d.). 'Core Values'. Webpage. Available at: <http://www.cdb.com.cn/English/qywh/khjzg/>
- ³² Cassa Depositi e Prestiti. (2003). 'Articles of Association'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1242972>
- ³³ SACE. (2017). 'CDP launches new Group identity'. Available at: <https://www.sace.it/ClientApi/GeneratePdf.ashx?url=http%3A%2F%2Fwww.sace.it%2Fen%2Fmedia%2Fpress-releases%2Fpress-release%2Fcdp-launches-new-group-identity>
- ³⁴ Cassa Depositi e Prestiti. (n.d.) 'Sustainability of our business'. Webpage. Available at: <https://en.cdp.it/What-We-Do/Sustainability/Our-Commitment.kl> [accessed 28 November 2017]
- ³⁵ Nordic Investment Bank. (2017). 'Constituent Documents'. Available at: https://www.nib.int/filebank/2032-Constituent_Documents.pdf
- ³⁶ Nordic Investment Bank. (n.d.). 'Vision and mission'. Webpage. Available at: https://www.nib.int/about_nib/vision_mission [accessed 27 November 2017]
- ³⁷ Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ³⁸ Bpifrance. (2015). 'EPIC Bpifrance 2015 Annual Report'. Available at: <https://www.bpifrance.fr/content/download/59446/427434/version/1/file/Annual%20Report%202015%20EPIC%20Bpifrance.pdf>

-
- ³⁹ Mazzucato, M. (2017). 'Mission-Oriented Innovation Policy: Challenges and Opportunities'. Working Paper IIPP WP 2017-01. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/moip-challenges-and-opportunities-working-paper-2017-1.pdf>
- ⁴⁰ Mazzucato, M. and O'Donovan, C. (2016) 'The BBC as market shaper and creator' in Rethinking the BBC: Public media in the 21st Century, Seth-Smith, N., et. al. (eds.), Commonwealth Publishing. Available at: <http://commonwealthpublishing.com/shop/rethinking-the-bbc-public-media-in-the-21st-century/>
- ⁴¹ KfW. (2018) 'KfW presents itself Structure and mission of KfW'. Available at: https://www.kfw.de/PDF/Download-Center/Konzernthemen/KfW-im-%C3%9Cberblick/GP_2014_deutsch_112014_final-2.pdf
- ⁴² Moslener, U., Thiemann, M. and Volberding, P. (2017). 'National Development Banks as Active Financiers: The Case of KfW'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_Germany.pdf
- ⁴³ BNDES. (n.d.). 'The BNDES System'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/the_BNDES_system.html [accessed 24 November 2017]
- ⁴⁴ BNDES. (2016). 'Our staff and structure'. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Hotsites/Relatorio_Anual_2016_en/assets/bndes_ra2016_web_03_ourstaffan-structure.pdf
- ⁴⁵ Finnvera. (2016). 'Annual report 2016'. Available at: <http://annualreport2016.finnvera.fi/en/year-2016/corporate-governance.html>
- ⁴⁶ Global Projects Centre. (2013). 'China Development Bank's financing mechanisms: focus on foreign investments'. Available at: https://gpc.stanford.edu/sites/default/files/uc07_0.pdf
- ⁴⁷ China Development Bank. (2016). 'Annual report 2016'. Available at: <http://www.cdb.com.cn/English/bqzx/ndbg/>
- ⁴⁸ The Irish Times. (2017). 'Italy considers sale of 15% stake in state lender CDP'. Available at: <https://www.irishtimes.com/business/financial-services/italy-considers-sale-of-15-stake-in-state-lender-cdp-1.3005221>
- ⁴⁹ Cassa Depositi e Prestiti. (2016). 'Annual Report 2016'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1226416>
- ⁵⁰ Lucchese, M., Nascia, L. and Pianta, M. (2016). 'Industrial Policy and Technology in Italy'. ISI Growth. Available at: http://www.isigrowth.eu/wp-content/uploads/2016/01/working_paper_2016_2.pdf
- ⁵¹ Nordic Investment Bank. (2016). 'Annual Report 2016'. Available at: http://annualreport.nib.int/2016/wp-content/uploads/downloads/NIB_Annual_report_2016.pdf
- ⁵² Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ⁵³ Mazzucato, M. and Penna, C. C. R. (2015b) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ⁵⁴ Mazzucato, M. (2017). 'Mission-Oriented Innovation Policy: Challenges and Opportunities'. Working Paper IIPP WP 2017-01. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/moip-challenges-and-opportunities-working-paper-2017-1.pdf>
- ⁵⁵ The European Investment Bank (2017). 'The EU Bank'. Webpage. available at: <http://www.eib.org/about/index.htm> [accessed 24 November 2017]
- ⁵⁶ Ibid.

