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Governance of Innovation and Development Financing: Policies, Strategic Functions and Bureaucracies

OLGA MIKHEEVA

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TALLINN UNIVERSITY OF TECHNOLOGY
School of Business and Governance
Ragnar Nurkse Department of Innovation and Governance
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Supervisor: Prof Rainer Kattel
Ragnar Nurkse Department of Innovation and Governance
School of Business and Governance
Tallinn University of Technology, Estonia
&
Institute for Innovation and Public Purpose
University College London, UK

Opponents: Dr Elisa Van Waeyenberge
Department of Economics
SOAS University of London, UK

Prof Yamina Tadjeddine Fourneyron
Faculty of Law, Economics and Management
Université de Lorraine, Nancy, France

Defence of the thesis: 29/04/2020, Tallinn

Declaration:
Hereby I declare that this doctoral thesis, my original investigation and achievement, submitted for the doctoral degree at Tallinn University of Technology has not been submitted for doctoral or equivalent academic degree.

Olga Mikheeva

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Innovatsiooni ja arengu finantseerimise valitsemine: poliitikad, strateegilised funksioonid ja bürokraatia

OLGA MIKHEEVA

KIRJASTUS

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List of publications

The list of author's publications, on the basis of which the thesis has been prepared:

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III Juuse, Egert, Ringa Raudla, Aleksandrs Cepilovs & **Olga Mikheeva**. 2019. The Europeanization of Financial Regulation and Supervision on the Baltic-Nordic Axis: National Bureaucracies' Perspective. *Journal of Baltic Studies,* 50 (4), 409–433. (1.1)

IV **Mikheeva, Olga** & Egert Juuse. 2020. 'Development Finance in the Baltic States and the Process of Europeanisation.' In Matthias Thiemann, Daniel Mertens and Peter Volberding (eds.) *The Reinvention of Development Banking in the EU*. Oxford University Press, *forthcoming.* (3.1)

Annex

V **Mikheeva, Olga**. (2018). Institutional Context and the Typology of Functions of National Development Banks. The case of Development Finance Institutions (DFIs) in Malaysia. *Working Paper in Technology Governance and Economic Dynamics No 82.* The Other Canon Foundation and Tallinn University of Technology. (1.3)

VI Raudla, Ringa, Lars Mjøset, Rainer Kattel, Aleksandrs Cepilovs, **Olga Mikheeva** & Bent-Sofus Tranøy. (2018). Different Faces of Fiscal Bureaucracy. *Administrative Culture*, 19 (1), 5−36. (1.1)

Author’s contribution to the publications

Contributions to the papers in this thesis are:

I Author designed the study and conducted the research by doing a literature review, empirical data collection, including semi-structured interviews, and was solely responsible for the publication process.

II Author initiated the study and was largely responsible for the study design, empirical data collection and shared responsibilities with the second author in framing the theoretical part. Both authors shared responsibilities in the publication process while the first author acted as the corresponding author and was largely responsible for revisions of the manuscript.

III Author was solely responsible for empirical data collection in one country-case, and wrote a sub-chapter of the paper dedicated to that country-case. The author took an active part in revising the paper and in helping draft responses to referees.

IV Author designed the study, in terms of methodological approach and empirical data collection, conducted empirical data collection and acted as the corresponding author during a few rounds of editorial revisions.

V Author designed the study and conducted the research by doing a literature review, empirical data collection, including semi-structured interviews, and was solely responsible for the publication process. At the moment of submitting the dissertation a substantially revised version of the paper is being prepared (first round of revisions) for publication in an international peer-reviewed journal, for which the author is also solely responsible.

VI Author was solely responsible for empirical data collection in one country-case and took part in revising the manuscript according to comments from referees.

Introduction

Transportons-nous dans un monde nouveau. […] Ce système comprendrait d'abord une banque centrale représentant le gouvernement […]: cette banque serait dépositaire de toutes les richesses, du fonds entier de production, de tous les instruments de travail, en un mot, de ce qui compose aujourd'hui la masse entière des propriétés individuelles.

Doctrine de St. Simon, Exposition, 1828-1829

The banker […] authorizes people, in the name of society as it were, to [innovate].

Joseph Alois Schumpeter, 1911

The Minister of Finance could only be an industrialist who had practised his profession for ten consecutive years; further, he would be assisted by a council of twenty-six members – likewise chosen from industry – called the chamber of industry, which would determine the budget.

Emile Durkheim, 1959 [1928] on Henry Saint-Simon's *Système Industriel*, 1821

Not all Germans believe in God, but they all believe in the *Bundesbank*.

Jacques Delors, 1992

1 Focus and aim of the dissertation

Problematizing the financing of innovation and development requires an inter-disciplinary approach and a mix of theoretical frameworks due to the complexity of economic development, complex and ambivalent workings of finance and a multi-faceted nature of technological progress. Further, capitalist systems are historically and culturally embedded, and any study of institutional configurations would imply paying due attention to specificities of such context(s). Innovation refers to 'new combinations' that drive economic development (Schumpeter, 1977) and implies various types of financing at various levels and of various scales, from a variety of financial agents, both public and private. The financing of development, understood in economic terms, refers to the availability and use of financial capital for developing an industrial system of production, a national financial system and for improving the social wellbeing of the population. From a sociological point of view, finance represents complex activities of financial agents/markets, which have social and cultural dimensions. From a public-policy point of view, the financing of development is related to the administration of national financial accounts, the design and implementation of economic and financial policies (monetary, fiscal) as well as social, welfare and environmental policies. From a public-administration perspective, the financing of innovation and development also refers to mandates, functions of and coordination between specific financial agencies and institutions performing financing and regulatory functions. Therefore, considering the multiple functions that finance performs in a society as well as a variety of institutions that enable (or hinder), direct (or inhibit) and regulate these functions is essential.

The existing literature discusses various elements of the financing of innovation, such as historically embedded patterns of financing and its relation to particular corporate structures in the non-financial sector (Aoki & Dosi, 2000; Dosi, 1990; Lazonick & O'Sullivan, 1997b, 1997c); the aspects of financial instability inherent in financial systems and its implications for the financing of development (Kregel & Burlamaqui, 2005); the role of financial innovations in the financing of development and capital formation (Burlamaqui & Kregel, 2005, 2006; De Carvalho, 1997; also Burlamaqui & Kattel, 2016a, 2016b); strategic roles that specialized state investment banks can play in catalyzing structural and technological change (Mazzucato & Penna, 2015a; Griffith-Jones & Ocampo, 2018; also Mazzucato & Wray, 2019); and the role of other financial institutions, notably Central Banks, in accumulating managerial and administrative capacities in the context of development[1], i.e. when such competences are generally scarce (Mayer, 1989). In other words, the financing of innovation in the context of development has been analyzed from various points of view, thereby making studies of the subject rather fragmented. Further, concentrated in the field of economics, studies of the financing of innovation and development have been equally limited in addressing the policy dimension thereof. However, the design of financial policies conducive to innovation-led economic development and coordination between public finance agencies are no less important than innovation policies, so vividly suggested in innovation literature (e.g. Perez, 2002).

[1] For example, both the Ministry of Finance (where the Inspection des Finances has become an illustrative example of the civil service conducting missions both in Paris and in provincial administrations) and the *Banque de France* (with its 250 branches all over the country) are believed to stand behind the evolution and maturation of French-style administration (that is "centralized, uniformed, graft-avoiding, efficient book-keeping, structures, able to contribute to a state-of-the-art move of centralization"; Bonin, 2011).

Recently the question of the 'right type' of financial capital that would favor investments in the productive sector, long-term technological development and investments into the general social wellbeing became highly relevant, especially in the aftermath of the 2008 Global Financial Crisis (Parris *et al.*, 2010; Mazzucato & Perez, 2015). Besides post-crisis literature that discusses financial reform and (re)regulation (e.g. Levine, 2012; Underhill, 2015; Wray, 2013), it has been argued that governments can have a more active role in directing financial capital into strategic areas, such as frontier technologies (Mazzucato & Semieniuk, 2017a, 2017b; Perez, 2002) or projects with large positive externalities are being discussed by academic scholars (Griffith-Jones & Ocampo, 2018; Mertens & Thiemann, 2017) and policy-makers alike (European Commission, 2015; Rubio, 2018). Similarly, the discussion emerged about the 'strategic roles' of various public financial institutions, such as state investment banks (Mazzucato & Penna, 2015a), policy mandates of central banks (Campiglio *et al.*, 2018; Monnin, 2018; Olovsson, 2018), and whether their policy functions could be conceived beyond narrow mandates of 'operational independence' (De Carvalho, 1995; Ghosh, 2002; Wray, 2007; Tonveronachi, 2015a). In this context, 'strategic' means coordinated and deliberate government efforts in directing policies and institutions towards the financing of innovation and development. 'Mission-oriented' finance, innovation and development strategies that are based on societal challenges or 'missions', is the most explicit example of such 'strategic' actions (see Mazzucato & Penna, 2015a; Mazzucato, 2018). At the same time, in the context of this dissertation 'strategic' refers to a broader notion of 'state activism' used by Thurbon (2016), which does not necessarily need to include 'missions' type of policies, although it certainly can.[2]

Historically, the financing of infrastructure and development projects, including novel technologies, involved a combination of public and private financing: from the times of Roman roads to electrification in Europe (Cassis *et al.*, 2016) to the rapid industrialization of post-WWII newly independent states. Rich accounts in financial history elaborate on how public and private financing facilities came in various 'configurations' throughout history (including the pre-industrial era) (e.g. Cameron, 1992; also Cassis *et al.*, 2016). More fundamentally, the recently formulated legal theory of finance suggests that modern finance essentially represents a 'hybridity' of private and public financial instruments and contracts, public as well as private regulatory powers (Pistor, 2013b). Further, financial regulation and governance combines both public and private regulatory and enforcement mechanisms and therefore effectively represents a 'public-private partnership' (Tonveronachi, 2015b; Kregel and Tonveronachi, 2014). In this light, *governance of innovation and development financing implies concerted government efforts to incentivize and/or direct public-private financial configurations towards productive, innovation-oriented and welfare-inducing, or capability-building[3], investments.*

Just as national financial systems continue to exhibit institutional differences across countries (see, for example, Zysman, 1983; Forsyth & Verdier, 2003; also Kwok &

[2] This distinction is useful due to the consensus-generating, broader societal view of policy formulation implied by the 'missions' approach, while 'state activism', as the name suggests, implies active and deliberate government policy interventions, following a strategic vision towards socio-economic problems. What both terms, state activism and mission-oriented policies, have in common is the directionality, long-term approach and well-defined policy goals and intended outcomes.

[3] Reference is made to Sen's conceptualization of development as the process of building capabilities, which goes beyond welfare creation (Sen, 1999). Further, Martha Nussbaum discusses Sen's notion of capabilities as fundamental entitlements, especially related to the feminist perspective (Nussbaum, 2003).

Tadesse, 2006), there is a strong evidence that the financing of development implies varying financial configurations, embedded in place and time, whereas different financial institutions also vary in their relative importance (Parris *et al.*, 2010). This conclusion has an important implication for public policy and the analysis thereof: financial policies would be structured differently and would vary in the effects they have on innovation and development. From a governance perspective this implies varying public-policy efforts to incentivize the formation or to strategically guide the direction of financial configurations, which can be analyzed through the government's abilities and capacities to do so. *The main aim of the dissertation is to problematize the governance of innovation and development financing by looking at public policymakers (namely public bureaucracies), policy capacities, and by identifying strategic governance functions in relation to state-led financing of innovation and development.*

There is a growing recognition that public financial agencies are playing increasingly larger roles in public administrations while the studies of financial bureaucracies are very scarce (Krause, 2012; Raudla *et al.*, 2015; Allen *et al.*, 2016). Central financial agencies of governments perform a great variety of functions (Allen & Krause, 2013). For example, ministries of finance are typically in charge of budgeting and debt management, fiscal forecasting, tax administration and policy, audit, strategic planning, management of public assets and state-owned enterprises, regulation of financial institutions, accounting policies, among others (Allen, 2014; Krause *et al.*, 2016; Allen *et al.*, 2016). Despite the recognition that public bureaucracies form a substantial element of policymaking (Howlett, 2009; Peters, 2015; Wu *et al.*, 2015, Karo & Kattel, 2013, 2015, 2018; Lember *et al.*, 2016, 2018; Drechsler 2004), literature that analyzes public bureaucracies is not extensive. Further, one of the shortcomings of existing literature on public bureaucracies is the lack of consideration of policy domain characteristics. There is therefore the need to look at sector-specific characteristics: innovation studies and monetary economics are valuable sources for conceptualizing financial innovation and financial technologies (e.g. Perez, 2007; Kregel, 1998b; Minsky, 1988).

Building on governance and public-policy studies on the one hand and innovation and economics literature on the other hand, the dissertation suggests that *governance of innovation and development financing can be conceptualized through a set of strategic functions*. An illustrative example are the recent studies of state investment banks: viewed as specialized state-owned or state-backed financial firms (Mazzucato & Penna 2015a, 2015b; Griffith-Jones & Ocampo, 2018; Mazzucato & Macfarlane 2017), they represent a vivid example of a *public investment function*. As follows from their respective founding statutes, most development banks are established in order to 'carry out state investment policies' in relation to the national socio-economic development agenda. See, for example, the founding statutes of the Brazilian BNDES[4], the German KfW[5] and the Canadian BDC.[6] In the context of the European Union, the discussion over national promotional banks (NPBs) and policy financing explicitly emphasizes their strategic roles, 'additionality' and 'complementarity' to the empowered European Investment Bank and national investments, especially in regard to the Investment Plan for Europe and InvestEU initiative (European Commission, 2015;

[4] https://www.bndes.gov.br/SiteBNDES/bndes/bndes_en/Institucional/The_BNDES/legislation_bndes.html

[5] https://www.kfw.de/PDF/Download-Center/KfW-Gesetz-und-Satzung-sowie-Geschäftsordnungen/KfW-Gesetz-DE-EN-2.pdf

[6] https://lois-laws.justice.gc.ca/eng/acts/B-9.9/page-1.html#h-40261

Rubio, 2018; Griffith-Jones & Ocampo, 2018; Mertens & Thiemann, 2017). Subsequently, the appropriate regulatory frameworks for these policy institutions are being discussed (KfW, 2016; also Macfarlane, 2016; Mazzucato & Macfarlane, 2017). Further, policy recommendations are based on the vision that development banks possess strategic technical and economic expertise, which enables them to catalyze long-term finance, identify market failures *ex-ante* and serve niche sectors where private investment falls short (European Commission, 2015). Recent empirical studies conclude that state investment banks in fact often go beyond 'market failures' and help create new markets by financing riskier frontier technologies, thereby crowding in private investment and catalyzing technological change (Mazzucato & Penna 2015a; Mazzucato & Semieniuk, 2017a).

Meanwhile, in the second global survey of development finance institutions,[7] the World Bank (2018) concluded that development banks largely lack analytical tools and the capacity to evaluate their own performance in terms of the socio-economic impact of their operations. This is somewhat ironic, given that the very same report emphasizes how important development banks are for building capacity in private and public institutions, to create markets and to provide technical assistance, especially in the context of developing countries. Indeed, empirical studies of success cases, such as the Brazilian BNDES (Rezende, 2015), the German KfW (Mazzucato & Penna, 2015b; Naqvi *et al.*, 2018) and China's Development Bank (Sanderson & Forsythe, 2013), refer to the effective abilities of these financial institutions to direct policy finance to strategically important sectors. Generalizations are difficult due to the contextual specificities of each case, but a broader notion of governments' ability to make strategic investment decisions, thereby fulfilling a *public strategic investment function*, would allow for a generalization. Put simply, one way of analyzing the public investment function is to look at how governments can act as active investors through specialized financial firms, such as public investment banks, and to analyze what makes some public investment banks more strategic and dynamic investors than others through the prism of the capacities that development banks have.

Development banks alone can go as far as to promote economic development, but for economic transformation financing of innovation should represent a system of institutions (UNCTAD, 2016, p. 32). This raises the question of the capacities of public bureaucracies to operationalize economic development goals through appropriate financial policies and institutions as well as the abilities of these institutions to fulfill strategic policy roles. At the same time bureaucratic structures are not monolithic, and various types of public organizations might have conflicting objectives. As an extensive study of Japan suggests, economic planning agencies in charge of structural transformations tended to be risk-takers more than financial bureaucrats whose main task was financial stability and prudence (Calder, 1993). Similarly, a comparison of the financial liberalization of South Korea and Taiwan in the 1990s concludes that the gradual financial sector reform in Taiwan went hand in hand with a coherent group of public finance officials who maintained a shared vision of financial stability and a gradualist approach (Thurbon, 2001, 2003; also Thurbon, 2016). If, indeed, the goal of financial bureaucracy is to restrict and restrain on the one hand and to enable and facilitate on the other hand, the governance of innovation and development financing could be studied through the various functions that financial bureaucracies perform,

[7] The first global survey was conducted by the World Bank in 2012.

especially in light of the greater uncertainty and volatility that the process of economic development implies (Burlamaqui & Kregel, 2005, 2006; Kregel & Burlamaqui, 2005).

Further, a lot has been said about the need to re-orient financial systems towards supporting productive investments through limiting the speculative effects of financial innovations, empowering central banks (and other regulatory agencies) to promote structural transformation and help fight a climate change, and incentivizing private investors, especially commercial banks, against short-term investment strategies. At the same time, the reality of public policies suggests that central regulatory authorities often remain confined to narrow mandates in the name of operational independence (Campiglio *et al.*, 2018). Moreover, financial technologies (FinTech) are increasingly promoted at the top political level as they are becoming a source of national competitive advantage, whereas global cities bid for the status of International Financial Centers, for which large public funds may be injected to build national FinTech ecosystems (Woo, 2016). In other words, a discussion of the financing of innovation without mentioning the dynamics within financial systems would be incomplete. At the same time, financial systems are characterized by inherent fragility and instability (Minsky, 1986, 1992), and financial industry has been investing into uncertainty-inducing financial technologies more than ever (Cerny, 1994a, 1994b). Governments, in turn, are faced with the increasing sophistication of the technological complexity of the financial sector, which contributes to the uncertainty of the effectiveness of financial regulation and supervision. Further, financial systems, and therefore financial bureaucracies, are subject to external dimensions of influence through supranational and international regulatory frameworks and ideational discourses (e.g. Basel Accords, EU Directives, Article IV Consultation by IMF) (Juuse, 2016a, 2016b).

Inspired by ongoing discussions of the financial reform agenda (Wray, 2013; Kregel, 2009a), including an emerging recognition of the need to re-direct financing structures towards more inclusive and innovation-led growth (Mazzucato, 2016), the dissertation argues that we can identify various functions governments perform in terms of enabling or directing financial configurations towards innovation-inducing and development-oriented investments. In this context, functions refer to the objectives, tasks that are associated with public policies or specific outcomes that a set of policies aims to achieve. Functionality is not a new term. Redefining governance according to functional areas as opposed to administrative or territorial jurisdictions has been analyzed in spatial studies. This body of research suggests that often cross-sectoral coordination and policies are better framed following a functional rather than a territorial approach: understanding actual processes of spatial dynamics (e.g. in terms of labor markets or mobility patterns) is essential for effective regional planning, intra- and inter-governmental coordination and multinational policies, such as the European Cohesion Policy (ESPON, 2018). As Varone *et al.* (2013) suggested, designing 'functional regulatory spaces' would enable better coordination while dealing with wicked problems that tend to span over multiple policy domains and jurisdictions. In fact, gradual change in governance systems implies, among other elements, expansion towards new jurisdictions or refunctionality (Anheier, 2013). In a similar fashion, Hekkert *et al.* (2007) suggested to look at system-wide functions when analyzing technological change from the perspective of innovation systems: the notion of functions can be used to map innovation systems dynamics in order to gain insights into the dynamics of technological change. As was already mentioned, studies of key financial agencies refer to various functions of Ministries of Finance, and indeed, functions are typically attributed to organizations. But functions can be equally attributed to the processes and institutions, be it innovation systems (Hekkert *et al.*, 2007), regional governance (ESPON, 2018), or cross-policy response to (super) wicked problems (Varone *et al.*, 2013).

In this regard, the notion of functions is a viable tool for looking at the government's roles in shaping the financing of innovation and development. Considering the variety of functions finance plays in modern socio-economic and political relations, this leads to the formulation of the first research question.

> RQ1: How can we define governance of innovation and development financing through a set of specific finance-related functions performed by national governments?

When differentiating between various functions of financial governance, how could we define or conceptualize the fulfillment of these functions without locking ourselves into rigid categories of 'success-failure' or 'effective-ineffective'? Following Thurbon (2016), 'state financial activism' is identified through the active steering of financial policies to make sure finance benefits productive economic growth. Therefore, each function of 'active' financial governance can be characterized by policy decisions being made or capacities that enable such decisions. As the literature on governance and public policy suggests, the abilities of governments to exercise various capacities of policymaking are not static and vary over time (Karo & Kattel, 2018). To capture this evolutionary dynamic, directionality and to emphasize the ability of governments to strategically influence and direct financial structures, the second research question is about what makes financial governance 'strategic'. Framing the discussion along the 'strategic – non-strategic' continuum would help overcome limitations of looking for 'effectiveness' or 'impact', which are too rigid categories for such a fluid, ambivalent and complex phenomenon as finance.

> RQ2: how could we define strategic policy choices and/or strategic capacities of governments to make such choices part of the governance of innovation and development financing?

Given that economies are not isolated and despite nationally bounded policy mandates of governments, finance is essentially global. The problematics of national jurisdictions dealing with global financial actors (commercial banks, insurance companies, institutional investors) has been emphasized by post-crisis literature and in financial governance studies (e.g. Sheng, 2009; Underhill, 2015; Wymeersch *et al.*, 2012). This is also reflected in the multi-level governance of the financial sector: various international and supranational structures, comprised of both public (e.g. European Commission, IMF) and private (e.g. Basel Committee) agencies, actively shape the international financial architecture, which affects national financial systems and *vice versa* (Anheier, 2013; Underhill & Zhang, 2008). This consideration, peculiar to the sphere of finance, leads to the third research question.

RQ3: given multi-level governance as well as the global nature of financial capital, how are international and supranational governance elements reflected in and / or how do they affect national financial bureaucracies and their respective domestic policy roles?

Given these three research questions, the dissertation is based on an empirical-historical approach and aims at synthesizing various strains of literature, which is instrumental, given the novelty of the financial governance framework suggested in the dissertation. The fundamental assumption behind the research questions is the possibility of the so-called 'state activism' (following Thurbon, 2016) in the financial policy domain, that is, respective institutions and capacities of governments to exercise such 'activism' and to influence or facilitate the formation of strategic financing configurations. This approach allows avoiding concentrating solely on policy trajectories or institutional configurations. Instead, the dissertation aims at building a novel framework of financial governance accounting for the dynamic nature of financial structures, of governance institutions, and of bureaucratic capacities. As a result, conclusions and recommendations will be produced in terms of *strategic capacities* and *functions*, which can be more easily used in comparative analysis and for further analytical elaborations as compared to more 'finite' summaries of policy- or institutionally embedded best practices as examples for lesson-drawing.

The rest of the Introduction is organized as follows: the next section describes the methodology and research methods used in the dissertation, including the description of empirical data collection; next follows the review of various strains of literature that discuss the financing of innovation and development on the one hand and relevant literature on governance and public policy on the other hand; the three subsequent sub-sections outline major findings of the dissertation according to the types of strategic functions of financial governance; the conclusion summarizes and outlines limitations as well as suggestions for further research.

2 Methodology and approaches

The overarching methodology of the dissertation rests on the historical-empirical approach, a strong emphasis on qualitative methods, and a conscious choice to work with various strains of literature to aim at the complementarity of theoretical concepts. The evolutionary approach to innovation, learning, development of organizational routines and dynamic capabilities emerged in economics and management studies (Nelson & Winter, 1982; Mintzberg, 1989; Teece, 2009) while the very notion of competence building and routines was brought into the public-policy and administration domain, thereby emphasizing dynamic and evolving bureaucratic competences as part of public policy-making (Karo & Kattel, 2018; Kattel *et al.*, 2019). While comparatively analyzing innovation agencies in selected East Asian countries, Karo (2018) also concludes that the dynamic capabilities of innovation and industrial bureaucracies can be deliberately created as part of innovation policies. Therefore, the evolutionary approach to public policy capacities and bureaucratic competences forms an important conceptual premise of the dissertation. The capacities of public financial bureaucracies are employed as a tool to study financial governance: the capacities to make financing decisions are analyzed in case of quasi-public bureaucracies of development banks (**I**, **IV, V**); the technological capacity to cope with uncertainty and financial technologies is brought out while studying the national regulatory authority (**II**). Articles **III** and **VI** represent original and novel contributions, both in empirical and conceptual terms, and problematize the capacities of public financial bureaucracies (competences, perceptions) in terms of the varying policy-making roles that they perform nationally and in terms of their interaction with transnational (European) regulatory policies.

Theoretical elements of the dissertation are built by tracing the evolution of the financing concept in innovation literature starting from Schumpeter (1977, 1939), and by referring to post-Keynesian economics literature that elaborates on the financial dynamics of capitalist systems and money-creation (Minsky, 1986, 1988; Kregel, 1998a, b; Wray, 2013). The latter was particularly instrumental for building the argumentation in Articles **I** and **II**. In addition, a theoretical proposition on systemic financial fragility, elaborated by the post-Keynesian school of economic thought and extended in a more recent Schumpeter-Minsky synthesis on financing of innovation and development (Burlamaqui & Kregel, 2005, 2006; Kregel & Burlamaqui, 2005; Burlamaqui & Kattel, 2016a, 2016b), is synthesized with public policy and governance literature. This makes it possible to problematize the technological capabilities of the financial sector and the related uncertainty vis-à-vis public regulatory authorities and their competences. Indeed, the technological capabilities of public bureaucracies have been discussed in relation to the use and adoption of ICT technologies (Lember *et al.*, 2016, 2018), while Article **II** extends this concept towards abilities of public regulatory authorities to cope with the technological complexity of financial innovations.

Innovation is understood as a dynamic, non-linear process which is conceptualized and studied from an institutionalist and evolutionary perspective (Freeman, 1974; Nelson & Winter, 1982; Hodgson, 1988; also Reinert, 2007) and therefore has a systems-based and context-specific policy dimension (Lundvall, 2010; Reinert, 2007).[8]

[8] Reference should be made to the two distinct intellectual traditions of studying innovation: with the focus on technological change (analyzed from micro- and macro-economic perspectives, fundamentally quantitative, originated in the US in the 1930s), and the evolutionary perspective on technological innovation

In addition, the ambivalent nature of technological innovation is equally relevant to the sphere of finance, where 'good' financial innovation refers to novel financial instruments that facilitate the financing of innovation in the productive economy (Minsky, 1985; also Cassis *et al.*, 2016) and 'bad' financial innovation refers to speculative finance, excessive risk taking and can have disastrous effects on the real economy (e.g. Perez, 2002). Yet, both types of innovations can occur simultaneously, on various systemic levels, and are not mutually exclusive. Moreover, 'bad' financial innovations are endemic to the way the financial sector evolves (Perez, 2002; Minsky, 1986; Reinert, 2012; see also Guttmann, 2016[9]). Further, the social constructivism generally found in critical studies of science and technology is equally relevant to the sphere of finance: algorithms used in financial markets and institutions reflect political and moral assumptions (e.g. transfer of wealth between intermediaries) that come from theories we use to construct the tools (e.g. algorithms) (Ortiz, 2019; also see Chambost *et al.*, 2019). From the governance perspective, that would mean the necessity and ability of governments to analytically assess and anticipate the ambivalence of financial innovations and related uncertainty.

Given the exploratory nature of the research questions, the complexity of financial architecture, the ambivalence and non-linearity of technological and financial innovations as well as the overall aim of the dissertation, which is also of an exploratory kind, the dissertation relies on qualitative research methods and particularly a case study with a strong comparative element (**I, III, IV, VI**). The case-study method is used when contextual conditions are important since they are 'highly pertinent to [the] phenomenon of study' (Yin, 2003, p. 13). The governance of innovation and development financing is explored through the prism of various policy functions, which are defined through the combination of public policies and respective bureaucratic capacities. The notion of functions in governance literature refers to cross-sectoral or cross-jurisdiction policies (Varone *et al.*, 2013). It can be applied to various policy domains: from environmental projects to regional planning (ESPON, 2018) and to more conceptual studies of innovation systems and technological change (Hekkert *et al.*, 2007). What is common is the focus on the goal or task that can be described through functionality: e.g. the public-investment function in the context of innovation and development implies the overarching task to facilitate innovation-led growth through a set of policies aiming at financial investments. Analyzing governance or policy functions implies working with empirical data and process observations (Hekkert *et al.*, 2007; Varone, 2013). This consideration is reflected in the empirical-historical approach employed for data collection in all articles that comprise the dissertation.

In terms of case selection, since the emphasis is put on *strategic policies and capacities*, cases were selected in order to best exemplify such functions. In other words, case selection involved careful consideration of institutional configurations, which can be defined in space and time, and would help construct in-depth case studies of *governance functions*. Namely, the analysis of the state investment function, where state-backed financial investments facilitate innovation-led growth, is performed by

(emphasizing the institutional dimension, systems approach and public policy, developed in the UK in the 1970s, largely associated with Christopher Freeman and SPRU). For a detailed historical discussion see Godin (2009, 2010a, 2010b).

[9] Specifically, Chapter 2 represents a synthesis of Minsky's work and French *théorie de la régulation,* which both share key fundamental assumptions: financial systems are dynamic, characterized by endemic and recurrent crises as well as a 'Knightian' uncertainty.

comparatively analyzing four specialized financial agencies, such as national development banks, in four countries of East Asia from the time of active 'developmental state' policies (post-WWII) onwards (**I, V**). Such a timeframe allows observing a close(r) nexus between state financial interests and the industrial sector. East Asian 'developmental states' exhibit a considerable continuation of 'state financial activism' (following Thurbon, 2016) and therefore provide a clear-cut empirical basis for comparing similar institutional trajectories. Following the same approach, the three Baltic countries – Estonia, Latvia and Lithuania – are analyzed in Article **IV** when looking at national development finance institutions. The similarity of the institutional and policy contexts makes the comparison more coherent. Similarly, the Monetary Authority of Singapore was selected as a case study of the technological capacity of public regulatory authorities due to the continuity of the promotion of the financial sector (from the 1970s onwards), consistent policies aiming at attracting global financial players and innovative FinTech startups and the most recent agenda to develop a FinTech ecosystem in Singapore (**II**).

The European supranational regulatory framework provides a rich opportunity to study the interplay between national and supranational policies and, more specifically, varying capacities of national bureaucracies to interpret, deliberate, and implement EU-led policies domestically. This is especially apparent in the domain of financial regulation and supervision, where the EU has been consolidating governing powers through increasing the harmonization of regulatory and supervisory practices. The cases of financial and fiscal bureaucratic competences and roles are comparatively analyzed in Articles **III** and **VI**, where both older and newer member states of the EU/EEA are considered: Estonia, Latvia, Sweden and Norway. Similarly, external financing that comes in the form of European Structural and Cohesion Policy funds and its effects on domestic financing agencies in the three Baltic countries (Estonia, Latvia and Lithuania) is analyzed by looking at the interplay of supranational and national capacities in Article **IV.** Multi-level governance has not been analyzed in relation to development banks or the financing of development. In this context, selecting European Member States as case studies is highly relevant.

The case study inquiry typically refers to the investigation of a phenomenon within its real-life context and therefore involves a triangulation of various sources of data (due to the complexity of social phenomena) (Yin, 2003, p. 13-14). Further, constructing a case study involves process-tracing, which typically implies a consistent historically based explanation of the case. Moreover, equifinality (i.e. there are multiple policy choices that can lead to similar socio-economic outcomes, for example) and multifinality (i.e. similar policies would have different effects in different contexts) of public policies imply a careful attention to contextual and historical specificities of institutions and organizations being analyzed in the dissertation (see, for example, Bennett & Elman, 2006). Similarly, the institutional and evolutionary approach to innovation and development implies attention to contextual specificities. This applies to the institutional context, policy trajectories and bureaucratic competences, which are historically and culturally embedded. Literature in financial history, history of economic policies and archival materials published by various public financial agencies were valuable sources for tracing the evolution of policies, institutions and organizational/bureaucratic structures. This was possible due to the access to extensive archival records of organizations being analyzed in the dissertation. Besides the aim to work with the descriptive statistics, historical materials were instrumental for identifying the most significant elements of the institutional context (**IV, V**) as well as for constructing typologies of the various roles that specialized public financial institutions can play (**I**). Indeed, following Sombart (1929), economic history does not represent the mere description of 'things as they were' but should be approached with a theoretical and *taxonomic framework*. To systematize various historical facts, we should first 'perceive clearly the distinctive features which actually characterize a given complex of economic conditions and contacts' (Sombart, 1929, p. 9). The strong comparative element of the dissertation makes it possible to approach historical materials through the taxonomic lens and construct respective typologies (**I, III, V, VI**). Further, the methodological strategy of the dissertation is based on the firm conviction that the richness of historical studies should not be confined to the annals of history but can also provide a valuable input into existing empirical as well as theoretical discussions in related disciplines. In other words, echoing Mary O'Sullivan, *we can use history not just to test but to add to the theory.* Indeed, approaching history already implies existing conceptual frameworks and therefore newly developed theoretical concepts can be equally applied to the historical material of the same period, for example. The only constraining factor would be the availability of data. Further, to combine public-policy research questions with historical accounts of public administration and economic development would help develop a more nuanced view on policy choices, policy capacities and governance in general (**II, IV, V**).

In terms of study design, we may also differentiate between various types of case studies, depending on the aim: to explore, to explain or to describe (Yin, 2003; also Stewart, 2014). The *exploratory case study* method was used for a number of reasons. Article **II** represents an exploration of novel forms of collaboration between public regulatory authority and the private financial sector, whereas the hypothesis involves a conceptually novel link between organizational change and the process of public policymaking. In Articles **III** and **VI,** the exploratory case study was used due to the research aim of 'zooming into' formal bureaucratic structures and providing a more substantive and nuanced analysis of the roles that fiscal and financial bureaucracies can play. Such an approach is contrasted with strictly formal accounts of bureaucratic authority and institutional competences that do not consider the dynamic notion of competence building. Both articles **III** and **VI** emphasized variations among the country-cases (Estonia, Latvia, Sweden, and Norway) due to the importance of the comparative element of the study for the construction of typologies of the roles that financial bureaucracies play. The articles also extensively relied on interview materials since one of the research aims was to capture the 'voices' of respective bureaucratic officials, as part of exploring their roles, attitudes and perceptions thereof. Articles **I, IV** and **V** represent *explanatory case studies* due to the attempt to explain either organizational change within specialized financial firms as a response to uncertainty (**I, V**) or to explain the constraining effects of external financing onto competences among specialized financial firms (**IV**). The conclusions drawn in articles **I** and **V**, including the typology of development banks and the institutional context in which they operate, aim at a replication of similar study designs in other contexts and can be used for potential inter-contextual generalizations. It is also worth mentioning that Article **IV** represents a comparative inter-case study where one country case serves as a primary case whereas two other cases serve as 'shadow cases'. The latter are used to demonstrate the similarity of institutional and policy trajectories, despite some differences in degree.

Process-tracing (George & Bennett, 2005; Beach & Pedersen, 2019) was used for establishing causal mechanisms within multiple cases (**I**) and within a single case (**II, IV**). Namely, organizational change in financial firms was observed due to changes in industrial structures when tracing the evolution of financial instruments provided by development banks (**I, V**). In addition, a formalization of the collaborative practices between the public regulatory authority and the private financial sector was described due to the growing complexity of financial technologies and in organizational structures of organizations (**II**).

Study designs and units of analysis vary across the articles: a comparative case study is performed on a micro-level while analyzing the financing of innovation and organizational change in four national development banks in Korea, Taiwan, Singapore and Malaysia respectively (**I**); the macro-level study of national policies and development finance institutions in Malaysia aims at providing a national perspective of institutional context in which DFIs operate (**V**); a macro-level analysis is combined with micro-level analysis in order to position development finance institutions (as organizations) within a broader institutional context in Estonia (**IV**); the micro-level organizational focus on Monetary Authority of Singapore is combined with financial regulation and governance perspective (**II**); while a multi-organizational focus on national financial bureaucracies in key public agencies in Estonia, Latvia, Sweden and Norway represents a comparative perspective on roles and perceptions of public bureaucracies and simultaneously looks at the interplay between national and supranational regulatory institutions (**III, VI**).

The theoretical approaches and concepts, outlined above, defined methods for empirical data collection. The case-study method implies a triangulation of data sources, which was especially relevant to the somewhat ambitious attempt to construct a longer-term view on individual financial institutions (**I, V**) and regulatory agencies (**II**). Further, a unique dataset of industrial investments (1963-1993) as well as total lending by development banks (1963-2014) was constructed for Malaysia, as a country-case (**V**). Archival work with annual reports, media archives and policy notes covered some 50 years (from the 1960s onwards) and was combined with descriptive statistics and interview materials (**I, II, V**); studies of policy documents and reports were combined with interview materials (**I, III, IV, VI**). Work with the archival materials used in Articles **I**, **II** and **V** was carried out between August 2015 and April 2016 and involved multiple visits to libraries of national central banks in Kuala Lumpur, Manila and Hong Kong; Singapore's Monetary Authority reports were accessed through the Singapore National Library; visits to the Ministry of International Trade and Industry and the Ministry of Finance also took place in Malaysia during the same period. The interviews cited in Articles **I**, **II** and **V** were conducted between October 2016 and October 2017 in Putrajaya, Penang, Kuala Lumpur, Singapore and Manila. The interviews cited in Articles **III** and **VI** were conducted in Tallinn, Riga, Stockholm and Oslo in their respective Central Banks, national Supervisory Authorities and Ministries of Finance during 2014–2016.[10] The interviews cited in Article **IV** were conducted in Tallinn (including via Skype/telephone with interviewees from Riga and Vilnius) during 2019.

Semi-structured interviews were key in helping construct a longitudinal perspective on policy priorities and especially organizational practices (**I, II**, **V**), for getting to understand coordination mechanisms between financing agencies and respective

[10] The author was responsible for conducting interviews in Norway during Spring-Summer 2016.

ministries (**IV**), and for identifying perceptions and roles of financial policy officials (**III, VI**). Further, the availability of data (and access) proved to be a significant challenge in the context of a developing country, less so in terms of language but more so in terms of access and availability of materials (**V**). This particular context also affected the consistency of data: frequent changes in regulations and methods of reporting affected statistical records, which made constructing a longer data series an overly optimistic undertaking. Yet, due to the scarcity of such data, even a fragmented data set constructed from the Central Bank's annual reports is informative in terms of various indicators (e.g. general lending by development banks, share of various sectors in their total lending, use of funding sources) (**V**).

3 Theoretical and historical perspectives on financing of innovation and development and its governance

3.1 Financing of innovation in economics and innovation studies

The Oxford Handbook of Innovation (2004), the Elgar Companion to New-Schumpeterian Economics (2007), the Handbook of the Economics of Innovation (2010), Innovation Studies: Evolution and Future Challenges (2013) and the Elgar Companion to Innovation and Knowledge Creation (2017) provide a good snapshot of innovation scholarship during the last two decades. Interestingly, despite an institutional approach, financing aspects of innovative activities are mentioned sporadically and mostly concern disruptive financial innovations or the need to better understand the financial industry where innovation is mostly associated with financial speculation and its negative effects on the real economy (see, for example, Hall & Lerner 2010; Lundvall, 2013).[11] Yet, the need to understand the relation between financial *dynamics* and the real economy has been widely acknowledged (Dosi, 1990; Aoki & Dosi, 2000; Burlamaqui & Kregel, 2005; Perez, 2002; Lundvall, 2010; Dosi *et al.*, 2015). Perez (2002, 2007) had pointed to the de-linking of Schumpeter's entrepreneur-banker strategic synergy by arguing that Schumpeter did not attend to the financing dynamics to the same extent as he elaborated on entrepreneurial dynamics, and this very fact paved the way for the future research agenda (see also Burlamaqui, 2015; Burlamaqui & Kregel, 2006). Despite seeing a banker – or more broadly, a banking system as the creator of credit and money – as an 'ephor' of capitalism, Schumpeter was unclear about the *dynamics within financial structures in relation to 'new combinations'* in the productive economy. In this light, a recent study by Callegari (2017) provides a comprehensive counterargument: financial theory of innovation has always been present in Schumpeter's theory of economic development, and its neglect owes to persistent misinterpretation of the finance-related part of his theory.[12]

A currently dominating neo-Schumpeterian approach with its emphasis on knowledge creation and entrepreneurship has limited the financing of innovation to the studies of risk-taking technopreneurs, i.e. venture capitalists,[13] and R&D funding (see, for example, Edquist & Hommen, 2009; Mani, 2004; Hall & Lerner 2010; Christensen, 2008; also Janeway, 2012) Such a constraining view on the financing of innovation has been acknowledged within a neo-Schumpeterian community itself: the authors of the Comprehensive Neo-Schumpeterian Manifesto suggest that economics of innovation should be set on a broader conceptual basis and developments in financial systems (as well as public-sector innovation) should be integrated into innovation studies (Hanusch & Pyka, 2006). The authors of the Manifesto further state that 'it is difficult to distinguish between the evolution of the financial sector and its role and function in particular stages of development in capitalist economies' (Hanusch & Pyka, 2006, p. 12). Indeed, many informative studies stopped short or drawing generalizable conclusions or of putting forward conceptual

[11] Interestingly, *Critical Studies of Innovation: Alternative Approached to Pro-Innovation Bias* (Godin & Vinck, 2017) concentrates on alternative representations of innovation and policies, including political economy and socio-economic aspects of innovation, but makes no mention of financing either.

[12] See also Tichy (1984) and Biondi (2008).

[13] Venture capitalists are operating on the frontier where financial speculation intersects with novel technology (Janeway, 2012, p. 10).

propositions, except for pointing out a complex interdependency between the availability of finance and innovation in the productive sector (See, for example, Lazonick & O'Sullivan, 1997b, 1997c; Christensen, 2007; Hain & Christensen, 2013). In this light, Perez (2007) and O'Sullivan (2006) provide the most holistic views and outline the following conceptual elements in the research agenda: various technologies require different types of financing; the technological cycle also implies variation in the required forms of financing and so does a business cycle; macroeconomic conditions matter as well as financial regulatory environment; financial innovations and dynamics within financial industry represent another variable; national financial systems differ in terms of historically-embedded institutional setups (e.g. bank-based vs market-based vs market-based banking[14]); production structures and corporate organization evolve and affect the financing needs of productive firms; speculative financial behavior is endemic to how the financial sector evolves and can serve as a catalyst of innovation in the productive sector at one time and as a destructive force at another time. Hain & Christensen (2013) also suggest a more nuanced contextualization of financing: to differentiate between the types of innovation (incremental vs radical) and to consider regional (geographic) differences in terms of economic structures and the availability of *particular types* of capital (e.g. venture capital tends to concentrate in urban areas). Mazzucato differentiates between various types of risks that require the availability of various types of financing (Mazzucato, 2013). All in all, despite the fact that typically innovation studies have an explicit policy-related focus, the financing of innovation and development from a policy perspective represents a neglected area of research. Some notable exceptions include Burlamaqui & Kregel (2006), Burlamaqui (2015), Burlamaqui & Kattel (2016a, 2016b), and Mazzucato (2013, 2018).

Financial firms also innovate, and therefore financial innovation is an indispensable part of economic life and development, as was suggested by Minsky's interpretation of Schumpeter. First and foremost, financial firms innovate in order to overcome regulations (Minsky, 1986); and second, less explicitly, the financing of innovative activities implies variations in how financial contracts get structured (Minsky, 1985, 1988). Namely, the financing of productive economic activities involves a transfer of uncertainty from a non-financial firm operating in a competitive environment to financial firms: only successful innovations by non-financial firms would imply their full ability to service their financial liabilities, while these very financial assets are held and traded by financial firms (and the general public) (Burlamaqui & Kregel, 2006, p. 6-7). On the other hand, competition in the financial sector, financial policies, regulations and standards prevalent in the financial sector also affect financial firms and hence the financing of productive economic activities. Further, the competitive behavior of financial firms transforms financial markets and, in turn, 'affects the ability of all firms to finance new innovations' while 'knowledge-based innovation is a key strategic response to uncertainty and financial instability' (Burlamaqui & Kregel, 2005, p. 1). In addition, volatility comes from behavioral patterns, also emphasized by Perez (2002) in regards to endemic financial bubbles: financial innovations that facilitate the financing of innovation in business tend to decrease transparency concerning the risks being borne in the system, which raises the possibility for ever-increasing financial risks and an ever-decreasing understanding of such risks because in Minsky's terms Schumpeterian entrepreneurs are speculative units while true

[14] The initial 'market-based vs bank-based' dichotomy suggested by Zysman (1983) was revised by Hardie *et al.* (2013), who suggested the third, more 'blended' type, of 'market-based banking'.

Schumpeterian entrepreneurs are quasi Ponzi units (Burlamaqui & Kregel, 2006, p. 5). The Schumpeter-Minsky synthesis is essential for understanding the co-evolution of financial and productive structures and the dynamics thereof: e.g. the growth of capacities in financial firms would allow non-financial firms to achieve greater economies of scale and scope (Burlamaqui & Kregel, 2005, 2006).[15] Further and most importantly, the Schumpeter-Minsky synthesis identifies the financing of innovation through the interaction of financial and non-financial firms and as a *distinct source* of uncertainty that adds to instability. In other words, financial systems are fragile and are characterized by various types of uncertainties that enhance an endemic systemic fragility.

3.2 Financing of innovation and development from a historical perspective

From a historical perspective, tracing the evolution of industrial investments makes it apparent that the financing of innovation implies various configurations of public and private financial interests. Therefore specific forms of financing that have contributed to the evolution of new technologies – be it a network of federal roads in the Roman Empire, railroads in 19th-century Europe or modern telecommunication technologies – represent a particular research interest if we are to agree that innovation policies should have an explicit financing component (Mazzucato, 2018). The role of national governments in facilitating structural transformation and technological innovations can also be viewed through a historical lens. Indeed, the financing of industrialization and development forms a substantial part of financial history studies, which is a rich and highly illuminating body of research (Cameron, 1953, 1961, 1967, 1992; Cassis, 1992; Cassis & Cottrell, 2015; Cassis *et al.*, 2016; Tilly, 1986; Lazonick & O'Sullivan, 1997a, 1997b, 1997c; O'Sullivan, 2006). This literature traditionally compares experiences of France and Germany due to the varying roles of state involvement in late industrialization on the Continent (as opposed to the very gradual industrialization in Great Britain, largely financed out of retained earnings) and gives a good comparative overview of 'public-private financial combinations' related to new technologies. At the start of the 19th century, investments in emerging industries – mostly railroads but also chemical industry – were made by private banks, which depended on the respective Central Banks for authorization of capital. A comparison between the French and German experiences in the second half of the 19th century suggests that more active involvement of the French government in railroad construction co-existed with the rather conservative policy of the *Banque de France*, whereas German railroads were constructed by predominantly private enterprises (Clapham, 1921), with the government acting more as a facilitator and the *Reichsbank* as the lender of last resort.[16] Further, German private companies were largely in charge of raising the capital and carrying business management of the railways. This is, however, a while

[15] An illustrative example of this is the cartelization of large manufacturing firms in Germany in the late 19th century, which was facilitated by amalgamations among major banks competing for greater market influence (Gerschenkron, 1962), or the point in French financial history when the joint-stock form of ownership was allowed in banking, which made it possible to pool the resources of many smaller investors to finance large-scale railroad projects starting from the 1850s.