-
- ⁵⁷ The European Investment Bank (2017). 'InnovFin- EU Finance for Innovators'. Webpage. Available at: <http://www.eib.org/products/blending/innovfin/>
- ⁵⁸ European Commission (2010). 'Communication from the Commission. Europe 2020, A Strategy for Smart Sustainable and Inclusive Growth'. Available at: <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>
- ⁵⁹ The European Investment Bank. (2017). 'Climate Action'. Webpage. Available at: <http://www.eib.org/projects/priorities/climate-and-environment/climate-action/index.htm> accessed [24 November 2017]
- ⁶⁰ Finnvera. (2010). 'Finnvera's counter-cyclical financing has been needed'. Available at: <https://www.finnvera.fi/eng/finnvera/newsroom/press-releases/finnvera-s-counter-cyclical-financing-has-been-needed>
- ⁶¹ Breznitz, D. and Ornston, D. (2013), 'The revolutionary power of peripheral agencies: Explaining radical policy innovation in Finland and Israel', *Comparative Political Studies*, 46:10, pp. 1219–45
- ⁶² United Nations. (2005). 'Rethinking the Role of National Development Banks'. Financing for Development Office of UN-DESA, New York, December 2005
- ⁶³ China Development Bank. (n.d.). 'Our vision'. Webpage. Available at: <http://www.cdb.com.cn/English/qywh/khyj/> [accessed 24 November 2017]
- ⁶⁴ Qiyuan, X. (2017). 'CDB: Born Bankrupt, Born Shaper'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_China.pdf
- ⁶⁵ China Development Bank. (2016). 'Annual Report 2016'. Available at: <http://www.cdb.com.cn/English/bgxz/ndbg/>
- ⁶⁶ Ibid.
- ⁶⁷ Cassa Depositi e Prestiti. (2012). 'Cassa depositi e prestiti: the Board approves financial statements for 2012'. Available at: <https://en.cdp.it/media/press-releases/cassa-depositi-e-prestiti-the-board-approves-financial-statements-for-2012.kl>
- ⁶⁸ Cassa Depositi e Prestiti. (2017). 'Information memorandum'. Available at: <https://www.cdp.it/ImagePub.aspx?id=1014322>
- ⁶⁹ CDP. (n.d.) Sustainability of our business. Webpage. Available at: <https://en.cdp.it/What-We-Do/Sustainability/Our-Commitment.kl> [accessed 28 November 2017]
- ⁷⁰ Nordic Investment Bank. (2015). 'NIB Concludes a Strategy Review: More Flexibility in Lending'. Press Release Available at: https://www.nib.int/news_publications/cases_and_feature_stories/1580/nib_concludes_a_strategy_review_more_flexibility_in_lending
- ⁷¹ Nordic Investment Bank. (2009). 'Steelmaker Invests in Clean Technology'. Press Release Available at: https://www.nib.int/news_publications/cases_and_feature_stories/171/steelmaker_invests_in_clean_technology
- ⁷² Nordic Investment Bank (2017). 'Annual Report 2016'. Available at: http://annualreport.nib.int/2016/wp-content/uploads/downloads/NIB_Annual_report_2016.pdf
- ⁷³ Bpifrance. (2013). 'Bpifrance Financement Annual Report'. Available at: <https://www.bpifrance.fr/content/download/5555/61874/version/2/file/Annual%20Report%202013%20Bpifrance%20Financement.pdf>
- ⁷⁴ Breznitz, D., and Ornston, D. (2013) 'The revolutionary power of peripheral agencies. Explaining radical policy innovation in Finland and Israel.' *Comparative Political Studies* 46(10): 1219-1245. Available at: <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.879.6886&rep=rep1&type=pdf>