[16] Roughly at the same time – the mid-19th century – American experience suggests that a strong private sector can play the role of industrial bankers without much coordination with the state, including Central Banking authority. On railroads in America, see, for example, Martin (1992).

before the Great German banks emerged towards the last third of the century.[17] According to Riesser (1911), Germany had a far larger amount of credit demands thanks to its trade and industry, exceeding those of France, as well as a greater amount of credit banks of greater diversity to satisfy those demands. In addition, the concentration of banks at the beginning of the 20th century has diminished the *Reichsbank*'s ability to influence the rate of the private discount market. In essence, the task of regulating the credit has been transferred to the credit banks (*ibid.*).

State involvement in strategic investments in new technologies can take various forms: from direct financing, procurement and public works or granting concessions to more indirect ways through allowing particular types of contracts, forms of ownership[18] or standardization of technical and safety requirements (the case of German railroads). Most financial historians have credited France with the first industrial bank – *Société Générale de Crédit Mobilier* (mostly known as *Crédit Mobilier*), which was in operation during 1852-1867 and which is believed to have inspired bankers in Germany, Italy and later in other countries on the Continent to establish similar industrial investment banks for the purpose of investing primarily in railroad construction (Gerschenkron, 1962; Cameron, 1953, 1961, 1967). Speculation on railroad securities existed before the French *Crédit Mobilier*[19], but it was precisely the Pereire brothers that implemented the idea on such a large scale that paved the way for numerous enterprises not only in railroad construction but in public works and other industries.[20] But the companies associated with the Bank (i.e. where the Bank held participations) were subjects to financial mismanagement and under-supervision, largely due to the fact that the duty of supervision was not even mentioned in the Bank's founding statutes (Liesse, 1909). The relations with the Bank of France were especially important since industrial finance tends to involve liquidity problems due to the long-term nature of financial commitments.[21]

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[17] Reference is made to the largest and most important *credit banks* that evolved towards the second half of the 19th century in Germany and were instrumental to financing of industries. The list included *Darmstädter Bank, Disconto-Gesellschaft, Berliner Handelsgesellschaft, Dresdner Bank, Mitteldeutsche Kreditbank, and Commerz-und Privatbank (Riesser, 1911; Sraffa, 1929-1930).*

[18] The birth of canals and railroads owed a debt to newly allowed joint-stock banks: pooling a lot of smaller-scale investors together made it possible to raise capital on the needed (large) scale.

[19] Belgium is arguably regarded as the homeland of the first industrial investment initiatives, which came directly from the Monarch, who authorized the establishment of the *Société Générale de Belgique*, a joint-stock bank, in 1822 and donated substantial funds for investing into heavy industries, coal mining, metals and later railroads. The funds remained underutilized until roughly the 1830s, when Belgium gained independence and industrial financing took off (Cameron, 1967).

[20] In most scholarly accounts of the French *Crédit Mobilier* available in English, the main focus remains on innovative bankers actively investing in the emerging railroad industry, treated either as a significant, yet, short-lived success (Sraffa, 1929-1930; Cameron, 1953; Gerschenkron, 1962) or a less successful undertaking (Paulet, 1999). Yet, a recently published monograph (Davies, 2015) demonstrates that the Pereires can be considered true Schumpeterian entrepreneurs pursuing 'new combinations', for whom the generation of employment and social justice were integral to investing into scientific and industrial progress, largely owing to their Saint-Simonian socialist convictions (Mikheeva, 2016).

[21] It should be noted that in reality of the time (mid-19th century) the investment banking industry still represented merely a beginning, and its organization reproduced many of the vices of the industrial organization: bankers themselves "d[id] not properly understand the extent of their functions", and only a small proportion of industrial transactions was done with their cooperation (Sraffa, 1929-1930). They had to learn from scratch about the industry practices in controlling processes (Bonin, 2011). Industrialists had already developed a way of sharing the knowledge, a corpus of methods was defined and popularized. For example, Henri Fayol's '*Administration industrielle et générale: Prévoyance, organisation, commandment, coordination, contrôle*' (1916) served as the 'bible of the time'. The *Comité National de l'Organisation Française* tackled the issues of standards of firm governance. By contrast, the banking industry did not yet

Certain novelties implemented by industrial bankers signified the process of building capabilities in assessing technological innovations and evaluating its market potential. An organizational innovation pioneered by German banks, among others, were the so-called Trust Companies, which were in charge of evaluating the creditworthiness of industrial firms. Sraffa (1929-1930) describes the functions of such entities as highly effective in ensuring that the bank is fully aware of a company's financial and industrial positions. French bankers, on the other hand, had brought new practices into the banking industry from the public sector, namely from the Ministry of Finance and its *Inspection Générale des Finances*. The *Société Générale* pioneered the banking supervision and generally became known for its role in maturing the methods of management by institutionalizing the *Inspection Générale* in the 1880s-1890s, which later was adopted by the rest of the banking community (Bonin, 2011).

To summarize, late industrialization in Continental Europe was financed by entrepreneurial bankers, which, however, had different relations with both industry – more strategic in Germany and less so in France – and Central Banks – more synergetic in Germany and less so in France. The matters of industrial standards, however, were more regulated in France than in Germany: in regard to railroads, the French *Ponts-et-Chaussées* served as an example of the tradition of *étatisme*, which implied a pool of state engineers and a formal procedure of standardization in the construction and operation of railroads and supporting infrastructure, whereas in Germany the private industry was not subject to centrally administered regulations and standards due to the late unification as well as greater reliance on private enterprise (Mitchel, 2000).

The historical comparison between France and Germany outlined above suggests that historical patterns of how a national financial system has evolved, central public administration culture developed, and the business structures formed around dominant technologies (following Perez, 2002) – the configuration of these factors is unique to each nation-state. In the modern context, the global financial architecture as well as supranational governance arrangements, such as the European Union, adds an additional dimension: the interplay between national and supranational/international jurisdictions and regulatory powers (e.g. Sheng, 2009). Typologies of financial structures can be found in literature on the types of financial systems (bank-based vs market-based vs market-based banking) (Zysman, 1983; Hardie *et al.*, 2013) and in the scarce literature on industrial and financial dynamics (e.g. Aoki & Dosi 2000 refer to 'financial setups'; also see Lazonick & O'Sullivan 1997b, 1997c for comparative study of Japan, US, UK and Germany). Yet, historical analyses of financial systems (Goldsmith, 1969; Zysman, 1983; King & Levine, 1993; Demirgüç & Levine, 2001; Rajan & Zingales, 2001; Forsyth & Verdier, 2003; Beck & Levine, 2018) or literature on development financing (e.g. Nurkse, 2009; Kregel, 1998a, 1998b, 2004, 2007; De Carvalho *et al.*, 2019) make little or no mention of public policies, policy instruments or capacities of national financial administrations to carry out intended financial policies. However,

have an institutionalized platform for sharing the practices until the interwar period, when the banking field became more cohesive with conferences organized, associations formed and journals published (*Revue Banque*). (*ibid.*) Moreover, investment banking implied learning about the industry, and this produced a variety of organizational innovations: The *Crédit Lyonnais* institutionalized a separate function of economic analysis; the *Société Générale* pioneered financial supervision in the 1880s-1890s by emulating the public Inspection Générale des Finances; German banks were hiring researchers in industry-related disciplines and institutionalized financial audit of prospective borrowers through semi-independent Trust Companies (Sraffa, 1929-1930).

the general notion of governance capacities and policy learning in the context of development has been long present within the international policy community (e.g. OECD, 2005; Petrin, 2016; also see Karo & Kattel, 2013).

One way of bridging this gap is to approach the financing of innovation and development from a governance perspective, that is, to raise the question of the role of public agencies and institutions in facilitating productive investments, and how these roles are performed (i.e. capacities). Literature on the political economy of development argues for such 'state activism', which implies going beyond effective macroeconomic policies by also considering intended state involvement in shaping industrial policies and corporate strategies, industrial and trade relations, both in developing and developed countries alike (Weiss, 1998; Wade, 2004; Evans, 1995). Further, historical specificities of governance, financial and industrial structures suggest that the role of national governments cannot be defined as 'more vs less'. Instead, taking into account theoretical concepts developed in the field of economics and innovation studies (e.g. fundamental uncertainty, financial innovation and financial sector dynamics, 'state activism' and ability to 'create markets') and placing these concepts into empirical-historical contexts will make it possible to identify strategic roles and functions of relevant public agencies that facilitated (or hindered) effective financing of innovation and development. For example, be it mid-19th century France, where private investment bankers were dependent on the Bank of France for the authorization of additional capital, or mid-20th century South Korea, where the Korea Development Bank (KDB) could raise funds on foreign capital markets only with guarantees from the Central Bank, the important role of central financial regulatory authorities becomes immediately apparent. Further, the initial stages of industrialization involve significant technology imports, particularly machinery. The financing of technology imports and operations on foreign capital markets imply foreign currency transactions, which affect the national balance of payments. Indeed, as policy notes from KDB officials suggest (Song, *undated*), such effects were closely coordinated in Korea. In other words, development banks performing the role of state investment agents fulfill such a development-oriented investment function in close coordination with other financial agencies, such as Central Banks and Ministries of Finance, and this involves inter-policy coordination (e.g. national accounts, balance of payments; public budget – in case a development bank is entrusted to handle national pension funds).

Following Sombart (1929), approaching history with a taxonomic framework is most useful. Therefore, one way of defining strategic governance of innovation and development financing would be to construct a typology of financial institutions embedded in place and time, to outline a set of institutional and governance arrangements that surrounded the evolution of new technologies (e.g. railroads and canals, automobiles, electronics, green technologies). However, constructing typologies has a major limitation, such as a static representation of institutional constellations, which makes it difficult to incorporate institutional dynamics (O'Sullivan, 2005). Yet, a historical empirical lens helps make a conceptual discussion of the governance of innovation and development financing more nuanced and stronger in terms of empirical representation and actual policy relevance. Following Arendt's conceptualization of history, it can be understood 'only from the perspective [one] occupy[es]' and therefore provides limitless opportunities for identifying new patterns (depending on the perspective) rather than particular formulas (Arendt, *et al.*, 1992;

also Krieger, 1976). In the context of this dissertation, this approach is reflected in the extensive use of historical materials and interviews for empirical data collection for identifying common patterns in state-backed deliberate actions aiming to direct financial capital into innovation and development projects.

3.3 Financing of innovation and development from a governance perspective: policies, bureaucracies and capacities

The finance sector affects various domains of economic and social life and the multi-functional workings of finance as well as the ability of public policies to affect the direction thereof can be considered from various levels. In fact, finance is among the most policy-elastic sectors: financial industry is very responsive to even minimal policy/regulatory changes (Walter, 1993). From a *macro-economic perspective*, financial policies should aim at sustainable and inclusive economic growth. A macro-level perspective is useful in order to develop a systemic approach to the financing of innovation, i.e. to acknowledge that the entire (national) financial system can and should contain incentives to channel financial capital to innovative productive activities (e.g. Mazzucato & Wray, 2019; Burlamaqui, 2015; Kregel & Burlamaqui, 2005; also King & Levine, 1993). It is also useful for defining the respective policy tools and their evaluation. Therefore, at the macro-level, the governance of innovation and development financing represents a mix of socio-economic, financial, STI and other related policies (e.g. education, environment) as well as intra-policy coordination.

A *meso-level perspective* or governance at the industry level would aim at facilitating financial inclusion, developing city-level or regional competitive advantage (e.g. global financial centers, off-shore financial zones, 'tax heavens'). A meso-level perspective involves policies to promote the financial sector as an industry as such. It can also refer to 'governmentality' of the financial sector, which refers to the relations between governments and citizens termed 'financial citizenship' (e.g. Lai & Tan, 2015). It can involve a focus on financing constraints in particular innovative industries, such as green ones, for example (Christensen, 2007), or particular types of firms, such as start-ups or high-tech firms. Such an approach is useful to identify industry- and technology-specific financing characteristics and also to outline problematics of measuring and differentiating the financing of innovation activities from the overall financing of a firm (Christensen, 2003).

From a *micro-level* perspective, the focus would be on particular (public) organizations that are directly involved in or facilitate the financing of innovation and development. Mayer (1989) looks at banking institutions in the context of economic development and concludes that managerial, analytical and bureaucratic competences tend to accumulate first in the banking sector at large.[22] Indeed, central financial agencies of governments perform a great variety of administrative functions (Allen & Krause, 2013). For example, ministries of finance are typically in charge of budgeting and debt management, fiscal forecasting, tax administration and policy, audit, strategic planning, management of public assets and state-owned enterprises, regulation of financial institutions, accounting policies, among others (Allen, 2014; Krause *et al.*, 2016;

[22] This contrasts with the reverse trend in developed countries in Europe, where a modern banking profession (understood as a banking industry) emerged in the 19th century while largely emulating practices of industrial organizations, which already had sets of standards and forums for knowledge exchange (manuals, publications, conferences, trade fairs) established by that time (Sraffa, 1929-1930).

Allen *et al.*, 2016). Further, recent literature on state investment banks is focusing on state-controlled specialized financial firms, which have an explicit policy mandate to channel long-term finance to strategic sectors and facilitate innovation through 'patient' finance, thereby directly affecting the direction of financing of innovation (Mazzucato & Penna, 2015a, 2015b; Mazzucato & Semeniuk, 2017a, 2017b, 2017c; Griffith-Jones & Ocampo 2018; Naqvi *et al.*, 2018; also Mertens & Thiemann, 2017).

To sum up, the governance of innovation and development financing can be understood as a combination of financial policies, institutions and capacities of respective public bureaucratic structures related to these policies. Governance and public-administration literature differentiates between various capacities of governments to perform its functions: a broader notion of policy capacity is discussed (Painter & Pierre, 2005; Peters, 2015; Wu *et al.*, 2015), including in the context of innovation and development (Karo & Kattel, 2013, 2015, 2018); sector-specific policy domains (Hsu, 2015) analytical policy capacity (Howlett, 2015); regulatory and relational capacity (Jayasuriya, 2005, 2004; also Peters *et al.*, 2011); technological capacities (Lember *et al.*, 2016, 2018; also Peters, 2012); as well as administrative and organizational capacities (e.g. Drechsler, 2004; Randma-Liiv, 2002; Kattel *et al.*, 2011). At the same time, financial-governance literature focuses on regulatory policies while referring to regulatory capacities (Lütz, 2004; Levine, 2012; Quaglia, 2014; also Peters *et al.*, 2011); multi-level and global financial governance (Underhill, 2006; Underhill & Zhang, 2008; Black, 2012; Bakir & Woo, 2016); the role of ideational discourses (Baker & Underhill, 2015; Blyth, 2013); policy actors and policy regimes (Black, 2003; Woo 2015a, 2015b; Woo & Howlett, 2015; Woo, 2016); and, more recently, on dynamic capacities to respond to financial crisis conditions (Woo *et al.*, 2016) or pursue 'nationalist' financial policies, such as 'banking nationalism' (Mérő & Piroska, 2017).[23] In other words, with some minor exceptions, studies of financial governance tend to focus on either financial policies without considering governments' capacities to design and implement such policies; or, when capacities are being discussed, they are limited to regulatory, analytical or broader coordination capacities (e.g. within policy subsystems or policy regimes) in the financial policy domain.

This raises the question of what types of capacities are needed for governments at large or public financial agencies in particular to implement investment policies and to effectively finance or facilitate innovation and development. This can be analyzed through the capacities of public bureaucracies, that is, public agencies tasked with respective policies. As the comparative study of East Asian developmental states suggests, a strategic approach to developing competent and effective public-sector bureaucracies can be formulated as part of innovation and development policies (Karo, 2018; also Karo & Kattel, 2013). Wu *et al.* (2015) operationalize policy capacity by differentiating between operational, analytical, and political capacities that exist at individual, organizational and systemic levels. This framework substantially adds to our understanding of competences and capabilities involved in policymaking. The framework also suggests that effective policymaking would imply the existence of a set of skills and resources – or competences and capabilities – necessary to perform policy functions' (Wu *et al.*, 2015, p. 166). Mukherjee & Bali (2019) take this further by suggesting that effective policy solutions are possible when analytical, managerial,

[23] As a notable exception, Hamilton-Hart and Jomo (2003) discuss financial policy elites as an integral part of financial policies and overall economic governance contexts in selected Southeast Asian countries.

and political capabilities of policymakers are present. Bringing together effective policy design (also see Peters *et al.*, 2018) and the framework of policy capacities suggested by Wu *et al.* (2015) is essential for linking competences of policy actors (both government and non-government, as the framework by Wu *et al.* (2015) suggests) with policy outcomes and solving societal problems – the overarching goal of public policies (Mukherjee & Bali, 2019; Peters *et al.*, 2018). It is nevertheless difficult to qualitatively/empirically assess the effectiveness of capacities discussed in this literature, especially in light of the discussion on anticipatory, adaptive governance and an agile policy-design approach (Capano & Woo, 2017, 2018; Howlett *et al.*, 2018; Nair & Howlett, 2017; Bali *et al.*, 2019). To account for the dynamics in policy capacities and competences, instead, the term 'strategic' could be used. As was mentioned earlier, strategic policy capacity would imply directionality (in a sense of long-term orientation), deliberation among policy actors, nurturing skills and competences of public agencies in order to achieve intended policy outcomes. This, in turn, raises the question of bureaucratic competences and skills related to strategic policy capacities.

Public financial bureaucracies represent a highly relevant subject for analysis due to traditionally closed policy communities and the technical nature of the finance sector (Moran, 1984; Underhill, 2015; Sheng, 2009). Further, there is a growing recognition that public financial agencies are playing increasingly larger roles in national public administrations while the studies of financial bureaucracies are very scarce (Krause, 2012; Raudla *et al.*, 2015; Allen *et al.*, 2016). Besides directly affecting policy design and implementation in terms of capabilities to perform policy functions (as in Karo, 2018; Karo & Kattel, 2013), public bureaucracies can be also viewed from the point of view of professional elites and experts, which are related to dominant ideational discourses. Global policy advocacy and transnational ideational communities in economics and finance have been discussed (Baker & Underhill, 2015; Blyth, 2013; Underhill & Zhang, 2008; Graz & Nölke, 2007). For example, Blyth (2013) analyzed the dominance of neoliberal ideas among economic and financial policy elites; Ban & Tillekeratne (2019) studied development bankers as a particular type of international policy elite; multiple studies deal with the role of international agencies such as IMF and World Bank in transposing economic policy concepts to nation-states through policy advice and conditionality of financial assistance (e.g. Jomo & Chowdhury, 2019; Anheier, 2013; Van Waeyenberge, 2017; Van Waeyenberge, *et al.*, 2011; Abbott, 2014). In addition, the professionalization of new policy elites in the context of development and/or transition is equally relevant (e.g. Randma-Liiv, 2002; Randma-Liiv & Kruusenberg, 2012; Randma-Liiv & Drechsler, 2017). In other words, the professional background and the ideas prevalent among policy elites (both national and transnational) affect policy capacities and policy roles performed by public bureaucracies. Such role models are also shaped in the context of policy import, external policy advice and are directly related to the capacities of policy elites in terms of domestic policy deliberations (e.g. Randma-Liiv & Drechsler, 2017; Hajnal, 2016; Randma-Liiv & Kruusenberg, 2012).

3.4 Governance of innovation and development financing as a set of functions

Looking at 'state activism' in terms of the state's active involvement in the financing of innovation and development through the prism of deliberate public policies, respective policy capacities and corresponding roles and competences of public bureaucracies constitutes the governance perspective suggested in the dissertation. Furthermore, existing literature on innovation and development allows identifying a set of functions or finance-related strategic directions that active state-led financing of innovation implies. The 'functions approach' in public policies and governance is not new. Functional regions and areas are emphasized in regional and urban studies, in order to argue for a more function-based approach to spatial development. For example, looking at regional employment markets dynamics or mobility patterns is more likely to ensure more effective regional policies rather than strictly following administrative boundaries of territorial jurisdictions (e.g. ESPON, 2018). Indeed, the European Commission has called for a more function-based approach and introduced 'functional areas' into the Cohesion Policy regulatory framework, in order to aim for place-based policies: functional areas are defined in terms of shared history, economic activities, societal problems, common identities, etc.[24] Similarly but in more abstract terms, Varone *et al.* (2013) suggested 'functional regulatory spaces' as a conceptual tool to develop function-based approaches and policy spaces when dealing with (super) wicked problems, which span multiple domains, geographic areas and administrative jurisdictions. Hekkert *et al.* (2007) suggested delineating a set of systemic functions (e.g. knowledge development, knowledge diffusion, entrepreneurial activities, market formation, search guidance) in order to conduct a process analysis and to map the dynamics and direction of technological change.

Addressing the government's roles in the financing of innovation and development with a function-based perspective in mind makes it possible to differentiate between functional areas of strategic policy intervention or 'state activism' in the finance domain. Functions, in turn, can be described and analyzed in terms of policies and public bureaucracies, employing such concepts developed in public policy and governance studies (Howlett, 2009; Wu *et al.*, 2015; Karo, 2018; Karo & Kattel, 2013). Employing such a novel methodological framework helps overcome the limitations of identifying static institutional configurations or a set of best policy practices. The emphasis on the 'strategic – less strategic' continuum allows accounting for the dynamic nature of the financial structures, institutional set ups, governance structures and bureaucratic capacities. Once again, 'strategic' refers to a direction rather than a certain set of traits. Strategic function or policy intervention implies *intended directionality* and therefore *long-term orientation.* A strategic approach also entails serving a pre-defined purpose or policy outcome, involves deliberately designed policy tools, it implies a consistently pro-active and problem-solving take rather than reactive or situational. It also involves *ad-hoc* interventions, which are essential to the ability to cope with uncertainty, but they should not override the overall direction and principles. In this regard, a strategic take on policy tools and outcomes shapes the respective organizational culture among the public agencies in charge (e.g. Yasuda, 1993, p. 46 describes how employees of the Industrial Bank of Japan kept identifying themselves

[24] See, for example, a discussion paper by Mehlbye & Böhme (2018).

with public and often national interest; see also studies of peripheral innovation agencies by Breznitz & Ornston, 2013).

For example, the Keynesian principle of 'animal spirits' refers to the ability of a financing agent to engage in investment activities. This equally applies to an individual financier as well as to systemic conditions. The latter has immediate policy implications, that is, the ability of governments to influence the economic cycle from the monetary side, as was formulated by Keynes (1936). Dow (2014) conceptualizes this as 'the disposition to face uncertainty,' which is positive when projects get financed and negative when investors are not willing to commit financial capital. Such disposition is dynamic and depends on various factors, such as macroeconomic environment, business cycle, as well as technological trajectories and prevailing organizational forms of business and financial firms, trends in the financial sector, etc. (O'Sullivan, 2006). If the financing of innovation involves a (positive) disposition to face uncertainty, there are also successful structures and procedures that encourage the institutional disposition to face up uncertainty (Dow, 2014). Further, governments carry out various investment activities through a variety of policy tools. Specialized financial institutions, such as state-backed investment banks, are one of them. Development finance institutions or state investment banks represent a closer nexus between financial and industrial interests due to their specialized mandate to provide financing for strategic and riskier sectors. As empirical studies of successfully operating development banks demonstrate, these quasi-public agencies can fulfill the government's *strategic investment function* by developing new markets, investing into frontier technologies and riskier projects (Mazzucato & Penna, 2015a, 2015b; Griffith-Jones & Ocampo, 2018). The reference to the mandate to act as strategic investors on behalf of respective governments (or monarchs) is also explicitly made in the founding legal documents of many development banks, as was mentioned earlier. At the same time, little is known about how these specialized public institutions develop their own bureaucratic capacities and why some development banks appear to be more strategic state-backed investors than others. Therefore, by looking at these institutions through the prism of policy and bureaucratic capacities, we may observe competences or other characteristics that are related to the ability of these banks to exercise a positive (or negative) disposition to face uncertainty. That is, to exercise 'financial power' and conduct investment banking within the context of an intended policy outcome: to channel investments into innovation and development-oriented projects.