-
- ⁷⁵ Mazzucato, M. (2017). 'Mission-Oriented Innovation Policy: Challenges and Opportunities'. Working Paper IIPP WP 2017-01. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/moip-challenges-and-opportunities-working-paper-2017-1.pdf>
- ⁷⁶ Mazzucato, M. (2013). 'The Entrepreneurial State'. Anthem Press.
- ⁷⁷ Block, F. L. and Keller, M. R. (eds.) (2011) State of innovation: the U.S. government's role in technology development. Boulder, CO: Paradigm Publishers.
- ⁷⁸ KfW. (2016). 'Financial Report 2016'. Available at: https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./3_Finanzberichte/Finanzbericht-2016-D
- ⁷⁹ <http://iepd.iipnetwork.org/policy/kfw-financing-initiative-energy-transition>
- ⁸⁰ KfW. (2016). 'Financial Report 2016'. Available at: https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./3_Finanzberichte/Finanzbericht-2016-D
- ⁸¹ Ibid.
- ⁸² <https://www.kfw.de/nachhaltigkeit/KfW-Group/Sustainability/Sustainable-Banking-Operations/Sustainable-Investment/KfWs-Sustainable-Investment-Approach/Exclusion-Criteria/>
- ⁸³ European Investment Bank. (n.d.) 'Sectors'. Webpage. Available at: <http://www.eib.org/projects/sectors/index.htm> [accessed 24 November 2016]
- ⁸⁴ European Union. (2010). 'Europe 2020: A European strategy for smart, sustainable and inclusive growth'. Available at: <http://ec.europa.eu/eu2020/pdf/COMPLET%20EN%20BARROSO%20%20%20007%20-%20Europe%202020%20-%20EN%20version.pdf>
- ⁸⁵ European Investment Bank. (n.d.). 'Climate and environment'. Webpage. Available at: <http://www.eib.org/projects/priorities/climate-and-environment/index.htm> [accessed 19 November 2017]
- ⁸⁶ European Investment Bank. (n.d.). 'Climate action'. Webpage. Available at: <http://www.eib.org/projects/priorities/climate-and-environment/climate-action/index.htm> [accessed 19 November 2017]
- ⁸⁷ European Investment Bank. (2016). 'Financial Report 2016'. Available at: <http://www.eib.org/attachments/general/reports/fr2016en.pdf>
- ⁸⁸ European Investment Bank. (2013). 'Excluded Activities'. Available at: http://www.eib.org/attachments/documents/excluded_activities_2013_en.pdf
- ⁸⁹ Mazzucato, M. and Penna, C. C. R. (2015) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ⁹⁰ BNDES. (n.d.) 'History'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/history.html [accessed 30 November 2017]
- ⁹¹ BNDES. (n.d.) 'Financial support'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/Financial_Support/ [accessed 30 November 2017]
- ⁹² BNDES. (2017). 'Accounting Report September 30, 2017'. Available at: https://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_en/Galerias/Download/Accounting_Release0917.pdf
- ⁹³ Frischatak, C., Pazarbasioglu, C., Byskov, S., Perez, A.H. and Carneiro, I.A. (2017). 'Finance & Markets Global Practice. Towards a More Effective BNDES'. Available at: <http://documents.worldbank.org/curated/en/306511499659990217/pdf/117304-REVISED-PUBLIC-WB-BNDES-June-2017-post-DM.pdf>

-
- ⁹⁴ Financial Times. (2013). 'Brazil's BNDES: crowding out, not crowding in'. Available at: <https://www.ft.com/content/46642d45-4af7-349b-9a6c-45f38d97b4f6?mhq5j=e5>
- ⁹⁵ Arnold, J., Jalles, J. and Beynet, P. (2013). 'Economic Surveys Brazil'. OECD. Available at: http://www.oecd.org/eco/surveys/Brazil_2013_Overview_ENG.pdf
- ⁹⁶ Rezende, F. (2015). 'Why Does Brazil's Banking Sector Need Public Banks? What Should BNDES Do?' Levy Economics Institute Working Paper No. 825. Available at: http://www.levyinstitute.org/pubs/wp_825.pdf
- ⁹⁷ BNDES. (n.d.) 'Who we support'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/Financal_Support/clients.html [Accessed November 30 2017]
- ⁹⁸ Lazzarini, S., Musacchio, A., Bandeira-De-Mello, R., And Marcon, R. (2011). 'What Do Development Banks Do?' Evidence from BNDES, 2002-2009. Brasil: Social Science Research Network (SSRN).
- ⁹⁹ Finnvera. (n.d.). 'Questions and answers'. Webpage. Available at: <https://www.finnvera.fi/eng/faq/questions-and-answers> [accessed 1 December 2017]
- ¹⁰⁰ China Development Bank. (2016). 'Annual Report 2016'. Available at: <http://www.cdb.com.cn/English/bgxz/ndbg/>
- ¹⁰¹ Ibid.
- ¹⁰² Ibid.
- ¹⁰³ Cassa Depositi e Prestiti. (2016). 'Annual Report 2016'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1226416>
- ¹⁰⁴ Cassa Depositi e Prestiti. (n.d.) 'Clients'. Webpage. Available at: <https://en.cdp.it/What-We-Do/Sustainability/Our-Commitment.kl> [accessed 28 November 2017]
- ¹⁰⁵ Nordic Investment Bank (2017). 'Annual Report 2016'. Available at: http://annualreport.nib.int/2016/wp-content/uploads/downloads/NIB_Annual_report_2016.pdf
- ¹⁰⁶ Ibid.
- ¹⁰⁷ Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ¹⁰⁸ Bpifrance. (2014). 'Strategic Plan 2014-2017'. Available at: <http://www.bpifrance.com/content/download/3607/47193/version/4/file/3%20axes%20and%2010%20strategic%20goals%20for-%20July%202014.pdf>
- ¹⁰⁹ Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ¹¹⁰ Mazzucato, M. and Penna, C. C. R. (2015) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ¹¹¹ Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB). (2016). 'German Resource Efficiency Programme II'. Available at: http://www.bmub.bund.de/fileadmin/Daten_BMU/Pool/Broschueren/german_resource_efficiency_programme_i_i_bf.pdf
- ¹¹² Luna-Martinez, J. and L.Vicente, L. (2012) 'Global Survey of Development Banks', World Bank Policy Research Working Paper.
- ¹¹³ KfW. (n.d.). 'Law Concerning Kreditanstalt für Wiederaufbau'. Available at: https://www.kfw.de/Download-Center/KfW-Gesetz-und-Satzung-sowie-Gesch%C3%A4ftsordnungen/Law-concerning-KfW-and-KfW-By-laws/KfW_Gesetz_E.pdf [accessed 25 November 2017]

-
- ¹¹⁴ KfW. (n.d.) 'Mittelstandsrat (SME Advisory Council) at KfW'. Webpage. Available at: <https://www.kfw.de/KfW-Group/About-KfW/Vorstand-und-Gremien/Mittelstandsrat-bei-der-KfW/> [accessed 30 November 2017]
- ¹¹⁵ Mazzucato, M. and Penna, C. C. R. (2015) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ¹¹⁶ Frischatak, C., Pazarbasioglu, C., Byskov, S., Perez, A.H. and Carneiro, I.A. (2017). 'Finance & Markets Global Practice. Towards a More Effective BNDES'. Available at: <http://documents.worldbank.org/curated/en/306511499659990217/pdf/117304-REVISED-PUBLIC-WB-BNDES-June-2017-post-DM.pdf>
- ¹¹⁷ BNDES. (n.d.) 'Legislation'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/legislation_bndes.html [accessed 2 December 2017]
- ¹¹⁸ BNDES. (n.d.) 'BNDES Bylaws'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/BNDES_bylaws.html [accessed November 24 2017]
- ¹¹⁹ Finnvera. (2016). 'Annual report 2016'. Available at: <http://annualreport2016.finnvera.fi/en/year-2016/corporate-governance.html>
- ¹²⁰ Downs, E. (2011). 'Inside China, Inc: China Development Bank's Cross-Border Energy Deals'. John L. Thornton China Center at the Brookings Institution. Available at: https://www.brookings.edu/wp-content/uploads/2016/06/0321_china_energy_downs.pdf
- ¹²¹ Qiyuan, X. (2017). 'CDB: Born Bankrupt, Born Shaper'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_China.pdf
- ¹²² <https://www.ft.com/content/f7bee36c-a7fe-11e2-8e5d-00144feabdc0?mhq5j=e5>
- ¹²³ Qiyuan, X. (2017). 'CDB: Born Bankrupt, Born Shaper'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_China.pdf
- ¹²⁴ Reuters. (2015, July 10). 'Italy state fund names new chiefs in shake-up sought by Renzi'. Available at: <http://uk.reuters.com/article/italy-cdp-management/update-1-italy-state-fund-names-new-chiefs-in-shake-up-sought-by-renzi-idUKL8N0ZQ40R20150710>
- ¹²⁵ Nordic Investment Bank. (n.d.) 'Constituent Documents'. Available at: https://www.nib.int/filebank/2032-Constituent_Documents.pdf
- ¹²⁶ Bpifrance. (n.d.) 'Notre organisation'. Webpage. Available at: <http://www.bpifrance.fr/Qui-sommes-nous/Notre-organisation> [accessed 6 December 2017]
- ¹²⁷ Bpifrance. (2016). 'Pillar III report 2016'. Available at: <https://www.bpifrance.fr/content/download/64458/700316/version/2/file/Pillar%20III%20Report%202016%20Bpifrance.pdf>
- ¹²⁸ KfW (2016). 'Financial report 2016'. Available at: https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./3_Finanzberichte/Finanzbericht-2016-D
- ¹²⁹ Naqvi, N., Henov, A. and Chang, H.J. (2017) 'Kicking away the financial ladder? German development banking under economic globalisation', *Review of International Political Economy*
- ¹³⁰ KfW. (2017). 'In good times and bad times: always a safe investment'. Available at: <https://www.kfw.de/PDF/Investor-Relations/Pdf-Dokumente-Investor-Relations/KfW-Investor-Presentation-November-2015.pdf>
- ¹³¹ European Central Bank. (2017). 'Implementation aspects of the public sector purchase programme (PSPP)'. Available at: <https://www.ecb.europa.eu/mopo/implementation/omt/html/pspp.en.html>