Given the technological intensity of financial innovations and large multinational financial actors investing into financial technologies, domestic regulatory authorities face the need to develop sufficient technological capacities. With the increasing use of financial technologies, the need for soft coordination and strategic partnerships with corporate actors has increased. The literature on public policy and governance refers to learning in the context of the policy subsystems approach and the advocacy coalition framework (Sabatier, 1988; Weible *et al.*, 2011; Henry, 2011; Montpetit, 2011), while Ostrom (2005) claims that learning occurs more easily when opportunities for repeated interaction exist even when contrasting beliefs are present. In the existing literature learning is discussed through the prism of scientific information available to policymakers and supplied by epistemic communities (Haas, 2004; King, 2005; Marier, 2008; also Pahl-Wostl, 2009). Yet it contains a constructivist approach, that is, the assumption that science should be 'translated' into usable knowledge that, in turn, would be politically feasible, in order for scientific insights to make its way into a policy process. This is also discussed in studies dealing with the analytical capacity of government actors (Howlett, 2009), but technology-driven innovations represent expert knowledge and can be better categorized as technical capabilities, which regulatory bureaucrats need to comprehend. From the governance perspective, that would imply an ability and capacity of governments to effectively exercise their *regulatory function* through financial regulation and supervision. The technical nature of financial innovation has long been acknowledged (Cerny, 1994a, 1994b) and encouraged by national authorities to gain a competitive advantage (an illustrative example is the UK[25]) but has not yet fully entered into scholarly literature on financial regulatory agencies and financial governance. Financial-governance literature so far has been focused on the problematics of global financial governance vs national regulatory enforcement mechanisms (e.g. Sheng, 2009; Underhill, 2015) with very few studies on policy capacities (Woo *et al.*, 2016). Meanwhile, analyzing the state's financial regulatory function through the prism of policies and bureaucratic capacities enables having the needed perspective on technological aspects of financial innovation and the abilities (or lack thereof) of regulatory agencies to cope with innovation-induced uncertainty. Here relying on the concept of endemic financial fragility and systemic instability (Minsky, 1985, 1986, 1992; Kregel & Burlamaqui, 2005), which characterizes the financial sector, is essential when considering the directionality and long-term orientation of regulatory policies and their intended outcomes in the context of development.

Further, the literature on regulatory state and financial governance acknowledges the proliferation of regulatory agencies 'as the administrative and intellectual core' of national and global governance system (e.g. Levi-Faur, 2011a). There is an emerging body of research that deals specifically with key public financial agencies. Various functions of central financial agencies are discussed: from tax collection and customs administration to the management of state-owned enterprises and financial regulation (Allen, 2014; Krause *et al.*, 2016; Allen *et al.*, 2016). In addition, the main broad capabilities of central finance agencies are highlighted: analytical (ability to understand and analyze information), delivery (ability to produce goods and services and get things done), regulatory (ability to control the production of services by others), and coordinative (ability to coordinate the activities of other actors in pursuit of a common objective) (Krause *et al.*, 2016). In the context of development, the question of national financial bureaucracies is especially apparent due to the importance of external financing (Kregel, 2004) and the related emphasis on prudent financial management, which typically appears as one of the conditionalities of financial assistance or capacity building programs.[26] This is equally relevant for developing countries and for transition economies in Europe, where the inflow of EU Structural and Cohesion Policy funds co-existed with the process of agencification and depoliticization (e.g. Randma-Liiv *et al.*, 2012; Nakrošis & Bankauskaitė-Grigaliūnienė, 2014) In addition, the excessive emphasis on financial management combined with limited administrative capacities may further weaken the incentives for domestic policy deliberation (e.g. Breznitz &

[25] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/801277/UK-fintech-state-of-the-nation.pdf

[26] For example, see the World Bank's policy on Financial Management https://www.worldbank.org/en/webarchives/archive?url=http%3A%2F%2Fweb.worldbank.org%2Farchive%2Fwebsite01531%2FWEB%2F0__CO-33.HTM

Ornston, 2017) and reinforce the short-termism of the policy agenda rather than a longer-term vision and directionality of policies. The decontextualization of national policy priorities due to excessive reliance on external policy advice, external financing and related conditionalities has been analyzed in relation to innovation policies (Suurna & Kattel, 2010; Suurna, 2012). Apart from this, little consideration is given to the capacities of national bureaucracies to deliberate and implement policies domestically in the context of supranational and international governance arrangements. For example, the European multinational governance framework is analyzed (e.g. Levi-Faur, 2011b), but no differentiation is made between historical aspects of the evolution of public bureaucracies: e.g. older vs newer Member States. In the financial-sector domain, the studies of the Europeanization of financial policies and the interplay between national and supranational policy priorities have been illuminating and inspiring (e.g. Juuse, 2016a, 2016b; Mérő & Piroska, 2017; also Piroska & Gabor, 2019). Therefore, when considering the long-term orientation of key financial agencies, we may refer to *financial administrative functio*n, how it evolves and to what extent multi-level governance affects the capacities of national financial bureaucracies. Given the global mobility of financial capital, high policy-elasticity, and the multi-level architecture of financial governance, there is a need to further look into how domestic capacities of policymakers evolve and develop.

To sum up, we may differentiate between the following three strategic functions of the financial governance of innovation and development: *the investment, regulatory* and *financial administrative functions*. Each function is characterized by institutional contexts as well as actors, both domestic and international/supranational. Further, we may identify desirable outcomes for each governance function in strategic terms, i.e. in terms of what is the overall direction and long-term outcome of the state's role according to each function (Table 1). More importantly, each function can be analyzed through policies as well as related bureaucratic capacities, which evolve in particular institutional contexts, which is described in the next section. The list of functions presented in Table 1 is not exhaustive and rather builds on the existing literature, which is one of the limitations of the suggested approach but also an opportunity to expand the framework, as will be discussed in the last, concluding section.

Table 1. Governance of innovation and development financing as a set of strategic functions

Governance of innovation and development financing

function	**Investment function**	**Regulatory function**	**Financial administrative function**
national actors	• State-owned investment banks • Innovation agencies • State-backed VC funds • Private financial sector • Public-private partnerships	• Central Bank • Supervisory Authority • Ministry of Finance • Private financial sector	• Ministry of Finance • Ministry of Economy • Economic Planning Agency • Line ministries and other spending units • STI governing agencies • Citizens, societal actors
international/ supranational actors	• Multilateral development banks (WB, ADB, EBRD, etc.) • IMF • European Commission • Private financial sector	• Basel Committee • WB, IMF • European Commission • European Central Bank • Private financial sector	• WB • IMF • OECD • Basel Committee • European Commission • European Central Bank
strategic outcomes	Directing financial capital into projects and technologies with considerable positive externalities in terms of socio-economic, technological and climate-friendly progressive change.	Maintaining a resilient domestic financial system, which both enables and constrains financial innovations and financial technologies.	Financial administration and management of the national balance of payments, which are necessarily consistent with domestic socio-economic needs and realities, to enable inclusive, innovation-led and climate-friendly economic life.

Source: compiled by the author

4 Significance of research and major findings

It is increasingly recognized that financial systems represent a configuration of public and private elements. Most recently, a 'legal theory of finance' has referred to an 'essential hybridity' (Pistor, 2013b). That means that contractual relations, which form contemporary finance, are essentially a hybrid between state and markets, public and private, and it is the legal nature of finance which enables the 'authority of public and private financial instruments, delegates power to different regulators, public and private, and vindicates financial products rooted in private contracts if they are generally consistent with the law' (Pistor, 2013a, p. 311). Similarly, financial governance represents a mixture of domestic and international and supranational actors as well as a mix of public and private regulatory powers. Further, the dissertation suggests that governments can exercise a deliberately active role or the so-called 'state activism' (echoing Thurbon, 2016) in facilitating the formation of financial structures and in influencing these structures for the purpose of directing financial capital into productive, innovation- and development-oriented technologies and projects. Such 'state activism' has been analyzed from the perspectives of political economy of development (e.g. studies on 'developmental states' by Wade, 2004; Evans, 1995; Amsden, 1989; Weiss, 1998 among others; also Burlamaqui & Kattel, 2016a, 2016b), economics of innovation (e.g. Mazzucato & Penna, 2015a, 2015b; Mazzucato & Semieniuk, 2017a, 2017b). While building on the scarce literature that describes public bureaucracies and their capacities as part of development and innovation policies (e.g. Karo, 2018; Karo & Kattel, 2013), the dissertation further suggests that one way of looking into financial state activism is by employing the concept of governance, which is understood as a mix of financing policies, institutional structures and capacities of financial bureaucracies. The latter, financial bureaucracies, refers to civil servants and employees of public and quasi-public organizations (such as development banks), which are tasked with financial policies, including financial regulation and financing of development. The dissertation suggests that governance of innovation and development financing can be problematized through a set of broader finance-related functions that governments perform: *investment function, regulatory function* and *financial-administrative function*. Further, each of these functions can be understood in 'strategic terms', that is by the government's abilities to make policy choices that are characterized by directionality and long-term orientation of outcomes; and by developing bureaucratic capacities to execute such intended policy choices.

4.1 Public investments through state development banks: strategic investment function

In the modern context, public spending has never been so large: it increased from less than 10% in the 1880s towards more than half of GDP in the 2010s in many industrialized countries.[27] Government-owned financial institutions that would channel financing to new technologies and developmental projects, in line with policy priorities, are typically linked with the post-WWII development of newly independent countries and 'developmental states'.[28] Acting on behalf of national or regional governments,

[27] https://www.imf.org/external/datamapper/exp@FPP/USA/FRA/JPN/GBR/SWE/ESP/ITA/ZAF/IND

[28] A typical policy recommendation of the 1950s-1960s to a developing country by the WB would include: an industrial finance corporation, privately owned or with dispersed ownership (government can be a minority

these specialized financial firms represent investment and financing agents acting in line with national development priorities. In other words, public investments in innovation and development have significantly increased during the past few decades whereas state investment banks, often-large bureaucratic organizations, epitomize a *public investment function*.

Literature that discusses development banks or development finance institutions largely focuses on the role these specialized financial institutions play in channeling policy finance or in helping to finance riskier and frontier technologies. At the same time, among some 500 banks existing worldwide (World Bank, 2018), not all appear to be truly strategic government-backed investment bankers. It is therefore highly valuable to define what constitutes a strategic investment function or, in other words, what type of policies and bureaucratic capacities should be in place to exercise such function. In addition, the existing literature emphasizes a great heterogeneity of roles that development banks play. Policy roles and mandates, political landscape, financing and operational strategies significantly vary. Therefore, the institutional landscape would be closely related to the investment function of development banks. Yet, despite seemingly similar institutional landscapes – e.g. post-WWII East Asian developmental states – the roles of national development banks can significantly vary (**I**).

National development banks in newly industrialized countries of East Asia – specialized financial firms that operate at the intersection of public and commercial interests – provide a rich material for analyzing the nexus of financial and industrial interests and dynamics. Viewed in the context of development – that is, when financing facilities are closely related to the establishment of new and/or upgrading of existing industries – development banks represent state-backed financiers of 'new combinations' in the productive structures. The historical-empirical analysis of selected East Asian countries (Korea, Taiwan, Malaysia and Singapore), where post-WWII industrial development was based on rapid technological catch-up, concludes that the financing of innovation implies organizational learning and innovation on the part of industrial bankers as a response to dynamics in industrial projects being financed (**I, V**).

The organization (understood as a set of internal structures) of development banks evolves and changes under various incentives, such as operational strategies, changes in (industrial) policy priorities, changes in domestic productive structures, competitive pressures within the financial sector, changes in financial regulations. Among these we are mostly interested in organizational change within banks as a response to the evolution of productive structures: e.g. separate units established to deal with industry- or technology-specific types of risks; technical and economic research departments; foreign branches in charge of domestic industrial firms which pursue internationalization strategies; subsidiaries specializing in novel financial services, such as industrial leasing services or business management consulting. Precisely such *organizational changes signify the disposition of banks to face technological and economic uncertainties* related to the financing of industrial firms. In other words, in conceptual terms, Article **I** builds on Dow's interpretation of Keynesian 'animal spirits', understood as a positive disposition of financing agents to face the uncertainty of future investments (Dow, 2014). There is no linear correlation between the organizational changes within a development bank *per se* and the degree of its disposition to face uncertainty (as a continuum between positive and negative) and yet,

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stakeholder), providing financing facilities (mostly loans), technical assistance and promoting industrial activities, with a low NPL ratio and solid corporate governance (see, for example, IBRD, 1963).

such an organizational change is related to the ability of financial firms to reduce information asymmetry and to exercise a discretion in making financing decisions, i.e. 'financial power' as defined by Hardie *et al.* (2013). It is also closely related to the co-evolution of financial and industrial structures. An emphasis on organizational change within financial firms, which finance technological innovation and development, makes it possible *to locate particular competences related to the financing of innovation.* Such competences are not isolated from the overall operational setup and policy environment. Yet, analyzing competences of financial firms that are related to their abilities and willingness to finance innovation and technological development in productive firms is essential if we are to understand how financing decisions are structured and under what conditions investments in innovation are made (**I, V**). The discretion to make investment decisions ('financial power') combined with competences (financial and non-financial) that allow banks facing uncertainty of investing in innovation and development comprise a 'strategic' type of investment banking. Korea, Taiwan and to some extent Singapore had development banks that acted as 'strategic investors'. By contrast, the Malaysian experience suggests that the discretion of investment decisions was lower and development banks acted as 'fund managers', thereby ensuring that government-backed funds are spent in line with pre-defined guidelines (**I, V**).

Despite a significant difference in institutional landscapes and regulatory frameworks, a comparison between Articles **I** and **V** on the one hand and Article **IV** on the other hand reveals a managerial, non-strategic role of development banks in Malaysia comparable to development finance institutions in the three Baltic countries (Estonia, Latvia and Lithuania). Namely, the Baltic case studies similarly describe more managerial roles of national development finance institutions, which often act as Funds of Funds (especially in Estonia and Lithuania) and provide financing facilities according to pre-defined operational guidelines from the Ministries. The Baltic cases also lack 'financial power' and have no resemblance to strategic investment bankers. They have very limited or no policy input, mostly confined to reporting on market gaps defined in consultation with domestically operating branches of foreign commercial banks (interview material, **IV**).

Despite the fact that Malaysia's development bank (MIDF) provides soft loans out of dedicated Funds launched by the central government while Latvian ALTUM and Estonian KredEx operate with European structural funds, the operational strategies and internal competences are strikingly similar. In all cases, the DFIs operate strictly within the agreements with the respective Ministries (usually Ministry of Economic Affairs) where financial instruments and broad priority sectors are defined. In the case of the Baltic countries, this is largely related to the aspects of external EU-based financing in the form of Structural and Cohesion Policy Funds (**IV**). Yet, in all the cases operational strategies of DFIs represent risk-averse managers with very little or no discretion in pricing the loans (or other financial instruments), rather broad sectoral priorities (e.g. SMEs) and relatively short-term horizons. In the case of Malaysia's MIDF short-termism is related to the fact that specialized government soft-loan schemes (e.g. to increase automation, or productivity) are limited in time; in the Baltic cases, national priorities are closely linked to operational programs and seven-year EU programming frameworks. Because in both cases, DFIs are not subject to a more long-term orientation and more narrowly defined priorities, the short-term financing programs become the cornerstone of their operational strategies. In contrast, the Korean and Taiwanese development banks, analyzed in Article **I**, invest into new industries and position themselves as facilitators of economic transformation. Despite the differences in the political economy of development banking in these countries, we may nevertheless make an inference about internal competences or bureaucratic capacities: strategic, long-term oriented (e.g. structural transformation, national investment agents) and more risk-taking vs. more managerial (compliance, prudent financial management) with little financial discretion (**I, IV**).

4.2 Regulation of financial sector and financial innovation: strategic regulatory function

Analyzing experiences of post-WWII East Asian developmental states is valuable due to the important place financial policies in Japan, Korea, Taiwan, Singapore and Malaysia have been occupying *within national development strategies*. Despite substantial financial liberalization in the late 1990s, key financial agencies in most countries remain committed to facilitating national developmental projects (e.g. often this is explicitly stated in Central Banks' founding legal acts; in policy tasks of publicly owned development finance institutions).[29] The 'developmental' role of public financial regulatory agencies and bureaucracies becomes even more apparent when compared with the Global North, where an ideational discourse implies a strong(er) operational independence of central monetary authorities and their much narrower mandates (e.g. inflation targeting). Limiting the role of key financial agencies to such narrow policy tasks might inhibit the ability of governments to facilitate structural transformations, as, for example, the transition to a greener economy implies (Campiglio *et al.*, 2018).

So far references were mainly made to the financing of the productive sector, but national governments can be equally interested in making financial industry a national developmental priority, especially while bidding for the status of a Global Financial Center, as do Singapore and Hong Kong (**III**; also Soe & Mikheeva, 2017). Singapore is a very illustrative case of the financial sector becoming a source of national competitive advantage. The highly technical and complex nature of financial innovation becomes the focal point of the interaction between regulatory authorities and private financial institutions, especially in the context of open calls from Singapore's authorities towards global financial firms and banks to establish FinTech labs in Singapore and public funds dedicated to the promotion of FinTech startups. Further, the creation of offshore financial jurisdiction adds another layer of complexity by creating a dichotomy: domestic and offshore financial activities are regulated differently, and keeping the offshore sector from affecting domestic financial system is essential. Effectively maintaining such a regulatory dichotomy becomes one of the strategic tasks of financial regulators, as the case of Singapore suggests. The Monetary Authority of Singapore (MAS) has earned a reputation as a highly competent and effective regulator on the one hand and an active promoter of financial sector on the other hand. Among the recently launched policy objectives is the transformation of Singapore into a cashless society and a regional FinTech hub. This raises the question of the competences of national regulators to effectively deal with technology-intensive financial innovations (**II**).

[29] An illustrative case could be made of Korea, where 'financial activism' keeps representing a continuous logic of a post-WWII developmental state despite substantial liberal reforms in the 1990s-2000s. For a recent study see Thurbon (2016). At the same time, even liberalization reforms under IMF-imposed conditionality in 1998 were centered around the abolition of policy loans extended by the Korea Central Bank, thereby leaving operations of the Korea Development Bank, a provider of policy finance *par excellence*, almost intact. (**I**)

A set of interviews conducted during the course of the dissertation confirmed that the general question of technological capacities becomes increasingly relevant and problematic for financial regulatory authorities:

> If I gave you the answer that we have all the necessary [technological] capacity, […] that would not be correct. [… W]e have given this priority and we have established a separate department for ICT problems and challenges. We have a group of people recruited from the private sector […] and from academia, and they are specialized in ICT problems and developments, they follow up the banks and the systems, products, when a new product is introduced, whether it's safe and secure, and they follow up ICT control in the banks, in insurance companies, in securities firms, and they make reports on risk as they see it (interview material, **III**).

Article **II** builds on emerging literature that discusses the technological capabilities of public-sector organizations (Lember *et al.*, 2018; Mergel *et al.*, 2018; Tõnurist *et al.*, 2017) and suggests that there is a need to further conceptualize and empirically study the 'technological capacities' of the public sector. This body of research primarily deals with the effects technological change has on the administrative capacities of public bureaucracies while the governance of the financial sector adds another dimension to the notion of technological capacities of bureaucracies: the extent to which the public sector can keep up with rapidly developing ICT-driven financial innovations in the private sector. This is especially relevant in the context of the 'developmental role' of regulatory agencies, which act as the promoters of financial innovations – as the case of the Monetary Authority of Singapore suggests. Indeed, technology-aided financial innovation is one of the strongest drivers of complexity that financial regulators face (Cerny, 1994a, 1994b), and ICT-enabled financial innovations significantly contribute to the challenges financial regulators face, but this particular problem did not receive relevant attention in the financial governance literature. In other words, the literature on public administration and policy capacities is essential for defining technological competences in the context of public organizations, but the conceptualization of the technological capacities of financial bureaucracies would be incomplete without the notion of *inherent uncertainty* that characterizes financial systems and financial innovations. In this regard, as Article **II** attempts to synthesize, relevant conceptual premises can be found in economics literature as well as at the intersection of law and finance. Economists of the Post-Keynesian tradition have been emphasizing the reactive role of financial regulation due to the very logic of financial innovation aiming to circumvent existing regulations (Minsky, 1986, 1992; Wray, 2007; Kregel, 2009a, 2009b; Tonveronachi, 2010; Montanaro, 2016). Similarly, 'the legal theory of finance' (financial transactions defined as a complex set of contractual relations) emphasizes the reactive nature of regulations due to the omnipresent 'Knightian' uncertainty, which should be, ideally, translated into policy measures to move towards a more flexible interpretation of financial contracts (Pistor, 2013a, 2013b; Hodgson, 2013).[30] In other words, one of the features of financial dynamics in a capitalist system is a *persistent asymmetry of technological power* between private innovators and public regulators, which is directly linked to the notion of capacities of private and public policy actors.

[30] Another tool to deal with the increasing complexity of contracts would be to expand the range of the existing legal categories, as opposed to producing more regulations. Such an approach could result in a better prevention and a more effective resolution of problematic contractual relations, especially in light of increasing technological complexity (Solarte Vásquez, 2019).

For Minsky, precisely the notion of the *cyclicality of uncertainty* makes it operational in terms of economic analysis and policy. In our case, the notion of the *inherent uncertainty* of financial systems helps define and operationalize the capacities of financial bureaucracies to cope with such uncertainty. Namely, if to assume that uncertainty is *endemic*, then the operational or analytical capacity of financial policymakers can *never* be optimal. One of the tools to minimize such uncertainty is to move towards a more collaborative policy process, where learning and the interactive exchange of technical knowledge is integral to the process of policymaking. There is indeed evidence that collaborative practices in financial governance becomes more formalized and can be described through the concept of co-creation, which aims to minimize technological uncertainty. This can be reflected in organizational dynamics and potentially result in novel organizational forms through which policy actors interact. Co-creative practices adopted by the Monetary Authority of Singapore (MAS), such as regulatory sandbox, Fin Tech Lab (a newly established unit within MAS) and project-based direct collaborations with the industry, aim to leverage on the technical knowledge of private policy actors. This is not to say that financial governance was not based on close collaboration with the private sector – on the contrary, various types of collaborations have been always present. Yet, given the fact that financial policymaking, which has been traditionally characterized by closed expert communities that often resemble Moran's 'esoteric politics'[31] (Moran, 1984), formalization and more explicit collaborative practices represent a novel organizational element in financial governance. Put differently, regulatory authorities aim for the reduction of the uncertainty of financial innovations through interactive learning and co-creative practices with the private financial sector. Such organizational dynamics give us premises to conclude that organizational change should also be regarded as part of the policy process, thereby paving the way for further conceptual work on public financial bureaucracies. Further and more importantly, the strategic regulatory function of governments in the financial domain can be conceptualized through technological capacities to deal with the uncertainty of financial systems, exacerbated by ICT-driven financial innovations (**II**).

The relevance and significance of this conclusion should be viewed in the context of financial governance and public-policy studies. First, literature on financial regulation is thick: challenges of effective financial regulation have been described in (post-)crisis literature (e.g. Sheng, 2009; Wymeersch *et al.*, 2012), financial governance and architecture literature (e.g. Goodhart, 2002, 2007), studies of Global Financial Centers (Lee & Schmidt-Marwede, 1993; Budd, 1995; Woo, 2016), financial history (e.g. Kindleberger, 2015), studies of financialization (e.g. Epstein, 2005; Ertürk *et al.*, 2008; Stockhammer, 2010). Within these major research lines, financial history and 'social studies of finance' explicitly deal with competences of *financiers*: the emergence and institutionalization of particular financial, operational and organizational practices among financial firms, most notably banks (Cameron, 1992; Cassis, 1992; Cassis *et al.*, 2016; Bonin, 2011; Dressen, 2019). Article **II** contributes to the literature on financial governance by raising the question of technological capacities related to financial innovation and FinTech in particular. Second, the technological capacities of public financial bureaucracies, understood as the ability to deal with uncertainty-inducing

[31] Reference is made to Michael Moran's description of pre-1970s banking as 'esoteric politics', emphasizing the decisive role of informal networks and more technical rather than political discussions (Moran, 1984). Coleman (1996) made a similar conclusion while looking at the liberalization period of 1970-1995.