-
- ¹³² European Central Bank. (2017). 'Letter from the ECB President to Ms Ulrike Trebesius and Mr Joachim Starbatty'. Available at: https://www.ecb.europa.eu/pub/pdf/other/ecb.mepletter170830_TrebesiusStarbatty.en.pdf?fb0400f07429bdaf20b3f86416ee70e4
- ¹³³ KfW. (2017). 'In good times and bad times: always a safe investment'. Available at: <https://www.kfw.de/PDF/Investor-Relations/Pdf-Dokumente-Investor-Relations/KfW-Investor-Presentation-November-2015.pdf>
- ¹³⁴ KfW (2016). 'Financial report 2016'. Available at: https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./3_Finanzberichte/Finanzbericht-2016-D
- ¹³⁵ European Central Bank. (2017). 'Implementation aspects of the public sector purchase programme (PSPP)'. Available at: <https://www.ecb.europa.eu/mopo/implement/omt/html/pspp.en.html>
- ¹³⁶ European Central Bank. (2017). 'Letter from the ECB President to Ms Ulrike Trebesius and Mr Joachim Starbatty'. Available at: https://www.ecb.europa.eu/pub/pdf/other/ecb.mepletter170830_TrebesiusStarbatty.en.pdf?fb0400f07429bdaf20b3f86416ee70e4
- ¹³⁷ European Investment Bank. (2017). 'EIB supports mobile telecoms infrastructure development in Spain and Italy with a EUR 100m loan to Cellnex under the Juncker Plan guarantee'. Webpage. Available at: <http://www.eib.org/infocentre/press/releases/all/2017/2017-356-eib-supports-mobile-telecoms-infrastructure-development-in-spain-and-italy-with-a-eur-100m-loan-to-cellnex-under-the-juncker-plan-guarantee.htm>
- ¹³⁸ European Investment Bank. (2016). 'Financial Report 2016'. Available at: <http://www.eib.org/attachments/general/reports/fr2016en.pdf>
- ¹³⁹ Frischatak, C., Pazarbasioglu, C., Byskov, S., Perez, A.H. and Carneiro, I.A. (2017). 'Finance & Markets Global Practice. Towards a More Effective BNDES'. Available at: <http://documents.worldbank.org/curated/en/306511499659990217/pdf/117304-REVISED-PUBLIC-WB-BNDES-June-2017-post-DM.pdf>
- ¹⁴⁰ Studart, R. and Ramos, L. (2017). 'The future of development banks: the case of Brazil's BNDES'. *The Future of National Development Banks - Final Meeting*. Available at: <http://policydialogue.org/events/meetings/the-future-of-national-development-banks-final-meeting/>
- ¹⁴¹ BNDES. (2016). 'BNDES Annual report 2016'. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Hotsites/Relatorio Anual 2016 en/assets/bndes_ra2016_web_00_complete.pdf
- ¹⁴² Finnvera. (2017). 'Finnvera Investor Presentation February 2018'. Available at: https://www.finnvera.fi/eng/content/download/658/3213/version/23/file/Finnvera_Investor_Presentation_October_2017.pdf
- ¹⁴³ Finnvera. (2016). 'Annual report 2016'. Available at: <http://annualreport2016.finnvera.fi/en/year-2016/>
- ¹⁴⁴ Qiyuan, X. (2017). 'CDB: Born Bankrupt, Born Shaper'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_China.pdf
- ¹⁴⁵ China Development Bank. (2016). 'Annual Report 2016'. Available at: <http://www.cdb.com.cn/English/bgxz/ndbg/>
- ¹⁴⁶ Wang, Y. (2016). 'The Sustainable Infrastructure Finance of China Development Bank: Composition, Experience and Policy Implications'. *Boston University Global Economic Governance Initiative GEGI Working Paper 05*. Available at: https://www.bu.edu/pardeeschool/files/2016/07/Wang.New_Final.pdf
- ¹⁴⁷ Wildau, G. (2015, February 11). 'Chinese monetary policy undergoes big shift'. *Financial Times*. Available at: <https://www.ft.com/content/baee0b5c-b1b1-11e4-8396-00144feab7de?mhq5j=e5>

-
- ¹⁴⁸ Reuters. (2017). 'China's outstanding pledged supplementary lending at 2,106.90 bln yuan at end-Feb'. Available at: <http://uk.reuters.com/article/china-economy-loans/chinas-outstanding-pledged-supplementary-lending-at-2106-90-bln-yuan-at-end-feb-c-bank-idUKB9N1G801G>
- ¹⁴⁹ China Development Bank. (2016). 'Annual Report 2016'. Available at: <http://www.cdb.com.cn/English/bgxz/ndbg/>
- ¹⁵⁰ Cassa Depositi e Prestiti. (2016). 'Annual Report 2016'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1226416>
- ¹⁵¹ European Central Bank. (2017). 'Implementation aspects of the public sector purchase programme (PSPP)'. Available at: <https://www.ecb.europa.eu/mopo/implement/omt/html/pspp.en.html>
- ¹⁵² European Central Bank. (2017). 'Letter from the ECB President to Ms Ulrike Trebesius and Mr Joachim Starbatty'. Available at: https://www.ecb.europa.eu/pub/pdf/other/ecb.mepletter170830_TrebesiusStarbatty.en.pdf?fb0400f07429bdaf20b3f86416ee70e4
- ¹⁵³ Cassa Depositi e Prestiti. (2016). 'Annual Report 2016'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1226416>
- ¹⁵⁴ Nordic Investment Bank (2017). 'Annual Report 2016'. Available at: http://annualreport.nib.int/2016/wp-content/uploads/downloads/NIB_Annual_report_2016.pdf
- ¹⁵⁵ European Central Bank. (2017). 'Implementation aspects of the public sector purchase programme (PSPP)'. Available at: <https://www.ecb.europa.eu/mopo/implement/omt/html/pspp.en.html>
- ¹⁵⁶ European Central Bank. (2017). 'Letter from the ECB President to Ms Ulrike Trebesius and Mr Joachim Starbatty'. Available at: https://www.ecb.europa.eu/pub/pdf/other/ecb.mepletter170830_TrebesiusStarbatty.en.pdf?fb0400f07429bdaf20b3f86416ee70e4
- ¹⁵⁷ Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ¹⁵⁸ KfW (2016). 'Financial report 2016'. Available at: https://www.kfw.de/PDF/Download-Center/Finanzpublikationen/PDF-Dokumente-Berichte-etc./3_Finanzberichte/Finanzbericht-2016-D
- ¹⁵⁹ KfW. (n.d.). 'Welcome to KfW Group'. Webpage. Available at: <https://www.kfw.de/KfW-Group/> [accessed 24 November 2017]
- ¹⁶⁰ KfW. (n.d.). 'Equity finance'. Webpage. Available at: <https://www.kfw.de/KfW-Group/Newsroom/Press-Material/Themen-kompakt/Beteiligungsfinanzierung/> [accessed 2 December 2017]
- ¹⁶¹ Ibid.
- ¹⁶² KfW. (2017). 'KfW creates subsidiary for equity finance'. Available at: https://www.kfw.de/KfW-Group/Newsroom/Latest-News/Press-Releases/Pressemitteilungen-Details_423745.html
- ¹⁶³ Mazzucato, M. and Penna, C. C. R. (2015) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ¹⁶⁴ Gumb, G., 2012. German approaches in promoting energy efficiency: KfW best practice experience. Workshop on Energy Efficiency.
- ¹⁶⁵ European Investment Bank. (n.d.). 'Shareholders'. Webpage. Available at: <http://www.eib.org/about/governance-and-structure/shareholders/index.htm> [accessed 22 November 2017]
- ¹⁶⁶ European Investment Bank. (2016). 'Financial Report 2016'. Available at: <http://www.eib.org/attachments/general/reports/fr2016en.pdf>