ICT-driven financial innovations, adds another dimension to the notion of capacities of public bureaucracies, their evolution and the role in the public-policy process.

4.3 Financial and fiscal governance: strategic financial administration function

From a systems-based view, and as was suggested by rigorous studies in financial history, not only specialized financial firms, such as development banks, are in charge of the financing of innovation and development but rather a variety of financial institutions, including both private and public organizations. The difference to the 19th century is that today the policy rhetoric is in favor of the private sector (e.g. bridging the funding gap), but financial and technological complexities and a growing recognition that the technological progress should serve societal and demographic, not only economic needs, places an additional responsibility on public agencies. The latter includes Economic and Finance ministries as well as financial regulatory agencies (Central Banks, supervisory commissions). Further, the role of these public financial bureaucracies[32] becomes immediately relevant when financial uncertainty and instability are acknowledged as an *inherent quality* of a capitalist system, as was largely conceptualized by Minsky (1986) (**I, II**). Financial governance has also been growing in importance in the context of recurring financial crises and a series of recent fiscal crises in Europe (**VI**, also Karo *et al.*, 2017). In addition, financial systems are not isolated, and a multi-layered international architecture where national, supranational and international levels are closely interlinked places additional pressures on national bureaucracies that are required to respond to these various layers and have respective capacities to do so. For example, bureaucratic competences largely define member states' positions vis-à-vis other European institutions: a comparative study of Eastern European countries (outside the Euro Zone) concludes that opting-out of the Banking Union implied *stronger* government capacities to identify conflicting objectives and to pursue the agenda of domestic 'banking nationalism' (Mérő & Piroska, 2017).

Articles **III** and **VI** build on the observation that there is very little mention of financial bureaucracies or financial planning in the context of economic development. An illustrative example is the literature on post-WWII developmental states, which brought the notion of industrial planning bureaucracies (Wade, 2004; Amsden, 1989; Amsden & Chu, 2003; Evans, 1995). Thurbon (2001, 2003) made a valuable conclusion regarding a common set of policy goals within key financial agencies when comparing liberalization reforms in Korea and Taiwan in the late 1990s: liberalization 'wholesale' was implemented in a dramatic way in Korea while Taiwan implemented very gradual reforms with key financial agencies having a continuous shared vision of financial stability and of a very gradual transition. In other words, ensuring a solid domestic financial system can become an explicit developmental priority, which tends to imply respective capabilities of key public agencies to successfully deliver on that policy goal. A set of interviews conducted in Malaysia revealed a similar perception of policy-makers in regard to Malaysia's Central Bank, which has been the cornerstone of financial stability in Malaysia since the 1970s and which enjoys a continuous reputation of (one of) the most competent government agencies in the country (as well as in the entire ASEAN region)

[32] In the context of the dissertation, 'financial bureaucracy' should be understood in broad terms and includes key regulatory agencies (Central Banks, supervisory authorities), agencies in charge of financial and fiscal policies (Ministries of Finance, Ministries of Economy), state-owned and state-backed financial institutions.

(interview material, **V**). Articles **III** and **VI** should be viewed as complementary: Article **III** comparatively discusses and suggests the typology of national bureaucratic attitudes and perceptions of the increasing roles of the EU in harmonizing principles of financial regulation and supervision; whereas Article **VI** comparatively analyzes and differentiates between the different roles public officials in charge of national fiscal policies and public budgeting can play. Both Articles, **III** and **VI**, represent an attempt to comparatively analyze attitudes, practices and different 'faces' of national financial elites and pay specific attention to the interplay between EU-led and national policies. Indeed, Dyson (2008) refers to the need for comparative research on European technical elites in the context of the implementation of EU policies in the member states.

This raises the question of the *financial administrative function* whereby governments administer and coordinate national financial accounts, the balance of payments, collect taxes, administer national pension and sovereign wealth funds, and define foreign borrowing policies. In other words, they act as the national financial administrators. Further, the coordination within the multi-layered financial governance architecture is also closely integrated into domestic financial policy-making due to the growing regulatory powers of international and supranational agencies, such as the European Commission, IMF, OECD, the World Bank and the Bank for International Settlements with the Basel Committee. In this regard, the governments' abilities and capacities to respond to regulations and standards made outside of nation-states, to transpose and implement such regulations and the ability of national governments to effectively deliberate imported rules or participate in the design thereof through international agencies should be considered.

We therefore may distinguish between governments where financial policymaking has a strategic focus on serving domestic interests and governments where external regulations are imported without substantive deliberations: the comparative cases of Nordic vs Baltic states is an illustrative example. A strategic take on 'endogenous' policymaking can therefore be characterized by a variety of regulatory-administrative capacities of national financial and fiscal bureaucracies. There is a great variation in how national elites are integrated into transnational expert networks. The embeddedness of domestic policy elites into transnational policy communities can also be related to the administrative and technical capacities of domestic bureaucracies: e.g. the fact that the governor of Sweden's *Riksbank* presides over the Basel Committee makes it possible for Swedish policymakers to be directly involved in designing Basel's regulatory framework (**III**). Further, Article **III** represents a comparative study of bureaucracies in charge of the financial regulation and supervision on the Nordic-Baltic axes (Norway, Sweden, Estonia and Latvia) and distinguishes between lower regulatory-administrative capacities in the newer democracies (Estonia and Latvia) and higher-medium capacities in the older democracies (Sweden and Norway). Policymakers in all four countries expressed strong scepticism of increasing harmonization of European regulatory and particularly supervisory policies, which disregard historically embedded institutions (e.g. supervisory practices) and structural differences (interview material, **III**; also Juuse 2016a). Yet, for the newer member states 'uploading' EU-led directives arguably results in double-trouble: the initially lower administrative capacities of fiscal and financial bureaucracies get reinforced by increasingly harmonized European policy objectives defined at the supranational level. And simultaneously this relationship works the other way around: the EU-led policy agenda gets imported faster and with less deliberations domestically, partly due to the lower capacities of domestic bureaucracies in the newer Member States (**III,**

IV, VI). This significantly contributes to the decontextualization of domestic policies in the newer Member States, as the cases of the Baltic state demonstrate (**III, IV, VI**).

The increasing role of transnational actors as well as the increasing technicality can be observed not only in the field of financial regulation but also in the fiscal policy space, which is typically more political as compared to financial regulatory policies. The more political nature of the fiscal policy domain also raises the question of relations between technical bureaucracies and politicians domestically. A comparative analysis of Norway, Sweden, Estonia and Latvia concluded that in all cases fiscal bureaucrats view themselves as (pro)active in identifying policy problems, initiating and formulating policy proposals and therefore can hardly be termed 'policy-takers' from the political 'masters.' (**VI**) In the context of supranational EU governance, both Estonia and Latvia appear as clear policy-takers with very little or no domestic deliberations over EU-led policies. At the same time, participation in EU policymaking appears to empower Estonian and Latvian fiscal bureaucrats vis-à-vis politicians domestically owing to bureaucratic 'professionalization' and increase in the technical knowledge (**VI**). In other words, transnational governance affects the regulatory-administrative capacities not only of fiscal bureaucrats in European member states but also their relations with politicians domestically. In addition, whether fiscal bureaucracies have the capacities to develop and use sophisticated quantitative models for analyzing and forecasting economic indicators can be also related to their capacities to play a more active 'developmental' role. The latter refers to the role fiscal policy plays in broader national economic development policies (**VI**).

Analyzing the capacities and attitudes of financial bureaucracies in the context of multi-layered financial governance provides valuable insights into the entire problematics of the financing of innovation and development: given the shrinking fiscal space and the dramatically reduced regulatory discretion at the national level, what are financial policy imperatives and institutions if it (policy) is to serve economic recovery and transition to a knowledge-based and environmentally-conscious society? In other words, if public financing space is reduced through fiscal deficit rules, common accounting standards (e.g. defining categories of national accounts, especially in relation to public expenditures) and reducing local control over policies to deal with or mitigate effects of financial crises – what kind of financial institutions should be in place to ensure an effective financing of innovation and development? Put differently, what configurations of (increasingly) private and (lessening) public financing[33] should be formed if financial policies are to become an integral component of innovation and development policies? Analyzing various types of financial bureaucracies would help identify actual (or desired) strategic roles and capacities of governments to deal with such complex policy issues.

4.4 Summary

Based on the existing literature and research described in the dissertation, the three major functions related to a state's active role in the financing of innovation and development were suggested: *the investment function*, *the regulatory function* and *the financial administrative function*. Based on existing literature actors (both national and international) can be identified for each function, as can strategic outcomes. As was mentioned, strategic outcomes for each suggested function is related to the overall

[33] Tendencies of greater reliance on private sector financing can be identified in the 2021-2017 EU budget, which largely refers to 'public private partnerships', 'blending finance' and various types of financial 'leveraging' techniques (see EC, 2018).

intended, 'ideal' outcome of a set of policies related to the function. Further and most importantly, the extent to which each function can be identified as 'strategic' (or whether strategic outcomes can be achieved) can be described and analyzed through 1) policy and/or policy roles and 2) the bureaucratic capacities to perform these roles. Both policy roles and bureaucratic capacities have been identified in the course of empirical studies. Table 2 lists characteristics of all three functions.

Table 2. Strategic functions, policy roles and bureaucratic capacities of the governance of innovation and development financing

Governance of innovation and development financing

function	**Investment function**	**Regulatory function**	**Financial administrative function**
national actors	• State-owned investment banks • Innovation agencies • State-backed VC funds • Private financial sector • Public-private partnerships	• Central Bank • Supervisory Authority • Ministry of Finance • Private financial sector	• Ministry of Finance • Ministry of Economy • Economic Planning Agency • Line ministries and other spending units • STI governing agencies • Citizens, societal actors
international/ supranational actors	• Multilateral development banks (WB, ADB, EBRD, etc.) • IMF • European Commission • Private financial sector	• Basel Committee • WB, IMF • European Commission • European Central Bank • Private financial sector	• WB • IMF • OECD • Basel Committee • European Commission • European Central Bank
strategic outcomes	Directing financial capital into projects and technologies with considerable positive externalities in terms of socio-economic, technological and climate-friendly progressive change.	Maintaining a resilient domestic financial system which both enables and constrains financial innovations and financial technologies.	Financial administration and management of the national balance of payments, which are necessarily consistent with domestic socio-economic needs and realities, to enable inclusive, innovation-led and climate-friendly economic life.
strategic policy(s) role(s)	Policies that would facilitate/enable a positive disposition to face technological and economic uncertainties.	Policies that would make it possible to effectively and proactively deal with inherent fragility of the financial system.	Policies that would serve national interests and developmental goals; and can be identified as 'endogenous policy-making' on a policy-taker/policy-maker continuum.
bureaucratic capacity(s)	Financial discretion to make strategic investment decisions (strategically defined or prioritized sectors, technologies, projects).	Regulatory and technological capacities to deal with the fundamental uncertainty of financial technologies and financial innovations.	Wide spectrum of regulatory-administrative capacities enabling solving domestic policy problems; to transpose and implement international legislation while retaining substantive capacities for domestic policy deliberations.

Source: compiled by the author

5 Conclusions and suggestions for further research

The dissertation discusses the financing of innovation and development from the governance perspective, that is, through analyzing policies, institutions and public agencies in charge of financial policies. One of the dissertation's major contributions to the existing literature is the attempt to conceptualize 'state financial activism' through the notion of strategic public governance, which is analyzed through public policies and related public bureaucracies.

Studies of 'catching up' industrialization and post-WWII developmental states made an important contribution to our understanding of economic bureaucracies. Technocratic competences of national economic planning agencies and public research institutes represented an essential component of policymaking in all post-WWII developmental states (Wade, 2004; Evans, 1995; Amsden, 1989; Amsden & Chu, 2003; Swee, 1972). 'Embedded autonomy' and 'administrative guidance' (informal mechanisms of policy enforcement) implied *abilities* of bureaucrats to design policy interventions. Indeed, building bureaucratic capabilities can be an explicit priority of public policies (Karo, 2018). At the same time, financial policies and, more so, financial bureaucracies have been rarely analyzed in the context of innovation, development and public governance at large. While literature on policy capacity makes it possible to conceptualize analytical and administrative competences of public-sector organizations as part of policymaking (e.g. Wu *et al.*, 2015; also Karo & Kattel, 2013), it does not differentiate between specific policy domains (as an exception, Karo, 2018 elaborates on innovation policies). On the other hand, finance-specific literature, such as on financial governance or the financing of innovation makes little reference to capacities of governments to design and implement policies (e.g. Underhill, 2015; Cerny 1994a; Mazzucato & Perez, 2015). In order to operationalize 'state financial activism' the dissertation suggests employing a governance perspective, which allows it to closely look at not only policies as such (which economics literature does very well) but also to differentiate between policy capacities and, more importantly, bureaucracies in charge of public policies. To do so, the governance of innovation and development financing can be problematized and subsequently analyzed through a set of functions: namely, an investment function with the aim to direct financial capital into innovation and development-oriented projects; a financial regulatory function with the aim to anticipate uncertainty-inducing financial innovation; and a financial administrative function with the aim to administer national financial accounts according to national strategic priorities and interests.

From the empirical perspective, and in order to observe and analyze the governance functions, various types of public organizations have been discussed: state-backed development finance institutions (**I, IV, V**), central banks (**II**), and other agencies in charge of financial and fiscal policies, such as Ministries of Finance and Financial Supervisory Authorities (**III, VI**). The financial governance of innovation and development implies various layers (national and transnational) and various actors (public, private) involved in making financial decisions. It therefore can be defined through the abilities of governments to influence financial decisions and steer domestic financial structures. In doing so, governments exercise a set of functions. Looking at such functions from a 'strategic' point of view helps to bring forth a conceptual framework of governance of innovation and development as a combination of policies and bureaucratic capacities respectively, which would help achieve the needed, strategic policy outcomes or serve governance functions in a strategic way. The 'strategic – non-strategic continuum' implies different characteristics for each function. Yet, in broader terms strategic governance and the strategic take on policies implies directionality, long-term orientation of policy priorities, subsequent learning and capability building, which make 'state activism' more effective and deliberately designed in some countries and less so in others.

Some key conceptual elements discussed in relation to policy capacities and financial bureaucracies are based on innovation and economics literature. Namely, the governance of innovation and development financing implies capacities to deal with various types of uncertainties, related to the financing of innovation. We have defined conceptually that there are organizational/institutional setups that encourage a positive 'disposition' to face the uncertainty associated with the financing of innovation and development (Dow, 2014 following Keynes, 1936) and that financial firms may respond to uncertainty in the productive sector by developing specific financial (e.g. assessment and pricing of technology-specific risks) and non-financial competences (e.g. technology evaluation, economic analysis) that can be located within their internal organization(s). Namely, a comparative analysis of national development banks and the financing they provided to facilitate technological development in Korea, Taiwan, Singapore and Malaysia suggested that such specialized financial firms accumulate both financial and non-financial competences related to the financing of productive firms, and often such competences can be located by looking at the organizational dynamics or organizational structure of financial firms. Defined as quasi-public financial institutions, state investment banks represent an investment function that governments can exercise. In strategic terms, the state investment function can be characterized by policies that would enable various financial actors to build a positive disposition to face economic and technological uncertainties, associated with the financing of innovation and development. Furthermore, as a comparative study of selected national development banks suggested, the strategic investment function implies the capacity to build financial discretion in making investment decisions (e.g. if a development finance agency has a risk-management unit that consists of technology-related sub-units it means that financing decisions also include technology-related risk assessment, which adds to the discretion a bank has) (**I, IV, V**).

Similarly, a distinct type of uncertainty can be identified in capitalist financial systems, which is related to one of the main incentives to innovate – to circumvent financial regulations. Further, increasing the sophistication and speed of ICT-based financial technologies (Fin Tech) adds to the inherent uncertainty and hence the fragility of financial systems. The case of the Monetary Authority of Singapore refers to novel organizational forms, or rather, the formalization of close collaborative practices between financial regulators and private financial innovators as one of the responses to such uncertainty (**II**). Organizational dynamics are understood as part of learning and adapting to uncertainty that comes from either innovation in the productive sector (**I**) or from innovations in the financial industry (**II**). The recognition of new organizational forms (and learning) as a constructive response to uncertainty makes us put forth a proposition that organizational change should be considered part of a policy process as it can help locate and evaluate capacities of public bureaucracies. Further, the regulatory function of financial governance can be defined in strategic terms by 1) policies that would make it possible to effectively and proactively deal with the inherent fragility of the financial system; and 2) regulatory and technological capacities to deal with the fundamental uncertainty of financial technologies and financial innovations.

Economies are not isolated, and the global nature of the financial capital is reflected in the multi-layered financial governance. The various financial administrative functions that national bureaucracies perform (from tax collection and customs administration, to financial and fiscal policies and the management of state-owned enterprises) involve capacities of domestic government officials to analytically assess and transpose externally made policies and standards into domestic policymaking. In strategic terms, this would imply financial and fiscal policies that would serve national interests and development goals and that would be described as 'endogenous policy-making' on a policy-taker/policy-maker continuum. In other words, even when imported, implementation would involve a certain degree of deliberations, either within an expert community or involving other societal actors. Doing so involves a range of regulatory-administrative capacities and the ability to focus on domestic policy problems and priorities. The comparative analysis of financial and fiscal bureaucracies in Estonia, Latvia, Sweden and Norway suggested great variations in the ability of national governments to internalize externally made policies and regulations. A variation of perceptions and attitudes towards supranational policies was observed (**III, V**). In addition, the institutional context matters when defining what constitutes 'strategic'. External context can define what types of financial policies would be more appropriate tools for development (e.g. fiscal vs monetary[34]), and profiles of public agencies are also rooted in historical and cultural contexts.

To conclude, just like a national GDP cannot grow beyond or is directly related to the technological capabilities of the population, we may similarly argue that nationally bounded technological regimes are also linked to respective competences of policymakers and their capacities. This might be especially relevant in a highly policy-elastic sector such as finance, since governments are faced with rapidly increasing complexity. Moreover, an emphasis on financial bureaucracies is relevant given how much political and technocratic power has shifted to government financial agencies.

Despite the novelty of the suggested framework – namely, to conceptualize financial governance through a set of strategic functions, policies and bureaucratic capacities – the analysis carried out in the dissertation presents a set of limitations. First and foremost, it represents a strictly 'financial' approach to the governance of innovation and development financing. Other functions that can and should be addressed are *distributional* effects of financial policies and regulation, *inclusiveness* of innovation and development, and *climate change*. In other words, distributional, inclusiveness- and climate-related functions of the financing of innovation and development should be considered. The distribution-related effects of STI policies are a neglected field of research (Zehavi & Breznitz, 2017). Further, the financing aspects of innovation should

[34] An illustrative example of the conscious emphasis on fiscal policy can be made of Singapore: due to a large share of imports and therefore a constant need for foreign exchange, correcting the economic cycle through expansionary spending by the Central Bank would put excessive pressures on foreign exchange and therefore financial resources for stabilizing measures should be derived from overseas assets and other external operations of the government, that is, from the budget and fiscal policy. Such reasoning was used as a counterargument against the need to establish a Central Bank, and as the argument for a balanced budget and effective coordination among all financial and fiscal agencies. Economic structures affect institutional setups and policy choices: e.g. a small open economy cannot emulate policies of large developed economies where trade forms a small portion of GDP (Swee, 1972).

take into account a greater variety of actors involved in innovation. This is especially relevant for the context of development when intermediary organizations have a larger role to play as well as informal agents and networks. The literature on inclusive innovation provides sufficient conceptual guidance (Utz & Dahlman, 2007; Altenburg, 2009; Cozzens & Sutz, 2012; Foster & Heeks, 2013). Another limitation is related to the fact that innovation is predominantly understood in either industrial or financial terms. This does not account for *social innovation* and *public sector innovation* that would be equally relevant to conceptualization of financial governance through its functions, strategic policies and bureaucratic capacities. There is therefore the need to enlarge the pool of complementary theoretical concepts before conducting further empirical studies of financial governance of innovation and development.

Further research should be done to enlarge the pool of qualitative empirical data on the types and roles of financial bureaucracies. In the context of the financing of innovation, what are particular configurations of public and private finance in regard to particular technologies (e.g. wind energy, biotechnologies) and how these configurations change along the business cycle (e.g. extending a study of renewable investments by Mazzucato & Semieniuk, 2017a towards other sectors) would be a substantial addition to innovation literature. Further work on collaborative practices in financial governance, i.e. between private and public actors in the areas of financial regulation and supervision, is needed in order to assess the technological capacities of policy actors and identify strategic responses of public regulators towards dynamics and uncertainties of the financial sector. Another valuable avenue of research can be an extension of the qualitative work on the types of financial and fiscal bureaucracies, their roles and competences within national contexts as well as within supranational and international contexts.

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Abstract

Governance of innovation and development financing: Policies, strategic functions and bureaucracies

Problematizing the financing of innovation and development requires an inter-disciplinary approach and a mix of theoretical frameworks due to the complexity of economic development, the complex and ambivalent workings of finance and the multi-faceted nature of technological progress. Existing literature discusses either historically embedded types of financial systems or patterns of financing in relation to corporate organizations; Minsky-Schumpeterian synthesis discusses the role of financial innovations in the financing of development; state investment banks are studied through the prism of active state financing agents and mission-oriented finance; literature on development economics and development financing is rich and illuminating in assessing the socio-economic factors conducive to development and capital formation. Yet, very rarely is the policy dimension explicitly addressed, or, when it is, the policy capacity of governments is treated as an exogenous component. Even within the innovation studies community, so explicitly focused on policy relevance and institutionalist approach, the financing of innovation and financing policies are not widely discussed. Further, policies *per se* are not sufficient to critically assess the varying abilities of national governments to coordinate financial configurations (or financial interests, public and private) and to steer the formation thereof in an effective and development-oriented way.

To link the problematics of innovation and development financing with the ability of governments to shape and direct public-private financial configurations, the dissertation's main aim is to problematize the governance of innovation and development financing by looking at public policy-makers (namely public bureaucracies), policy capacities, and by identifying strategic governance functions in relation to state-led financing of innovation and development. By synthesizing theoretical frameworks developed in economics, innovation studies, public administration and public-policy literature, the dissertation suggests the three broad functions that the governance of innovation and development financing implies: the investment function, the regulatory function and the financial-administrative function. Each of these functions is characterized by and can be analysed through a set of policies and related bureaucratic capacities to effectively perform these functions. Further, the dissertation argues that by analysing policies and related bureaucratic capacities, it is possible to distinguish whether these functions are performed by national governments in a strategic or a less strategic way. 'Strategic' in the context of the dissertation is understood through intended directionality, long-term policy horizons, and deliberate policy interventions following a strategic take on socio-economic problems.

Methodologically, the dissertation relies on the following key concepts developed in the existing literature. Innovation is understood from the evolutionary perspective, which emphasizes non-linearity. Governance is understood in terms of 'state activism' or concerted government efforts to incentivize or to direct the formation of public-private financial configurations in the national economy towards productive, innovation-oriented and welfare-inducing investments. At the same time, financial systems are culturally and historically embedded, which means that different financial institutions also vary in their relative importance. Further, financial systems are

inherently fragile and are characterized by instability and uncertainty. In addition, the context of development represents an additional, particular type of uncertainty since the financing of innovation (and development) is always uncertain. When translating the financing of innovation and development into financing policies, it is essential to consider the capacities of government actors – public bureaucracies. Administrative, analytical, technological and other types of capacities of public bureaucracies are equally not static, evolve over time and are also culturally and historically embedded. Therefore, public bureaucracies form an essential part of policymaking while financial bureaucracies remain particularly understudied.

The dissertation is based on extensive empirical research work and a qualitative, empirical-historical approach to data collection. It relies on a comparative case-study method while differentiating between exploratory and explanatory case studies. The case studies of East Asian development banks and Eastern European development-finance institutions are used to illustrate and comparatively analyse the state-led investment function. It is related to 'financial power' or discretion to make investment decisions whereby strategic investment banking can be identified. By contrast, the more 'managerial' practices of development banks and very little the small amount of discretion in making financing decisions reflect a less strategic investment function. The discussion of the investment function is closely linked to the conceptualization of uncertainty, which is inherent in innovation and in the financing of development. In this regard, the strategic investment function can be described through a set of public policies that would enable a positive disposition for financing agents to face such uncertainty. Further, this implies bureaucratic organizations with the financial discretion to make strategic investment decisions. As the comparative cases of development banks in Korea, Taiwan, Singapore and Malaysia on the one hand and Estonia, Latvia and Lithuania on the other hand demonstrate, by far not all state-backed development banks can exercise such discretion. Put differently, not all governments can effectively use state-backed investment banks as a tool for strategic investment policies.

The second, regulatory function, is related to the regulatory capacities of national governments to shape national and international financial system(s). Following the work of Hyman Minsky, uncertainty-inducing financial innovations are indispensable from how financial systems evolve. Therefore, the fact that such uncertainty is necessarily inherent in the workings of finance should be incorporated into how financial governance and the financing of development is understood and studied. To this end, the strategic regulatory function can be described through the policies that make it possible to effectively and proactively deal with the inherent fragility and innovation-related uncertainty of financial systems. In the context of bureaucratic capabilities, analysed using the example of the national Monetary Authority of Singapore (*de facto* Central Bank), this required not only regulatory but also technological capacities to deal with fundamental uncertainty of financial technologies and financial innovations. As the case study of Singapore concludes, to gain technological competences public regulatory authorities enter into increasingly formalized co-creating practices with the private financial sector, especially large multi-national financial corporations.

The third function suggested in the dissertation is related to financial administration at large and the management of the national balance of payments (financial and fiscal policies). With the comparative examples from the four countries – Norway, Sweden, Estonia and Latvia – the varying roles of financial and fiscal administrations are discussed. While comparing 'older' and 'newer' public bureaucratic organizations in charge of financial regulations and fiscal policies, the overall conclusion suggests that the workings of financial bureaucracies is indispensable from the process of policymaking. Given the growing international and supranational dimension of financial and fiscal governance, the capacity of domestic financial bureaucracies to transpose and deliberate policies that are designed elsewhere vary greatly. In this regard, a strategic financial administrative function is related to the administration of financial accounts in such a way that is consistent with domestic socio-economic needs and realities. This requires financial and fiscal policies that serve national interests and developmental goals and a wide spectrum of regulatory and administrative capacities on the part of public financial agencies to solve domestic policy problems, to transpose and implement international legislation while retaining substantive capacities for domestic policy deliberations. This is related to the Ministries of Finance, Central Banks, Financial Supervisory Commissions as well as other related government departments.

All in all, the dissertation attempts to conceptualize 'state financial activism', echoing literature on economic development, innovation, and the political economy of late development through the notion of strategic governance of innovation and development financing, which can be analysed through public (financial) policies and public (financial) bureaucracies. In other words, the governance perspective helps operationalize the role of states in the financing of innovation and development in more concrete terms. This paves the way for further empirical studies to verify the suggested functions as well as for further conceptual work to make the governance framework stronger and more nuanced. This presents generous opportunities for further research, especially when considering how much political and technocratic power has been shifting to the public financial agencies.

Lühikokkuvõte

Innovatsiooni ja arengu finantseerimise valitsemine: poliitikad, strateegilised funksioonid ja bürokraatia

Kuna majandusareng on keerukas küsimus, finantssüsteemide toimimine kompleksne ja mitmeti mõistetav ning tehnoloogiline areng mitmetahulise olemusega, on innovatsiooni ja arengu rahastamise probleemide lahtimõtestamiseks vaja interdistsiplinaarset lähenemist ja erinevate teoreetiliste raamistike ühendamist. Senises kirjanduses keskendutakse ajalooliselt juurdunud finantssüsteemidele ja ettevõtete rahastamisviisidele; Minsky ja Schumpeteri tööde süntees analüüsib finantsalaste uuenduste rolli arengu rahastamises; riiklikke investeerimispankasid vaadeldakse aktiivsete riiklike finantsmõjutajate ja eesmärgipärase rahastamise vaatenurgast; arengumajanduse ja arengu rahastamise alane kirjandus pakub palju huvitavat teavet, mille abil hinnata arengut ja kapitalimahutust soodustavaid sotsiaal-majanduslikke tegureid. Kuid väga harva pööratakse otsest tähelepanu küsimuse poliitikaloome küljele või kui seda tehakse, siis vaadeldakse valitsuste poliitvõimekust kui välist lisategurit. Isegi innovatsiooniuuringute kogukonnas, mis keskendub just poliitikate olulisusele ja institutsionaalsele lähenemisele, ei pöörata innovatsiooni rahastamisele ega rahastamispoliitikatele erilist tähelepanu. Lisaks ei piisa ainult poliitikate analüüsimisest, et kriitiliselt hinnata eri riikide valitsuste võimekust finantsstruktuuri (ehk avaliku ja erasektori finantshuve) koordineerida ning selle moodustumist tõhusal ja arengule keskendunud viisil suunata.

Selleks, et vaadelda innovatsiooni ja arengu rahastamise probleeme valitsuste avaliku ja erasektori finantsstruktuuride kujundamise ja suunamise võimekuse vaatenurgast, on selle uurimistöö peamine eesmärk mõtestada lahti innovatsiooni ja arengu rahastamise juhtimine, vaadeldes selleks avaliku sektori poliitikakujundajaid (eelkõige riigiorganisatsioone) ja poliitikakujundamise võimekust ning tuvastades riigi poolt suunatud innovatsiooni ja arengu rahastamisega seotud strateegilise juhtimise funktsioonid. Ühendades omavahel majandusteaduse, innovatsiooniuuringute, avaliku halduse ja riigipoliitikate valdkondades väljatöötatud teoreetilised raamistikud, toob see uurimistöö välja kolm üldist innovatsiooni ja arengu rahastamise juhtimise funktsiooni, milleks on investeerimisfunktsioon, regulatiivne funktsioon ja finantshalduse funktsioon. Kõiki neid funktsioone iseloomustavad teatud poliitikad ja nende funktsioonide tõhusa teostamisega seotud haldusvõimekus ning just nende prismade läbi saab neid ka analüüsida. Töös tuuakse välja, et poliitikate ja nendega seotud haldusvõimekuse analüüsimise abil saab kindlaks teha, kas riikide valitsused täidavad neid funktsioone strateegiliselt või mittestrateegiliselt. Strateegilise lähenemise all peetakse selles töös silmas sihilikku lähenemist, mis võtab arvesse pikaajalisi poliitikaeesmärke, ja kavandatud poliitilisi meetmeid, mis tulenevad sotsiaal-majanduslike probleemide strateegilisest analüüsist.

Töö tugineb senises kirjanduses välja töötatud põhikontseptsioonidele. Innovatsiooni vaadeldakse järkjärgulise arengu vaatenurgast, mis rõhutab selle mittelineaarsust. Juhtimist vaadeldakse kui riigipoolset aktiivsust ehk valitsuse katseid suunata riigi majanduskeskkonnas avaliku ja erasektori finantsstruktuure produktiivsete, innovatsioonile keskenduvate ja heaolu suurendavate investeeringute suunas ja selleks initsiatiivi pakkuda. Samas on finantssüsteemid kultuuriliselt ja ajalooliselt kinnistunud, mis tähendab, et eri finantsinstitutsioonide rollid on erinevad.

Lisaks on finantssüsteemid oma olemuselt haprad ning neid iseloomustavad ebastabiilsus ja ebakindlus. Arengu kontekstis on ebakindlust aga veelgi rohkem, kuna innovatsiooni (ja arengu) rahastamine pole kunagi kindel. Innovatsiooni ja arengu rahastamise eesmärkide rahastamispoliitikateks muutmisel on oluline võtta arvesse riigipoolsete mõjutajate ehk riigiorganisatsioonide võimekust. Ühest küljest ei ole riigiorganisatsioonide haldusalane, analüütiline, tehnoloogiline ja muud tüüpi võimekus muutumatu, vaid areneb aja jooksul, aga teisest küljest on see kultuuriliselt ja ajalooliselt kinnistunud. Seega võib öelda, et riigiorganisatsioonid on oluline osa poliitikakujundamisest ja finantsmehhanismid on seejuures kõige rohkem uurimist vajav osa.

See uurimistöö põhineb põhjalikul empiirilisel uurimistegevusel ning andmekogumisel on kasutatud kvalitatiivset, empiirilist-ajaloolist lähenemist. Kasutatud on juhtumiuuringute võrdlemise meetodit, eristades seejuures avastuslikke ja seletavaid juhtumiuuringuid. Selleks, et riigi investeerimisfunktsiooni illustreerida ja võrdlevalt analüüsida, on kasutatud Ida-Aasia arengupankade ja Ida-Euroopa arengu rahastamisega tegelevate institutsioonide juhtumiuuringuid. See funktsioon on seotud nn finantsvõimuga ehk investeerimisotsuste langetamise võimalusega, mille puhul võib tuvastada strateegilist investeerimispangandust. Arengupankade pigem halduslikud meetmed ja vähene rahastusotsuste langetamise õigus väljendavad aga pigem vähem strateegilist investeerimisfunktsiooni. Investeerimisfunktsiooni teemaline arutelu on tihedalt seotud ka ebakindluse lahtimõtestamisega, mis vältimatult innovatsiooni ja arengu rahastamisega kaasneb. Selles mõttes võib strateegilise investeerimise funktsiooni kirjeldada poliitikate kaudu, mis võimaldavad rahastamisega tegelejatel selle ebakindlusega paremini toime tulla. Lisaks tähendab see, et riigiorganisatsioonid peaksid saama langetada strateegilisi investeerimisotsuseid. Aga nagu Korea, Taiwani, Singapuri ja Malasia ning Eesti, Läti ja Leedu arengupankade võrdlused näitasid, pole mitte kõigil riigi toetusel tegutsevatel arengupankadel seda otsustusõigust. Ehk teisisõnu ei saa mitte kõik valitsused riigi toetusel tegutsevaid investeerimispankasid tõhusalt oma strateegiliste investeerimispoliitikate elluviimise vahendina kasutada.

Teine ehk regulatiivne funktsioon on seotud valitsuste regulatiivse võimekusega riiklikke ja rahvusvahelisi finantssüsteeme mõjutada. Nagu nähtub Hyman Minsky töödest, on ebakindlust tekitavad finantsinnovatsioonid finantssüsteemide arengu lahutamatu osa. Seega peaks seda, et ebakindlus on finantssüsteemide toimimise vältimatu osa, võtma arvesse ka finantsjuhtimise ja arengu rahastamise uurimisel ja lahtimõtestamisel. Sellest lähtudes võib strateegilist regulatiivset funktsiooni defineerida poliitikate kaudu, mis võimaldavad finantssüsteemide vältimatu hapruse ja innovatsiooniga seotud ebakindlusega tõhusalt ja ennetavalt tegeleda. Singapuri rahandusasutuse (MAS, mis on nende *de facto* keskpank) näitel selgub, et haldusvõimekuse kontekstis on finantstehnoloogiate ja finantsinnovatsioonide fundamentaalse ebakindlusega toimetulemiseks vaja mitte ainult regulatiivset, vaid ka tehnoloogilist võimekust. Nagu Singapuri juhtumiuuringust järeldub, teevad riigi regulatiivsed asutused oma tehnoloogilise võimekuse parandamiseks üha ametlikumalt koostööd erafinantssektoriga, eriti suurte rahvusvaheliste finantsettevõtetega.

Töös välja toodud kolmas funktsioon on seotud finantshaldusega laiemas plaanis ja riikide maksebilansi haldamisega (finants- ja fiskaalpoliitikatega). Töös vaadeldakse nelja riigi – Norra, Rootsi, Eesti ja Läti – näidete võrdlemise põhjal finants- ja fiskaalinstitutsioonide erinevaid rolle. Finantsalaste õigusaktide ja fiskaalpoliitikate eest vastutavate nii-öelda vanemate ja uuemate riigiorganisatsioonide võrdlemisel võib kokkuvõttes järeldada, et finantshalduse toimimine on poliitikakujundamise lahutamatu osa. Võttes arvesse finants- ja fiskaaljuhtimise üha rahvusvahelisemat ja rahvusülesemat olemust, tuleb nentida, et riikide finantsasutuste võimekus võtta üle ja kasutada mujal loodud poliitikaid on väga erinev. Selles suhtes on strateegilise finantshalduse funktsioon seotud finantskontode sellise haldamisega, mis on kooskõlas riigi sotsiaal-majanduslike vajaduste ja tegelike oludega. See tähendab, et on vaja finants- ja fiskaalpoliitikaid, mis vastaksid riigi huvidele ja arengueesmärkidele, ning riigi finantsasutuste mitmekülgset regulatiivset ja halduslikku võimekust, et lahendada riigi poliitikaprobleeme, võtta üle ja rakendada rahvusvahelisi õigusakte ning säilitada samas riigisiseste poliitikaotsuste jaoks vajalik võimekus. See jääb rahandusministeeriumite, keskpankade, finantsjärelevalve ja muude sellega tegelevate valitsusüksuste tegevusalasse.

Kokkuvõttes üritatakse selles töös kontseptualiseerida nn riigipoolset finantsaktiivsust, lähtudes kirjandusest, mis vaatleb majandusarengut, innovatsiooni ja hiljutiste arengute poliitökonoomiat innovatsiooni ja arengu rahastamise strateegilise juhtimise vaatenurgast ja mida saab analüüsida riigi (finants-)poliitikate ja riigi (finants-)haldamise seisukohast. Ehk teisisõnu aitab juhtimise vaatenurk konkreetsemalt määratleda riikide rolli innovatsiooni ja arengu rahastamises. Tulevikus võiks läbi viia veelgi rohkem empiirilisi uuringuid, et saada selles töös välja pakutud funktsioonidele kinnitust, ning arendada edasi ka loodud kontseptsioone, et luua kindlamat ja detailsemat juhtimise raamistikku. See tähendab, et edasiseks uurimistööks on palju võimalusi, eriti kui võtta arvesse, kui palju poliitilist ja tehnokraatlikku võimu on riiklikud finantsasutused üha juurde saanud.

Appendix

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Financing of innovation: national development banks in newly industrialized countries of East Asia

Olga Mikheeva

ABSTRACT
Contemporary literature on innovation tends to overlook the issue of financing, whereas financial history suggests that banks have been essential to financing of new industries. Emerging literature ondevelopment banking, although inspiring, remains focused on financing policies. The article aims to rearticulate a coevolutionary nature of industrial and financial interests, following the works of Schumpeter and Minsky, by looking at the 4 cases of national development banks, tasked with long-term financing of industries, from newly industrialized countries of East Asia—South Korea, Taiwan, Singapore, and Malaysia. The study suggests that innovation in finance, as well as organizational innovation in financial institutions, represent essential elements of financing of innovative activities. Further, organizational innovation in financial institutions, such as development banks, might signify a disposition to face uncertainty, which characterizes economic and technological unknowns inherent in financing of innovation.

KEYWORDS
Financing of innovation; Schumpeter; Minsky; development banks; East Asia

Contemporary literature on innovation tends to treat financing as a rather exogenous variable and despite institutionalist and evolutionary approaches, the notion of finance is nondynamic and is often limited to the overview of venture capital industry, R&D subsidization programs and other incentive schemes (see, e.g., Breznitz 2007; Edquist and Hommen 2009; Lee 2015). In other words, a neo-Schumpeterian approach tends to focus on multifaceted entrepreneurship and knowledge creation (Callegari 2017; Perez 2007) while treating financing from a rather narrow perspective and without looking at the banking system, which, however, has been historically important for financing of new technologies: from railroads in 19th-century France to electronics in post-WWII South Korea and Taiwan to green technologies in contemporary Germany and United Kingdom.

Emerging literature on state investment banks and mission-oriented finance has been explicitly policy-oriented and its main aim has been to revive the notion of state's investment function, especially when it comes to emerging technologies with higher risks or large-scale projects with

Olga Mikheeva is at Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology, Tallinn, Estonia; and Institute for Innovation and Public Purpose, University College London, UK.

nonbankable uncertainties and/or returns (Bruck 2005; Griffith-Jones and Ocampo 2018; Mazzucato and Semieniuk 2018; Mazzucato and Penna 2015, 2017; Mazzucato and Wray forthcoming). Political economy of state investment banking has been recently analyzed by Rezende (2015) and Mertens and Thiemann (2017). Yet, few conceptual generalizations can be drawn from existing accounts. Although a more nuanced approach to financing of development and innovation is evolving, from a conceptual point of view, it adds little to already existing conclusions about heterogeneity, context-dependency, and a great variety of functions development financial institutions (could) perform. Put differently, a particular relation between industrial and financial interests and the various forms it can take has been addressed sporadically in economics and innovation studies, despite earlier indications of its coevolutionary nature: Schumpeterian entrepreneur–banker nexus brings about "new combinations" although because of information asymmetry and uncertainty, financial contracts are structured differently for various projects for various business (nonfinancial) firms by various financial firms (most notably banks; Minsky 1985, 1988) because "our world is characterized by heterogeneous capital assets, techniques of production that require extensive financing, and a variety of organizational forms for business and finance" (Minsky 2008, p. 255).

Innovative activities and financing thereof involves uncertainty, which has been extensively discussed in business organization literature and firm studies (Aoki and Dosi 2000; Coase 1937; Chandler 1977; Dosi 1990; Penrose 1959) while the discussion over organization of financial structures has been largely dominated by market-based versus bank-based dichotomy proposed by Zysman (1983; also see Burlamaqui and Kregel 2005) and most of advances in our understanding of organizational structures of banks were made by financial historians (see, e.g., Bonin 2011; Cameron 1953, 1961, 1967, 1992; Cassis 1992). Nevertheless, financing of innovation involves a (positive) disposition to face uncertainty and if all nonroutine actions require the exercise of Schumpeterian "animal spirits," there are also successful structures and procedures that encourage institutional disposition to face up uncertainty (Dow 2015). If so, we are interested whether there are organizational structures within specialized financial firms, investment banks, that might signify or be related to such a disposition. Indeed, if new forms of structuring financial contracts—financial innovation—have been recognized as indispensable to financing of innovation (Burlamaqui and Kregel 2005; Minsky 1988), organizational evolution of financial institutions vis-à-vis business firms have been predominantly discussed in historical studies of financing of industrialization (Cameron 1992; Cassis 1992; Cottrell, Håkan, and Teichova 1992; Davies 2015; Tilly 1986).

This substantial body of historical research gives us premises to conclude that banks, as a particular form of financial firms, and their financing of newly established industries involved learning and the development of new financial and organizational competences on the part of investment bankers (Riesser 1911; Sraffa 1930).

Although historically and empirically grounded, this article aims to contribute to the theoretical debate on financing of innovation by suggesting that not only innovation in finance, as theorized by Schumpeter and Minsky, but organizational learning and innovation within financial institutions, particularly banks, are integral to financing of innovation. Analyzing credit provision by banking institutions in its entirety would be beyond the scope of a single article. Current study, therefore, looks at national development banks—as exemplars of credit provision through banks—to analyze to what extent new financial instruments and organizational transformation were integral to the financing they provided to newly established industries. In other words, the aim of the article is twofold: first, to empirically verify the theoretical proposition on financial innovation while analyzing various financing facilities development banks have been providing to the industrial sector; and second, to inquire about the extent of organizational change throughout the course of their operations to see whether organizational innovation, advocated by historical accounts of organizational learning in banking, can be considered integral to financing of innovative activities. In addition, the article brings forth a typology of development banks. Our time horizon extends backwards to immediate postindependent years of selected East Asian countries—South Korea,[1] Taiwan, Singapore, and Malaysia—while construction of cases is based on the data obtained via extensive archival work with reports, policy notes, printed media archives and interviews triangulated with secondary sources.[2]

Theoretical foundations

The financial aspect of innovative dynamics has been always present in Schumpeter's work as he regarded credit creation "a monetary complement to innovation" and referred to the importance of the "investment theory of banking" (Schumpeter 1939). Yet, despite attempts to incorporate the notions of uncertainty, he did not manage to capture the dynamics of the

[1]Hereafter Korea.

[2]Availability of historical data (in English) varies among the cases and therefore secondary sources and interview materials proved essential for constructing the cases. For example, despite active industrial lending during 1960s–1970s, Development Bank of Singapore and Malaysia Industrial Development Finance Company reports for these years represent thin volumes with very concise descriptions of ongoing projects. At the same time, materials obtained through Association of Development Finance Institutions of Asia and the Pacific library represent real-life commentaries and policy notes by bankers-in-office that were intended for dissemination among development banks' executives.

monetary aspects of "new combinations" *to the same extent* that he elaborated on the dynamic theory of entrepreneurship (Tichy 1984, p. 127, emphasis added). For Schumpeter, capital is confined to the monetary means (also see Callegari 2017) because "the businessman … thinks about the creation of a free cash flow at his disposal. It is concerned neither with immediate provision of goods nor with the production of goods for further production, but with provision or creation of credit means of payment. The expression 'capitalist' also belongs to this context'" (Schumpeter in Biondi 2008, p. 535). Minsky restated the importance of cash flows, which is also reflected in prices (Minsky 2008). Although interpreting Schumpeter, Biondi (2008, p. 534) also referred to the dynamic notion of capital in that "firm's economic and monetary process does transform the engaged capitals, rather than simply accruing them to the previous total stock of capital. No such thing as permanent capital exists, whether real or financial." Yet, this is related to the dynamic notion of the use of monetary capital by an entrepreneur and still little has been said about innovation-related dynamics of monetary capital, which currently interests us the most.

Callegari (2017) revisited the work of Schumpeter and concluded that monetary theory has been always integral to Schumpeter's theory of innovation and that interest is earned by financiers precisely from financing of innovative productive activities (and new entrants), which, however, start to diminish when innovative firms pursue financing of investments out of retained earnings (Callegari 2017, pp. 107–113). More precisely, Schumpeterian innovation—in a sense that it involves a greater uncertainty than does investment to increase the level of output—should be perceived by the financial agent in terms of his/her willingness to finance it (i.e., there is a disposition to face such uncertainty; Dow 2015). Such disposition is dynamic and depends on various factors such as macroeconomic environment, business cycle, as well as technological trajectories and prevailing organizational forms surrounding them (O'Sullivan 2006). In other words, financing of productive economic activities involves a transfer of uncertainty from a nonfinancial firm operating in a competitive environment to financial firms: only successful innovations by nonfinancial firms would imply their full ability to service their financial liabilities while these very financial assets are held and traded by financial firms (and the general public) (Burlamaqui and Kregel 2006, pp. 6–7). On the other hand, competition in the financial sector, financial policies, regulations, and standards prevalent in the financial sector also affect financial firms and hence financing of productive economic activities. Further, competitive behavior of financial firms transforms financial markets and, in turn, "affects the ability of all firms to finance new innovations" while "knowledge-based innovation is a key strategic response to uncertainty and financial instability" (Burlamaqui and Kregel 2005, p. 1). Schumpeter-Minsky synthesis is essential for understanding the coevolution of financial and productive structures and the dynamics thereof (e.g., the growth of capacities in financial firms would allow non-financial firms to achieve greater economies of scale and scope;[3] Burlamaqui and Kregel 2005, 2006). At the same time, the synthesis also stresses volatility inherent in financing of economic development because financial innovations[4] that facilitate the financing of innovation in business tend to decrease transparency concerning the risks being borne in the system, which raises the possibility for ever-increasing financial risks and ever-decreasing understanding of such risks because in Minsky's terms Schumpeterian entrepreneurs are speculative units whereas true Schumpeterian entrepreneurs are quasi Ponzi units (Burlamaqui and Kregel 2006, p. 5). In other words, Schumpeter-Minsky synthesis identifies financing of innovation through the interaction of financial and nonfinancial firms and as a *distinct* source of uncertainty that adds to instability.