-
- ¹⁶⁷ European Investment Bank. (2015). 'European Investment Bank: The Governance'. http://www.eib.org/attachments/general/governance_of_the_eib_en.pdf
- ¹⁶⁸ European Investment Bank. (n.d.). 'Finance instruments that can make your project happen'. Webpage. Available at: <http://www.eib.org/products/index.htm> [accessed 26 November 2017]
- ¹⁶⁹ Ferraz, J. C., Kupfer, D., & Marques, F. S. (2014). Industrial policy as an effective development tool: Lessons from Brazil. TRANSFORMING ECONOMIES, 291.
- ¹⁷⁰ Frischatak, C., Pazarbasioglu, C., Byskov, S., Perez, A.H. and Carneiro, I.A. (2017). 'Finance & Markets Global Practice. Towards a More Effective BNDES'. Available at: <http://documents.worldbank.org/curated/en/306511499659990217/pdf/117304-REVISED-PUBLIC-WB-BNDES-June-2017-post-DM.pdf>
- ¹⁷¹ BNDES. (2017). 'Accounting Report September 30, 2017'. Available at: https://www.bndes.gov.br/SiteBNDES/export/sites/default/bndes_en/Galerias/Download/Accounting_Release0917.pdf
- ¹⁷² Frischatak, C., Pazarbasioglu, C., Byskov, S., Perez, A.H. and Carneiro, I.A. (2017). 'Finance & Markets Global Practice. Towards a More Effective BNDES'. Available at: <http://documents.worldbank.org/curated/en/306511499659990217/pdf/117304-REVISED-PUBLIC-WB-BNDES-June-2017-post-DM.pdf>
- ¹⁷³ Bastos, V. D. (2012). 2000-2010: uma década de apoio federal à inovação no Brasil. Revista do BNDES, Rio de Janeiro, (37), 127-175.
- ¹⁷⁴ Frischatak, C., Pazarbasioglu, C., Byskov, S., Perez, A.H. and Carneiro, I.A. (2017). 'Finance & Markets Global Practice. Towards a More Effective BNDES'. Available at: <http://documents.worldbank.org/curated/en/306511499659990217/pdf/117304-REVISED-PUBLIC-WB-BNDES-June-2017-post-DM.pdf>
- ¹⁷⁵ Mazzucato, M. and Penna, C. C. R. (2015) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26.
- ¹⁷⁶ Ibid.
- ¹⁷⁷ Studart, R. and Ramos, L. (2017). 'The future of development banks: the case of Brazil's BNDES'. *The Future of National Development Banks - Final Meeting*. Available at: <http://policydialogue.org/events/meetings/the-future-of-national-development-banks-final-meeting/>
- ¹⁷⁸ Nordic Investment Bank. (2016). 'Annual Report 2016'. Available at: http://annualreport.nib.int/2016/wp-content/uploads/downloads/NIB_Annual_report_2016.pdf
- ¹⁷⁹ Finnvera. (n.d.). 'Loans'. Webpage. Available at: <https://www.finnvera.fi/eng/products/loans> [accessed 16 December 2017]
- ¹⁸⁰ China Development Bank. (2016). 'Annual Report 2016'. Available at: <http://www.cdb.com.cn/English/bgxz/ndbg/>
- ¹⁸¹ China Development Bank. (n.d.). 'Planning operations'. Webpage. Available at: <http://www.cdb.com.cn/English/ywgl/ghyw/> [accessed 4 December 2017]
- ¹⁸² China Development Bank. (2016). 'Annual Report 2016'. Available at: <http://www.cdb.com.cn/English/bgxz/ndbg/>
- ¹⁸³ Cassa depositi e prestiti. (2018). 'Investor presentation January 2018'. Available at: <https://www.cdp.it/ImagePub.aspx?id=1887248>
- ¹⁸⁴ Cassa Depositi e Prestiti. (2016). 'Annual Report 2016'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1226416>