In this regard, managerial and organizational competences of a business firm have been identified in business organization and innovation literature as a tool to cope with uncertainty and information asymmetry in markets, which ultimately defines firm's competitive advantage. Financial firms, in turn, use pricing mechanism to reduce uncertainty toward calculable risks but they too need to adjust managerial skills and own organization in response to uncertainty pertaining to the financing they provide to innovative business firms. Studies in financial history (Cameron 1992; Cassis, De Luca, and Florio 2016; Lazonick and O'Sullivan 1996) provide detailed accounts of how financing of newly established industries involved technological and economic uncertainties, to which financial firms, most notably banks, responded also by developing new competences and organizational routines.[5] To put differently, coevolution of financial and productive structures involves not only financial innovation, as discussed in

[3]An illustrative example of this is cartelization of large manufacturing firms in Germany in the late 19th century, which was facilitated by amalgamations among major banks competing for greater market influence (Gerschenkron 1962), or the point in French financial history when joint stock form of ownership was allowed in banking, which enabled pooling resources of many smaller investors to finance large-scale railroad projects starting from 1850s.

[4]In the context of this article it is useful to differentiate between speculative financial innovations and "productive" financial innovations: the former is driven by the profit motif while the latter, besides the profit motif, contains a response to financing needs or particularities of a nonfinancial activity that is being financed. From a systemic perspective, the two are not mutually exclusive but they are not necessarily related and therefore can occur independent of each other.

[5]*Crédit Lyonnais* was among the first banks in 1850s to establish a research department to perform economic and technological analyses (Bonin, 2011); Great German banks started hiring engineers and chemists to assist in evaluating industrial borrowers during the last third of the 19th century; trust companies affiliated to German banks were established as quasiautonomous units to perform financial analysis of borrowing companies (Sraffa, 1930); *Société Générale* emulated *Inspection Générale des Finance* to standardize internal financial monitoring of borrowing firms (Bonin, 2011); both German universal banks and money trust bankers in the US were sitting on boards of the borrowing manufacturing firms at the turn of the 19th century (O'Sullivan, 2016).

Schumpeter-Minsky synthesis (Burlamaqui and Kregel 2006) but also organizational innovation by financial firms. The article argues that organizational innovation can be identified as a distinct mechanism of coping with uncertainty inherent in financing of innovative activities and if identified, such organizational change within financial firms can be interpreted in relation to the disposition of these firms to face technological and economic uncertainties. Such disposition, as was mentioned, should be understood as nonstatic and is also dependent on macroeconomic and regulatory environments, business cycle, competition within the financial sector, and other variables. Yet, differentiating between organizational change in financial firms related to gaining competitive advantage[6] or as a response to financial regulations and policies on one hand, and those related to their disposition to finance innovative economic activities on the other hand, would help identify to what extent financial firms are actually engaged in financing of innovative activities.

Traditionally, organizational aspects of financial structures have been described by two distinct types: bank-based (or relationship-based) and market-based (or transaction-based) articulated by Zysman (1983) although Hardie et al. (2013) extended the original dichotomy toward "market-based banking" type of financing owing to a greater influence of markets that contemporary banks rely on as compared to 30 years ago when Zysman's work was published. The ever-increasing role of markets in hedging risks borne by banks significantly contributes to financial fragility and reinforces procyclicality (Kregel 1998; Kregel and Burlamaqui 2005) as well as diminishes "financial power" of banks, which is essentially the discretion in making investment decisions and pricing the credit in an economy (Hardie et al. 2013, p. 699). Yet, in case of specialized financial firms, such as national development banks, such discretion has been greater due to the nature of their financing operations: tasked with long-term industrial lending, supporting innovation and development policies through "patient" finance, development banks represent a closer nexus between financial and industrial interests and therefore make a rich case for studying the co-evolution thereof. The aim of this article is, therefore, neither to provide an interpretation to Schumpeter's monetary theory of innovation, nor to extend a Schumpeter-Minsky synthesis but rather to focus on the relationship between financial and non-financial firms, to consider the co-evolutionary dynamics between productive and financial structures (on a micro level), and to discuss organizational dynamics within national development banking institutions in countries where technological catch-up and policy finance were essential to rapid industrialization.

[6]For example, emulating industrial firms, banks, and other financial institutions establish own research and financial engineering labs, previously known as "new product groups" (Mayer and Kneeshaw, 1988, p. 137).

Financing of industrialization and technological catch-up in East Asia

Analyzing experiences of East Asian countries is useful due to the two major aspects: rapid industrialization was based on continuous technological upgrading (Amsden 1989; Amsden and Chu 2003; Evans, 1995; Lee, 2015), which was financed predominantly through the banking system. Provision of credit to newly established industries involved both economic and technological uncertainty, which banks had to take into account. Despite state's control over allocation of finance through "repressed finance" regimes, which existed in most of East Asian states until late 1980s (Amsden, 1989; Amsden and Chu 2003; Loriaux et al. 1999; Wade, 2004), banks still had to interact with industrial borrowers through project appraisal and monitoring. In other words, despite the distortion in selection mechanism caused by state intervention, banks extended loans to new industries following economic and technological appraisal, and by developing appropriate financing facilities, which altogether both demanded and defined their internal competences and arguably affected their organization. More precisely, development banks with the policy task to assist new industries, are specialized financial firms that due to the very nature of their mandates, represent "typical cases" of financial agents that have a positive disposition to face uncertainty related to technological and economic unknowns of business firms. Such a disposition cannot be understood in purely Schumpeterian terms due to direct (soft loans at preferential rates to targeted sectors) or indirect (government guarantees) influence of government's interests. Nevertheless, in terms of "financial power" defined earlier, development banks tend to have substantial discretion in making financing decisions vis-à-vis industrial borrowers, also due to the fact that they provide the type of financing rarely available from elsewhere (especially at the start of industrialization or in case of emerging technologies and firms operating at the technological frontier).

The group of selected cases is not homogenous, and we may distinguish between interventionist and noninterventionist financial policies with Malaysia being the example of the latter. Financial intervention in Malaysia was limited to state ownership of banks and did not involve extensive use of "policy loans" as was the case in Northeast Asian developmental states (South Korea, Taiwan).[7] The analysis below is centered over key industrial finance institutions of national scope and their evolution over time, since the date of establishment onwards. Despite limitations of primary data as well as various organizational trajectories of the cases, continuity of their

[7]Most of Southeast Asian countries have a richer natural endowments and hence had larger trade accounts at the start of industrialization, although Rasiah and Yun (2009) noted the difference in capital used for industrialization: unlike Northeast Asian experience, not local capital but foreign ownership led export-oriented growth in most of Southeast Asian countries.

existence helped to identify relevant milestones in the course of their operations. The description of cases is followed by suggested typology of national development banks.

Korea[8]

After nationalization of commercial banks in the 1960s, the Korean government differentiated between the two types of interest rates: preferential—that of 6%—for infant and export industries, and nonpreferential two-digit rates for the rest. Yet, no attempts were made to cross-subsidize preferential interest rates by increasing nonpreferential rates. From the industrial side, "good performance [was] evaluated in terms of production and operations management rather than financial indicators" (Amsden, 1989, p. 16). Export targets were imposed by the economic planning bureaucracy, whereas government ownership of banks oriented large industrial conglomerates toward capital accumulation rather than rent-seeking behavior. Song (1985)[9] identifies entrusting nationalized commercial banks with policy lending as impediment to financial innovation needed for finance to coevolve with industrial structures: priority loan funds discouraged banking institutions from carrying out sufficient project appraisal and discouraged banks from introducing innovative financing solutions.[10] Financial liberalization of the mid-1980s, therefore, aimed not only at bringing in foreign financial institutions but also at encouraging business activity among domestic nonbanking financial institutions.

Policy loans have been an essential part of interventionist policies in Korea with the Korea Development Bank (KDB) being at the forefront of development finance[11]—in 1996 its assets comprised 6% of all assets in the Korean financial sector. The KDB Act was following the lines of the Japan Development Bank Law, although KDB had far less autonomy from the government than its Japanese counterpart did.[12] Wholly owned by the government and supervised by the Ministry of Finance, KDB has been also

[8]Unless specified otherwise, the section draws on Development Bank of Japan and Japan Economic Research Institute (1999, 90–99).

[9]The then acting General Manager of the Research Department in KDB.

[10]Interestingly, a somewhat similar conclusion appears in the study of financial assistance directed to Italian region of *Mezzogiorno* during 1960s–1980s. The difference, however, was in fully administered preferential interest rates, which additionally discouraged local banks in Italy from developing high project appraisal and screening competences (Faini, Galli, Giannini 1992). The latter resembles the case of Malaysian policy finance during 2000s, presented below.

[11]The other two primary policy-lending institutions were state-owned Korea ExIm Bank and privately owned Korea Long Term Credit Bank (acquired by another Korean bank in 1998).

[12]One of the key differences between Korean and Japanese policy finance is the source of funds: Japanese government provided a stable flow of funds via the Fiscal Investment and Loan Programme; Korean public financial institutions drew funds from the fiscal budget during the very first years of operations while had to rely on bond issue and foreign borrowings later on. At the same time, commercial banks in Korea were also entrusted with policy lending with the Bank of Korea automatically refinancing half of such loans and by the 1990s the ratio of policy-based loans made by commercial banks stood at high 35%.

supervised by the Financial Supervision Committee since 1999. Song (1985) referred to intensive business consulting and research activities, which made KDB an important player in assisting the government in formulation of industrial policies and Lee[13] (undated) refers to KDB as a think-tank. Managerial, advisory and technical assistance has been emphasized as essential part of lending thereby making lending activities more efficient (Song,[14] undated).

During the first years of operations, government funds comprised the lion share of resources while already in the 1960s, 56% of funds was raised through industrial finance bonds with the rest—from borrowings, deposits, and through equity. Following the amendments in the founding Act (1997), KDB was allowed to take deposits from the public as well as to put greater focus on profitability.[15] With expansion of activities throughout the 1990s the share of government borrowings and special funds has reduced (share in total borrowings came to 15% and 8% respectively in 1997) while foreign borrowings and foreign industrial bonds went up to 61% in 1997. In the aftermath of the Asian Financial Crisis, KDB received 5 mln won of capital injection to carry out new responsibilities in industrial restructuring and in mediating negative effects of the credit crunch. The Bank has been active in assuming equity interest in various industries from early on (Lee, undated), in areas where private enterprises could not afford to secure sufficient capital, including POSCO and KEPCO corporations (Song, undated). For financing large-scale projects, KDB began underwriting long-term convertible bonds starting from mid-1980s. In addition, it has been active in subscriptions and underwriting of debentures issued by public institutions, including local governments. It has established a number of subsidiaries: Korea Industrial Leasing Company (est. 1972) to provide leasing services, and Korea Technology Finance Corporation (est. 1984) as a Venture Capital (VC) arm of KDB.

Equipment capital loans accounted for 84% of loans outstanding in 1999 while working capital was provided only to those corporations, which had already received an equipment loan from KDB. Overall, lending has been conducted in line with economic and technological priorities of the government: heavy and chemical industries in the 1970s; shipbuilding, machinery, and steel sectors in the 1980s; and domestic production of machinery in 1990s while loans to export-oriented manufacturing have been always at the core. Expansion of KDB activities abroad was necessitated by internationalization of Korean firms starting from mid-1980s. For this, KDB

[13]Former Senior Economist of the Research Department in KDB and the Department's subsequent General Manager.
[14]The then Assistant Governor of KDB.
[15]At the same time, overall, the profitability of KDB has been the lowest among East Asian development finance institutions.

was required to raise low-cost funds from overseas markets, for which a favorable credit rating was essential. In 1989 KDB established its International Investment Department to provide bond issues, syndicated loans, project finance, mergers and acquisitions (M&A), leasing and management consultation. In 1998 it started with offshore lending. Funds raised from KDB's international operations were used not only for Bank's lending activities but also for protecting the national balance of payments (Song, undated, p. 21).

Following financial liberalization of the 1980s, denationalization of commercial banks and subsequent increase in competition, KDB was to device a new business strategy—Korean laws establishing development finance institutions did not clearly prohibit competition with private financial institutions. New aspirations of the Bank were related to becoming an international investment bank, following its long-standing experience in pioneering various financial businesses in Korea and a solid record of risk-taking by moving into new business areas. Although reduction of previously wide business scope was inevitable by the late 1980s, KDB assembled a special task force to revitalize Bank's functions and activities: moving into commercial banking was considered as a possibility while relevant laws were revised to allow KDB enter additional short-term financing facilities such as export credits, bill discounting, and overdrafts to clients (Song, 1985, p. 22).

Following the Asian Financial Crisis, one conditionality of the IMF rescue package involved abolition of policy lending while in reality this mostly concerned resources of the Central Bank, leaving KDB operations intact. After the Crisis, the Bank had to restructure and designed a new strategy to become one of the leading investment banks in the region. More specialized departments were established within the KDB during 1998–1999: Credit Risk Management Department; Corporate Banking was divided into three units, including Small and Medium Entreprises (SMEs), to define customer groups based on client risk profiles; and the newly established Industry Technology Department was responsible for more accurate industrial risk analysis and technology evaluation (KDB annual report 1999).

Throughout the 2000s, loans to the manufacturing sector stood at around 50% of all lending with services slightly taking over since mid-2000s. Industrial research function of KDB was reinforced in late 1990s with a number of publications starting coming out on a regular basis such as "Industry Report," "Industry and Economy Papers," "Industrial Product Information" while new econometric models were developed internally to assist international investment banking operations. Amendments to the KDB Act in early 2000s enabled provision of working capital loans to external clients (in addition to those who has been Bank's long-term borrowers already), borrowing from the Bank of Korea (BOK) was now possible under the aggregate credit ceiling system while a range of financial products expanded and now included loans to finance stock acquisitions related to takeovers and M&A thereby supporting corporate restructuring – an area where KDB had a long-standing experience. The Bank maintained its reputation as Korea's prime borrower of funds overseas. Administrative and financial assistance to companies in trouble, including large conglomerates such as Hyundai and Kia Steel, continued. From mid-2000s KDB prioritized regional industries and next-generation growth engine industries. Training in technology evaluation was provided to officers before they joined respective government positions while the Consultancy Department started to compete with international consultancy firms operating in the region thereby promoting KDB as the leader in development consulting in the Northeast Asia. Northeast Asia Research Center was established to expand its regional research activities, including for non-Korean firms, as a fee-based activity. Northeast Asian Development Finance Council, a consortium of seven banks headed by KDB, aimed at arranging for consortia lending in the region as well as keeping a number of working groups for exchange of relevant expertise and ideas (KDB annual reports 2000–2005, 2007 various years).

Privatization plan was announced in 2008 following the notion that KDB has been increasingly competing with commercial banks due to maturing national financial and industrial structures. A spin-off, Korea Policy Banking Corporation, was supposed to continue serving a policy function as a government-backed financial institution by supporting SMEs, social infrastructure, fostering new economic growth engines and stabilizing financial markets (KDB annual report 2008). After the privatization program was called back, however, by the government in August 2013, largely following the need for counter-cyclical financial assistance in the aftermath of 2008 crisis, KDB was merged with Korea Finance Corporation, its task was reoriented toward financing of industries with greater risks and providing SMEs with new financing solutions such as Intellectual Property (IP) Acquisition Loan Program and IP commercialization financing. Additional programs were launched to promote startups and ventures through consulting on expansion, IP evaluation systems, and such. KDB's roles have been rearticulated as "risk taking in areas farther than the private sector's reach' and 'market leadership in advancements in financial industry" (KDB annual report 2014).

Taiwan

Taiwanese China Development Corporation (CDC) resembled the Malaysian first development bank—Malaysia Industrial Development

Finance Company—because of substantial private and highly dispersed ownership as well as assistance from the World Bank. Established in 1959, CDC performed the role of a "traditional" development bank through long-term lending and equity investments. The projects to be funded were selected according to the "priority industry concept" following Taiwan's national priorities for "appropriate technologies." At the same time, CDC remained a wholesale bank with no extensive branch network thereby limiting its clientele to large firms and new ventures, for which it acted as a venture capitalist—in other words, CDC did not target SMEs (Kiang 1988).[16] Certain discretion it had in deciding what types of industries it wanted to develop long-term relationship with, working closely with firms' top management and becoming their financial advisor, while also serving as primary financial advisor to large infrastructure projects, such as the Taipei Underground Heavy Rail Mass Transportation System in the 1980s (Kiang 1988, pp. 80–81), and the Highway Electronic Toll Collection Project in 2000s, by providing both equity and debt financing. In terms of sources of funds, CDC relied on government agencies for local currency and Central Bank of China,[17] export credits, and foreign commercial banks for foreign currency (Shen 1983).[18]

CDC's lending portfolio shifted from textiles and petrochemicals in 1960s–1970s, to electronics, semiconductors, and industrial technology (IT) industries in 1980s, and further to optoelectronics, alternative energy, healthcare, as well as consumer goods, in 2000s. In 1999, CDC was reorganized into China Development Industrial Bank (CDIB), which nowadays maintains its leading position in VC industry accounting for 30% of its share. CDIB has been coordinating government policies in upgrading the financial industry: its current direct lending portfolio consists of industrial manufacturing (12%), consumer goods and services (16%), high-tech (29%), and financials (43%—grew from 16% in 2003) (CDIB annual report 2014). In terms of lending, as an industrial bank CDIB was previously required to have at least 60% of total credits to manufacturing industries. In addition, prior to 2000s CDIB has been the leader in loan syndication (CDIB annual report 2003).

[16]The then acting President of the CDC was in charge of nationwide industrial development survey and a feasibility study on implementing Planning-Programming-Budgeting systems for the Republic of China's government in the 1970s.

[17]Following Wade (2004, p. 167), in 1979 when the sense of national emergency was created by the U.S. derecognition, the government created a special US$600 mln fund to assist machinery imports in selected industries—mainly textiles, electronics, and machinery—with unusual generous terms—interest rate remained below the market rate, 2-year grace, 5-year repayment period, and with a collateral being machinery itself—which by 1982 amounted to US$300 mln in lending, an equivalent of 2.5% of total fixed capital formation in Taiwan in 1980. For industries, not included in the priority list, CBC had another line of credit from the Central Bank (Shen 1983).

[18]The then acting President of CDC.

SME Unit, set up in 2003, targeted growing companies with the potential for public listing and companies in traditional industries aiming to restructure. CDIB claimed to be regarded as a market pioneer in identifying industries with promising potential for investment, whereas in over 50% of its portfolio companies CDIB had placed directors and supervisors (CDIB annual report 2003, p. 3). Between 1999 and 2003 the number of portfolio companies went from 324 to 472 with total direct investment funds growing from 59,615 to 90,632 NT$mln. Among these, domestic firms accounted for 237 (1999) and 261 (2003) companies, and 44,420 (1999) and 63,273 NT$mln (2003) in investments. In 2003, CDIB accounted for 30% of domestic direct investment with 60 professionals with postgraduate qualifications working in its Domestic Investment Department. The CDIB's Research Department continued being regarded important as it conducted credit, economic, and industry analysis with researchers collecting data from suppliers, customers, and counterparts, and, according to the annual reports, both its financial and industry reports kept serving as a valuable reference to the industrial community (CDIB annual report 2003, p. 69).

During the early 2000s, following intensifying financial environment, the Bank decided to diversify revenue mix by reducing VC-based business and expanding fee-based activities as well as investment banking operations. Yet, it kept positioning itself as a financial institution devoted to providing equity financing with having 325 companies in its portfolio as of 2004 (the sectors identified were wireless communication, displays, energy, consumer electronics, medical devices, auto parts, and components). Bank's overseas investment portfolio consisted of IT, electronics, biotech, and pharmaceuticals. Project finance operations, provided by the bank since 1984, were expanded from initial Bank's role of a financial advisor to the government towards a more active role in arranging financing for either loan syndication or equity investments for both large-scale public and private investment projects. This, in turn, was possible largely due to the emergence of large-scale private investment projects as well as built-operate-transfer (BOT) model (CDIB annual reports 2003–2013, various years).

Following a clear differentiation from commercial banking dominated by fierce competition and narrowing margins, CDIB emphasized long-term-oriented relations with its clients. At the same time, venturing into securities market provided the Bank with additional fee income and greater revenue mix. Brokerage, securitization, and registrar services, as well as private wealth management have become integral to Bank's operations. Yet, its industrial portfolio was the largest manufacturing portfolio in Taiwan (CDIB annual report 2005). Internal reorganization of business departments into specialized industrial groups, including optoelectronics, communication and semiconductors, information electronics, traditional industries and life sciences, was combined with the merger of domestic and overseas investments into one department, following growing linkages of Taiwan's industries with other businesses in the Asia-Pacific region (CDIB annual report 2005). Since mid-2000s, CDIB has been actively pursuing corporate restructuring and M&A deals. Currencies and commodities as well as equity have become established lines of operations by the end of 2000s and syndicated loans in foreign currency proved to be a vital source of Bank's income (CDIB annual reports 2003–2013, various years).

By 2009, nevertheless, its primary investments were 35% in high-tech, 16% in industry and manufacturing, 15% in consumer products, and 34% in financial services and funds, with some 100 elite professionals working in the Bank's investment team. From 2009, the strategy shifted toward aggressive partnership with international investment institutions worldwide with US$620 mln placed in 26 top private equity funds across the globe. Meanwhile, the research department continued playing its role of a think-tank and performing risk controls for the entire financial holding group. The latest available annual report (CDIB annual report 2013) refers to the Bank's intentions to move into VC financing and private equity funds in Taiwan, China, and the Asia-Pacific region thereby increasing management-fee income as well as diversifying investments. Establishment of commercial banking operations followed the recent acquisition of Cosmos Bank (CDIB annual report 2009).

Singapore

The history of development finance in Singapore started with the Economic Development Board (EDB), founded in 1961, which initially served as both economic planning agency and finance provider while in 1968 the newly established Development Bank of Singapore (DBS) took on the later function. From the very start, EDB had a very broad range of activities (compared to its ineffective predecessor Industrial Promotion Board)—to subscribe and underwrite the issue of stocks, shares, bonds, or debentures by industrial enterprises; to make loans and advances to industrial firms; to establish, manage, control, or supervise enterprises or collaborate with other persons in any of these activities; to acquire and develop land for industrial estates, housing of industrial employees or general economic development; and to provide technical advice and assistance to industrial firms through its own corps of engineering and managerial staff. The powers were divided between operating divisions: Investment Promotion, Finance, Industrial Facilities, Civil Engineering, Projects and Technical Consultant Services. Its most important equity investments were in National Iron and Steel Mills and the Jurong Shipyards. The EDB did not assume a majority shareholding in any of the firms and was always eager to dispose its shares once an enterprise became more sustainable. In order not to interfere with commercial banks, EDB only financed fixed capital assets (up to 50% of capital requirements). With loans over S$1 mln, EDB would normally look for some management connection: an option to convert into shares and to nominate a director. It lent to any industrial company regardless of its form of ownership while private corporate organizations outnumbered public borrowers. It processed applications with scrutiny and, once approved, the actual disbursement (as well as supervision) was made through a commercial bank.[19]

DBS originally intended to focus on term lending and equities in industry and its commercial banking operations were limited to its development finance clients and "even then [DBS] provided this only when adequate facilities were not available from other sources" (Rimall 1987, p. 238). As with most development banks established during the post-WWII period, the DBS charter was broadly framed allowing for various types of financing—term, guarantees, equities, real estate, and commercial lending. At the same time, unlike most of state-owned development banks established by a separate act of the Parliament, DBS was incorporated as a public limited company registered under the Banking Ordinance, which "had much to do with the Government's decision right from the outset to inject private participation[20] […] [and] the new institution would function as a private sector type of organization rather than as a statutory body" (DBS annual report 1988, p. 13). Upon its foundation, DBS had two divisions: Development Banking and Commercial Banking. It accepted demand, fixed, and savings deposits; granted long- and short-term loans; negotiated export and import bills; transacted foreign exchange; and did all business of a commercial bank, as well as operated in the Asian Dollar Market and Asian Bond Market (Lee 1974).

It was almost "by accident" that DBS was registered under the Banking Ordinance, which "was to pave the way for […] entry into the world of commercial banking not long after, despite original intentions" (DBS annual report 1988, p. 14). The decision to move into commercial operations started with the provision of working capital while retail banking operations started with the overall liberalization initiated later by the government. Foreign banks were allowed to come in and for DBS this was about gaining momentum as well as about downplaying the criticism.[21]

[19]The paragraph draws on Drake (1969).