-
- ¹⁸⁵ Nordic Investment Bank. (2015). 'NIB concludes a strategy review: More flexibility in lending'. Available at: https://www.nib.int/news_publications/cases_and_feature_stories/1580/nib_concludes_a_strategy_review_more_flexibility_in_lending
- ¹⁸⁶ Nordic Investment Bank. (2016). 'Annual Report 2016'. Available at: http://annualreport.nib.int/2016/wp-content/uploads/downloads/NIB_Annual_report_2016.pdf
- ¹⁸⁷ Bpifrance. (2017). 'Debt Investors Presentation, October 2017'. Available at: http://www.bpifrance.fr/content/download/65775/715074/version/1/file/Investor%20Presentation_October_2017.pdf
- ¹⁸⁸ Bpifrance. (2017). 'Innovation supports in France'. Available at: <http://docplayer.net/63382715-Innovation-supports-in-france.html>
- ¹⁸⁹ Mazzucato, M. (2017). 'Mission-Oriented Innovation Policy: Challenges and Opportunities'. Working Paper IIPP WP 2017-01. Available at: <https://www.ucl.ac.uk/bartlett/public-purpose/sites/public-purpose/files/moip-challenges-and-opportunities-working-paper-2017-1.pdf>
- ¹⁹⁰ Mazzucato, M. (2017). 'Wealth Creation and the Entrepreneurial State: building symbiotic public-private partnerships.' Available at: <https://www.ineteconomics.org/uploads/papers/Mazzucato-Value-Creation-and-the-Entrepreneurial-State-INET-version.pdf>
- ¹⁹¹ KfW DEG. (n.d.). 'Development Effectiveness Rating (DERa)'. Available at: https://www.deginvest.de/DEG-Documents-in-English/About-us/What-is-our-impact/Policy-brief_EN_final.pdf
- ¹⁹² European Investment Bank. (2014). 'At-Risk Co-Development Funding between UCB and EIB'. Available at: <http://www.eib.org/attachments/press/ucb-press-conference.pdf>
- ¹⁹³ European Investment Bank. (2017). 'Investment Plan finances innovative medical research with a €75 million loan to Evotec'. Available at: https://ec.europa.eu/commission/commissioners/2014-2019/katainen/announcements/investment-plan-finances-innovative-medical-research-eu75-million-loan-evotec_en
- ¹⁹⁴ Mazzucato, M. and Penna, C. C. R. (2015b) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26
- ¹⁹⁵ Schapiro, M.G., (2012). Rediscovering the Developmental Path? Development Bank, Law, and Innovation Financing in the Brazilian Economy. SSRN Working Paper.
- ¹⁹⁶ Cherobim, A.P.M.S., de Mendonça, A.T.B.B., Woehl, S., Nascimento, T.C., (2011). Venture Capital in Brazil: the role of the seed fund CRIATEC. *Análise* 22, 189–201.
- ¹⁹⁷ Schapiro, M.G., (2012). Rediscovering the Developmental Path? Development Bank, Law, and Innovation Financing in the Brazilian Economy. SSRN Working Paper.
- ¹⁹⁸ Mazzucato, M. and Penna, C. C. R. (2015b) 'The Rise of Mission-Oriented State Investment Banks: The Cases of Germany's KfW and Brazil's BNDES', SPRU Working Paper Series, 2015-26
- ¹⁹⁹ Finnish Ministry of Employment and the Economy. (2012). 'Evaluation of Finnvera Plc: Final report'. Available at: <http://tem.fi/documents/1410877/3437250/Evaluation+of+Finnvera+Plc+25062012.pdf>
- ²⁰⁰ iam Media. (2014). 'Chinese company's \$1.3 billion patent and trademark loan enters the IP deal pantheon'. Available at: <http://www.iam-media.com/blog/detail.aspx?q=481b76b6-637f-427f-b8d6-78d06cece504>
- ²⁰¹ Cassa depositi e prestiti. (2017). 'Corporate Governance and Responsible Investment Principles'. Available at: <https://en.cdp.it/ImagePub.aspx?id=1811308>
- ²⁰² Bpifrance. (2017). 'Innovation supports in France'. Available at: <http://docplayer.net/63382715-Innovation-supports-in-france.html>
- ²⁰³ Gertner, J. (2013), *The idea factory: Bell Labs and the great age of American innovation*, Penguin
- ²⁰⁴ Mazzucato, M. (2013). 'The Entrepreneurial State'. Anthem Press.

-
- ²⁰⁵ Hubert, R., and I. Cochran. (2017). 'Public Finance Institutions & the Low-Carbon Transition Case Study: KfW Bankengruppe'. *CDC Climat Research*. Available at: https://www.i4ce.org/wp-core/wp-content/uploads/2015/10/14-09_kfw_case_study.pdf
- ²⁰⁶ Moslener, U., Thiemann, M. and Volberding, P. (2017). 'National Development Banks as Active Financiers: The Case of KfW'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_Germany.pdf
- ²⁰⁷ Moslener, U., Thiemann, M. and Volberding, P. (2017). 'National Development Banks as Active Financiers: The Case of KfW'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_Germany.pdf
- ²⁰⁸ European Commission. (n.d.). 'What is the Investment Plan for Europe?'. Webpage. Available at: https://ec.europa.eu/commission/priorities/jobs-growth-and-investment/investment-plan-europe-juncker-plan/what-investment-plan-europe_en [accessed 22 December 2017]
- ²⁰⁹ European Investment Bank. (n.d.). 'European Fund for Strategic Investments (EFSI)'. Webpage. Available at: <http://www.eib.org/efsi/> [accessed 29 November 2017]
- ²¹⁰ European Investment Bank. (n.d.). 'The Hub: Europe's gateway to investment support'. Webpage. Available at: <http://eiah.eib.org/> [accessed at 29 November 2017]
- ²¹¹ BNDES. (n.d.) 'BNDES Bylaws'. Webpage. Available at: https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/BNDES_bylaws.html [accessed November 24 2017]
- ²¹² Lazzarini, S., Musacchio, A., Bandeira-De-Mello, R., And Marcon, R. (2011). 'What Do Development Banks Do?' Evidence from BNDES, 2002-2009. Brasil: Social Science Research Network (SSRN).
- ²¹³ Finnvera. (2016). 'Annual report 2016'. Available at: <http://annualreport2016.finnvera.fi/en/year-2016/>
- ²¹⁴ Ibid.
- ²¹⁵ Financial Times. (2015, December 17). 'Italy lays out €160bn industrial investment plan'. Available at: <https://www.ft.com/content/ffc8cc85-8cca-3f1b-b033-59c4670dcd9d>
- ²¹⁶ Lucchese, M., Nascia, L. and Pianta, M. (2016). 'Industrial Policy and Technology in Italy'. ISI Growth. Available at: http://www.isigrowth.eu/wp-content/uploads/2016/01/working_paper_2016_2.pdf
- ²¹⁷ Nordic Investment Bank (2017). 'Constituent Documents'. Available at: https://www.nib.int/filebank/2032-Constituent_Documents.pdf
- ²¹⁸ Bpifrance. (2014). 'Servir L'Avenir'. Available at: <https://www.bpifrance.fr/content/download/20228/261336/version/1/file/Plaque%20institutionnelle%20Bpifrance%20%28version%20anglaise%29.PDF>
- ²¹⁹ Moslener, U., Thiemann, M. and Volberding, P. (2017). 'National Development Banks as Active Financiers: The Case of KfW'. *The Future of National Development Banks*. Available at: http://policydialogue.org/files/events/background-materials/Future_of_National_Development_Banks_-_Germany.pdf
- ²²⁰ Lazzarini, S., Musacchio, A., Bandeira-De-Mello, R., And Marcon, R. (2011). 'What Do Development Banks Do?' Evidence from BNDES, 2002-2009. Brasil: Social Science Research Network (SSRN).

Recent papers in the IIPP Working Paper series

IIPP WP 2017-01 [*Mission-Oriented Innovation Policy: Challenges and Opportunities*](#). Mariana Mazzucato

IIPP WP 2017-02 [*Thinking About Technology Policy: 'Market Failures' versus 'Innovation systems'*](#). Richard R Nelson

IIPP WP 2017-03 [*Technological Capacity in the Public Sector: the Case of Estonia*](#). Rainer Kattel

IIPP WP 2017-04 [*Rethinking Value in Health Innovation: from mystification towards prescriptions*](#). Mariana Mazzucato, Victor Roy

IIPP WP 2017-05 [*Patient Strategic Finance: opportunities for state investment banks in the UK*](#). Mariana Mazzucato, Laurie Macfarlane

IIPP WP 2018-01 [*State investment banks and patient finance: An international comparison*](#). Laurie Macfarlane, Mariana Mazzucato

IIPP WP 2018-02 [*Putting austerity to bed: Technical progress, aggregate demand and the supermultiplier*](#). Mateo Deleidi, Mariana Mazzucato

ucl.ac.uk/iipp

[🐦@IIPP_UCL](https://twitter.com/IIPP_UCL)

UCL Institute for Innovation and Public Purpose,
Gower Street, London, WC1E 6BT

General enquiries:

iipp-enquiries@ucl.ac.uk
Tel: +44 (0)20 3108 6961



Institute for Innovation
and Public Purpose