[20]Initial government ownership was slightly above 50%.

[21]The discussion in local media in early 1970s indicates that DBS has been accused of competition with the private sector by entering into commercial banking services and actively taking equity interests in industrial firms. The government's response was published in *New Nation* (January 26, 1971) and can be summarized as follows: "The conclusion to which we have come in considering DBS is that state enterprise will never truly

At the same time, the set up of DBS raised interest among the regional development banking community, especially its commercial banking division which provided working capital and related banking transactions (*The Straits Times*, May 26, 1969).

During 1978–1979 DBS announced internationalization and expansion of operations overseas. It still positioned itself as a key provider of development finance, although "its pre-eminent position in this area at the beginning of 1970s has been eroded by competition from both foreign and local banks" (DBS annual report 1979). Development financing during this period consisted of projects at Changi Airport; expansion in offshore oil exploration (shipbuilding assistance was stepped up); administration of the Singapore Government's Ship Financing Scheme along with foreign banks participating in the Scheme;[22] loans under Small Industry Financing Scheme (DBS accounted for 91% of total loans); VC funding to 12 companies; and three new home financing schemes launched through DBS Finance Limited subsidiary. In addition, DBS continued being a trendsetter of interest rates on deposits and actively engaged in commercial and industrial property development.

Meanwhile, internally the Bank was reorganized into four main groups: wholesale banking, consumer banking, international banking, and investment banking. By 1980, the share of industrial lending stood at 28.5% (mostly to metal and chemical industries) and at 54.9% for services (transport, communication, and finance). Equity stakes were in manufacturing 37.2% (down from 56.3%, major decline in transport equipment and other manufacturing), now mostly in metals, chemicals, and transport equipment; and services 56.9% (rose from 40.7% in 1979) that were now half held in financial institutions. In the annual reports, a separate chapter on Industrial Finance appeared last in 1977 and in the 1980s development financing included VC and project financing. At the same time, the Bank participated in equity in few petrochemical companies; loans committed under Small Industries Finance Scheme were now 71.5% under DBS (down from more than 90%); the bulk of commitments went to metal and plastics industries, which were now identified as strategic for Singapore; finance was also made available to professionals who turned entrepreneurs. DBS continued to be the only domestic bank to participate in Government's

hurt business unless and until the state is demonstrably devoted first and foremost of the welfare of the masses of the people, here and now. Readers will have their own opinions about the logic and ethic of Government entering into competition for the fruits of opportunistic enterprise. To us, it all seems ritualistic shadow-boxing among elites who have in the end essentially the same interests."

[22]Although a number of banks, both foreign and local, participated in the scheme, they had to go through DBS to finalize low-interest loans to companies willing to invest into the industry, which gave DBS managers tremendous exposure to how ship financing really worked (Geok, Gleave, Buche 2006, p. 8). The funding scheme was in place during 1970s–1980s.

Ship Financing Scheme and continued arranging for large syndicated loans both domestically and offshore where it was a leading actor (DBS annual report 1980).

Liberalization of Central Provident Fund (CPF) accounts provided DBS with an opportunity to develop new financial services, fund management, and investment consultancy activities. For example, CPF Minimum Sum Account to assist CPF members to set aside minimum funds to meet basic retirement needs was set up in 1985; a few trust funds were launched by DBS to help channel CPF funds into investments (DBS annual report 1985, 1986). Since the mid-1980s DBS explicitly referred to promotion of investment activities to help Singapore become one of the world's financial centers (DBS annual report 1984). By the end of 1980s, the share of industrial loans and advances declined from 31% (1979) to 24% (1987) while lending to financial institutions increased from 12–14% (1980–85) to 20% (1987).

Recession of the mid-1980s gave an additional impetus for DBS to continue expanding overseas. Shipbuilding industry played an important role in this regard. As was already mentioned, throughout 1970s–1980s DBS was channeling funds from the Government-assisted program to help sustain shipbuilding and repair sectors. Following internationalization of Singapore's port, PSA corporation, and shipping and oil-rig building firms, DBS hoped to expand its market share by servicing the shipbuilding business in the region. In addition, it already established itself as the leading manager of syndicated lending in Asia. Following the 1979 oil crisis and subsequent industry restructuring, by the 1990s ship financing business represented a small group of much more sophisticated bankers and financial institutions, whereas debt, including syndicated debt, accounted for the greater part of ship finance. Since the mid-1990s, DBS has been actively engaging in relationship banking with shipbuilding firms by providing leasing, balance sheet financing, financial and advisory services, including M&A, equity and bond issue, as well as structured financing, such as securitization (Geok, Gleave, and Buche 2006).

Throughout the 1990s, DBS Venture Investments were expanding further in the Asia-Pacific and the United States, and DBS was now managing portfolio of companies where it directly invested (mostly mezzanine equity financing) as well as in other VC firms. DBS assisted local companies in expanding overseas via extending loans under the Economic Development Board's Local Enterprise Finance Scheme since 1992; continued to be a major lender in the transport, storage, and communications sector and was active in structuring financing for ship owners from Singapore, India, the United Kingdom, Indonesia, Hong Kong and Taiwan (Geok et al. 2006). By the end of 1990s the sources of DBS funds were largely deposits (84%) as compared to 61% of borrowings from the government in 1975

(Development Bank of Japan and Japan Economic Research Institute 1999, 87). Meanwhile, government ownership decreased to less than 30% by 2010s and in 2015 stood at 12%, which was held by Tamesek Holdings.

From 2000s onwards, DBS has been managing a number of government-assisted financing programs, including SME Loan ACCESS program, SME Working Capital Loan, SME Micro Loan, Loan Insurance Scheme, Intellectual Property Financing, Internationalization Finance Scheme, and Local Enterprise Finance Scheme.[23] Major reorganization took place during 2000–2002, following regionalization strategy and the need for better internal coordination. Among the most recent developments is the DBS Foundation, launched in 2014, which is the only corporate foundation in Asia dedicated to assist social enterprises through basic training and workshops, incubation and mentoring, and project grant support. The idea, which originated in the Institutional Banking Department, is centered over going beyond seed funding toward a more systemic approach. DBS Foundation conducts extensive research activities while also taps into already existing within DBS competences in lending to SMEs. Grant programs are phased and monitored by the DBS Foundation team, and last for no longer than 2 years. National University of Singapore contributes to competence building following its long-standing experience in dealing with startups, whereas Singapore Management University (SMU) and INSEAD also came recently on board. Despite the fact that investing in social enterprises is a relatively new segment in Asia—less than 10 years old across the region—DBS has been active in Hong Kong (where the scene is more mature), India, and Indonesia (Interview 1, October 5, 2015).

Malaysia

From the perspective of policy intervention, with the exception of export credit[24] and some relatively minor financial institutions, policy lending in Malaysia was rather low as compared to Northeast Asian developmental states (Chin 2001; Chin and Jomo 2000; Thillainathan 2003). Priority sectors were mentioned in guidelines issued by Bank Negara[25] since 1974 and included broad categories: the *bumiputra,*[26] SMEs, housing including low-cost housing, manufacturing, and agriculture (Chin 2001). Commercial

[23] https://www.dbs.com.sg/sme/financing/government-assisted-schemes.page.

[24] For example, Export Credit Refinancing Scheme launched by Bank Negara (Malaysia's Central Bank) in 1977 to provide easy access to credit at preferential rates for both pre-shipment and post-shipment (Chin, 2001, p. 231).

[25] Malaysia's Central Bank.

[26] Indigenous people of Malaysia, identified with Malay ethnicity. Chin (2001) notes that *bumiputra* lending targets did not contain any discriminatory measures among various uses of loans and the majority of loans went to unproductive investments: mostly broad property (over 30% on average; author's calculations) and consumption (around 40% on average; author's calculations), based on data for 1976–1996.

banks were ordered to lend to manufacturers no less than 20% of their loan portfolio during 1978–1984 (Chin 2001), whereas from 2006 onwards the primary focus has been solely on credit access for SMEs (BNM annual report 2007). The government held significant equity in domestic financial institutions (through statutory bodies) and directly controlled Development Finance Institutions (DFIs; Lai 2012, pp. 89–91). In addition, in a survey conducted in 2004, three Malaysian banks responded that more than 30% of loans went to the public sector on instruction by the government (Parreñas 2005) and nowadays top executives of certain DFIs are asked by the controlling ministry (in most cases the Ministry of Finance) to explain the reasoning behind certain lending decisions, both positive and negative (Interview 2 [October 20, 2015] and Interview 3 [November 24, 2015]).

At the outset of independence, owing to the period of common political history, development finance in Malaya was thought to co-exist with the activities of Singapore's EDB: the latter would be in charge of investment promotion and research while Malaysia Industrial Development Finance Company (MIDF) would provide financial resources. MIDF was formed in 1960, with capital subscribed by the government, commercial banks, insurance companies, and Colonial Development Corporation; ownership has been highly dispersed (most important shareholders were Malaysian Central Bank and International Finance Corporation, an investment arm of IBRD); about one-half of its paid-in capital came from foreign sources but the policy has been to retain at least 50% of equity for local shareholders. MIDF gave out medium and long-term loans although share participation did not begin until 1964–1965, although it was kept being relatively modest, especially when compared to the EDB/DBS strategy in Singapore at the time (Drake 1969). MIDF has been known for rather sophisticated application procedure, which did not quite reflect the mandate of a development finance institution, it did not lend to trade or agriculture either, and until 1964 the minimum sum of a loan was $50,000, which was a large sum in Malaya (Drake 1969). Low nonperforming-loan ratios have been reported by MIDF from early on[27] (MIDF annual reports 1960–1975, various years) whereas Jomo (1986) referred to Malaysia's industrial bankers as highly risk-averse.

During the first years of operations, however, MIDF provided a direct policy input by communicating a real situation with finance provision as well as major obstacles reported by newly established industries, as first MIDF annual reports indicate. In addition, proper industrial research, industry analysis and feasibility studies were scarce and MIDF has been at the forefront of providing such expertise. Later, this developed into MIDF Consulting Unit and newly established Malaysian Industrial Development

[27]For example, failed loans stood at 0 rate in 1969, according to the annual report for respective year.

Authority (MIDA) became in charge of industry research on a national scale in 1967. The library of MIDF still contains a considerable collection of relevant materials while nowadays its research department belongs to Investment Division and mostly conducts financial market analysis. This reflects a change in the role MIDF has been playing since early 1990s when government funds became no longer available and the development banking division of MIDF became in charge of distributing loans from government-assisted funds with a fixed exchange rate of 4% (Interview 5, January 27, 2016). In terms of sources of funds, loans from the government were provided at low or zero interest rate only on a very few occasions during the first years of operations. In general, government funds were lent at nonpreferential interest rates, which at times were substantially higher (8–10% during 1980s) than from external sources such as ASEAN-Japan Development Fund (3.5–4.85%).[28]

Organization-wise, a subsidiary in charge of building and leasing industrial estate – Malaysian Industrial Estate Limited—was established in 1965; expansion of investment activities and development of the capital market through underwriting securities resulted in Securities Marketing Division. Loan Follow-Up Division established in 1966 was growing in importance due to the need to monitor the projects while local and foreign experts were recruited to assist in dealing with nonperforming loans. Promotions department announced in 1968 was supposed to specialize in industrial missions to Borneo states (underdeveloped parts of Malaysia) and other regions. Major changes in the portfolio of customers came with extending financing to service industries, agriculture and processing industries, and SMEs starting from 1970 while an increase in consortia arrangements since 1970s aimed to help commercial banks enter industrial financing. A new Business Development Division was established in 1978 "to promote the business on more equal terms with competitors, particularly the commercial and merchant banks." In line with the New Economic Policy (1970) favoring *bumiputra* entrepreneurs, the Bumiputra Division was reorganized and extended in 1979. Following a recession of 1974–1977, a Performance and Supervision Committee was established "to guide and direct the activities of the company by the technique of monitoring performance targets" and met on a monthly basis to review immediate and 5-year forecasts for performance and profitability. At the start of the 1980s, a wider range of financing facilities was recognized as a growing need due to more complex needs of the manufacturing industry (MIDF annual report 1982, p. 6) and MIDF ventured into leasing business, initially confined to industrial plant and equipment since "being an innovative financing technique, it [would]

[28]At the same time, funds from Japan were lent at low interest rates: Japan needed to "recycle" some $20 bln of current account surplus by aiding developing economies in the region (MIDF annual report, 1989).

assist SMEs to modernize." In addition, an investment company MIDF Investment Holdings was established to specialize in long-term investments (MIDF annual reports 1960–1979, various years).

During 1980s–1990s various specialized funds were launched by the government and channeled through multiple DFIs, including MIDF: New Investment Fund (loan from Bank Negara), Enterprise Rehabilitation Fund (set up by Bank Negara and administered by MIDF), Industrial Adjustment Fund, Modernization and Automation Scheme, and other soft-loan schemes provided by the Ministry of Finance, Bank Negara, and the Ministry of International Trade and Industry. Additional flow of cheaper loans came in 1992 through Swedish *AB Svensk Exportkredit* to target small private companies operating in the field of environmental protection but due to the novelty of the sector, funds kept being highly underutilized (MIDF annual reports 1980s–1990s, various years).

Nowadays terms of lending and interest rates may vary according to a soft-loan scheme agreement (between a DFI and a government agency) although until the procedures got formalized in late 1990s, development banks had greater discretion in determining terms of lending, which varied across the projects to be financed (Interviews 4 [January 21, 2016] and 5 [January 27, 2016]). Banks report to government agencies on the amount of loans made and the types of borrowers to ensure that the objectives of a particular soft-loan program are followed. In other words, banks act as managers of government funds rather than strategic investors (Interviews 2 [October 20, 2015], 3 [November 24, 2015], 4 [January 21, 2016], and 5 [January 27, 2016]). Since 1960s MIDF has been active in arranging consortia loans together with domestic commercial banks to cater towards larger investment projects while consortia lending has been mostly arranged domestically. However, with the rise of *halal* food industry in which Malaysia has long-reaching aspirations to specialize, going internationally can become an option for some DFIs, especially Agrobank (Interview 6, February 17, 2016). Currently MIDF maintains its organization structure divided into two major divisions: investment banking and development banking, with the latter being in charge of government-assisted soft-loan schemes.

In addition to MIDF, a number of other DFIs have been founded with the latest reorganization taking place in 2005 when SME financing was transferred to the newly established SME Bank, a former integral unit of Bank Pembangunan (Development Bank). Gomez, Setkunasingam, and Lee (2015) provided a good historical overview: Agrobank (until 2008 Bank Pertanian) was established in 1969 with a special emphasis to support agricultural SMEs; Bank Pembangunan dan Industri (Bank of Development and Industry), founded in 1973, was meant to assist bumiputra investors through each stage of enterprise development, which, after the merger with Bank Industri dan Teknologi (Industry and Technology Bank) and reorganization in 2005, was mandated to finance four major strategic sectors: maritime, oil and gas, infrastructure and technology. The Export-Import Bank was incorporated in 1995, whereas the two savings banks Bank Rakyat (The People's Bank) and Bank Simpanan Nasional (National Saving's Bank) promote thrift, financial inclusion, and affordable housing and both engage in deposit taking. Credit Guarantee Corporation was established in 1972 to ensure credit access for SMEs and was owned by Bank Negara (76%) together with commercial banks. Sabah Credit Corporation, Sabah Development Bank, and Borneo Development Corporations in both Sabah and Sarawak have been predominantly established to facilitate regional development in poorer areas and tasked with various activities, from loan financing and corporate participation to act as financial intermediaries for state governments and its agencies to engage in joint ventures with local land owners for development of residential, commercial, and industrial properties (Gomez, Setkunasingam, and Lee 2015). In addition, Tabun Haji acts as a pilgrimage savings fund to facilitate the performance of *hajj* to Mecca by devoted Muslims living in Malaysia.

Although the overall role of development finance in Malaysia has been generally regarded as very modest (Hamilton-Hart and Jomo 2003; Yun 1987), and, similarly to Singapore, most of industrial development in 1970s was due to foreign investment, the 11 currently existing DFIs continue being identified as policy-oriented nonbanking institutions, which is explicitly stated by the key agencies—Bank Negara, the Ministry of Finance, and the Ministry of International Trade and Industry. The lending guidelines are no longer published by the Central Bank with SMEs being the only explicitly targeted sector since mid-2000s. Yet, a separate department at the Central Bank is in charge of regulating and supervising DFIs, which have to report on both financial and nonfinancial (developmental) performance indicators to various government agencies.

Comparative analysis: toward the typology of national development banks

Despite differences in ownership and financing policies, all four cases illustrate the evolution of financing facilities following the changes in industrial structures. In Korea and Taiwan, both KDB and CDC/CDIB went from lending to heavy industry and chemical sectors to shipbuilding and electronics to IP finance and, in the case of KDB, to "financial diplomacy" in the Asian region. Further, the development of new financing arrangements (e.g. loan syndication, equity finance, M&A financing) was facilitated by new organizational forms in industry, such as, for example, internationalization of domestic firms and emergence of BOT model for infrastructure projects. Similarly, leasing contracts for industrial plants and equipment introduced by Malaysia's MIDF in 1980s represented a financial novelty and as a response to modernization needs of SMEs. In Singapore, although internationalization of DBS operations was driven more by its own business strategy rather than internationalization of domestic firms, its earlier expertise in lending to shipbuilding and repair sectors reinforced its competitiveness regionally.

Meanwhile, organizational learning was reflected in changes in internal structures of the banks as a response to multiple factors: the need of industrial/technological and economic expertise in project assessment; internationalization of domestic firms; greater emphasis on risk assessment according to specificities of different industries; establishment of subsidiaries for specific purposes such as provision of leasing services or VC financing; streamlining of operations following economic slowdowns; venturing into additional lines of business as a response to competitive pressures; and responding to changes in sources of funds by redefining operational strategy. From such variety of organizational changes we could discern those that are related to the dynamics of industrial development: separate units dealing with industry- or technology-specific types of risks; technical and economic research departments; foreign branches in charge of domestic industrial firms, which pursue internationalization strategies; and subsidiaries specializing in industrial leasing services or business management consulting. Precisely such organizational changes would signify the disposition of banks to face technological and economic uncertainties related to financing of industrial firms. There is no linear correlation between such organizational changes *per se* and the degree of disposition to face uncertainty (from positive to negative) and yet, an organizational change inherent in co-evolution of financial and industrial structures is related to the ability of financial firms to reduce information asymmetry and arguably to exercise a discretion in making financing decisions, that is, "financial power," as was discussed earlier.

At the same time, the variety of financing decisions is also related to the policy context: strategic industrial targeting in Korea and Taiwan affected the development of specific competences in respective development banks, especially in regards to industrial research and technology evaluation, which continue providing an input into industrial policy. By contrast, in the case of Malaysia's IMDF, such competences were important during the 1960s but then were transferred to the central industrial development agency (MIDA). In Singapore, although industrial banking has been limited to a rather short span of time—the first decade of rapid industrialization—the EDB/DBS financing policies were selective in terms of sectors and conditioned by the performance because once firms achieved sustainable profitability, EDB/DBS pursued a divestment of its shares.

Taking into account industrial development policies, operational history, and internal organization of banks, we may differentiate between the three general types of development banks: strategic (Korea and Taiwan), transitional (Singapore), and managerial (Malaysia), as summarized in Table 1. A *strategic* type development bank would exercise greater discretion in making financing decisions, for which specific competences (both financial and nonfinancial) would be constantly developed and reflected in respective organizational change. A *managerial* type bank would have less discretion in industrial investment decisions and would tend to rely on purely financial expertise while assessing industrial borrowers. A managerial approach to financing decisions would imply a greater reliance on predefined and more standardized lending guidelines (e.g., interest rates) and hence unwillingness to take risks. A *transitional* type bank of would imply a faster transition from a strategic type bank and more synergetic relations with a rapidly developing industrial sector toward reducing its nonfinancial expertise and either reducing direct lending to industrial firms or moving toward refinancing schemes through commercial banks, for example, or toward becoming a financial supermarket. Such differentiation is based on rather stylized features because in reality a development bank could represent a mix of strategies: for example, it might perform a more managerial role in financing of sunset industries and simultaneously perform a strategic role in financing frontier technologies or ambitious infrastructure projects. In this case, nevertheless, strategic role would, again, imply a greater willingness to take risks.

Concluding remarks and suggestions for future research

While looking at the four development banks in selected East Asian countries and tracing the evolution of their operations, from 1950s–1960s onwards, the article has highlighted the dynamic nature of their competence-building and internal organization as well as an evolving range of financing facilities the banks have been providing. Novel financing facilities have been continuously introduced following the development of industrial sector and its climbing along the technological ladder. Other incentives for financial innovations included competition in the financial sector and emergence of a new set of standards and financial regulations. Similarly, organizational changes (establishing new departments, developing new competences, reshuffling organizational structure) were due to the need to deal with competitive pressures, changes in industrial policy priorities, new

Table 1. Suggested typology of national development banks

	Strategic		Transitional	Managerial
Typology	Korea (KDB)	Taiwan (CDC/CDIB)	Singapore (EDB/DBS)	Malaysia (MIDF)
Ownership	Fully state-owned.	Dispersed among domestic and foreign shareholders.	Dispersed among domestic and foreign shareholders; state ownership has been decreasing.	Dispersed among domestic and foreign sources; state-controlled.
Key policies	Long-term lending to strategic sectors in line with government's targets (initially) and supporting financing services (since 1990s); industry restructuring and counter-cyclical measures; borrowing from abroad; world-class investment bank since 2000s.	Provision of various financing facilities to strategic industries (not limited to long-term lending); targeting SMEs since 2000s; substantial industrial investment portfolio; recent diversification into financial sector.	Term lending to strategic sectors and provision of supporting technical and financing facilities (working capital, corporate lending); commercial banking since mid-1970s; channeling funds from government-assisted schemes.	Long-term lending according to broad lending guidelines: to new industrial firms (1960s); service industries, agriculture, SMEs and bumiputra enterprises since 1970s; channeling funds from government-assisted schemes since 1990s.
Relations with industrial sector	Active equity participation with certain managerial control; direct lending.	Active equity participation with certain managerial control; direct lending.	Active equity participation with certain managerial control (until mid-1970s); direct lending.	Arm's length; modest equity participation in new firms; mostly direct lending.
Evolution of financing facilities	From lending to targeted industries and equity investments, consortia loans, and VC, to M&A financing, international loan syndication, and IP loans.	From lending to targeted industries and equity investments, consortia loans, and VC, to M&A financing, international loan syndication, trade finance, and retail banking.	From lending to targeted industries and equity investments, and VC to multi-purpose banking, including retail, and international loan syndication.	From lending to targeted industries and (some) equity investments and leasing, to general investment banking.
Competences related to financing of industrial sector	Industrial research, technology evaluation; development finance consulting; consortia lending in the region.	Industrial research, technology evaluation, risk assessment; VC-funding; syndicated loans domestically; industrial portfolio investment.	Until mid-1970s: industrial research, technology evaluation; full range of industrial and corporate banking services. From mid-1970s: consortia lending in the region (especially shipbuilding).	During 1960s: industrial research, technology evaluation. 1970s–80s: complex project appraisal, financial prudence.
Key characteristics	Continuous strategic relations with industrial sector; gradual diversification of operations while keeping a specialized mandate of policy-related financial institution; specific competences act as a policy input and help define Bank's special status vis-à-vis commercial banks as well as government agencies.		Strategic relations with industrial sector until capital investments could be funded from elsewhere (MNCs); rapid diversification of operations; management of government-assisted soft-loan schemes.	Arm's length relations with the industry; often in competition with commercial banks; management of government-assisted soft-loan schemes.

Note. KDB = Korea Development Bank; CDC/CDIB = Taiwanese China Development Corporation/ China Development Industrial Bank; EDB/DBS = Economic Development Board/ Development Bank of Singapore; MIDF = Malaysia Industrial Development Finance Company; VC = Venture Capital; M&A = mergers and acquisitions; MNC = Multinational Corporation.

sets of financial standards and good practices (e.g., greater role of risk assessment, following the Asian Financial Crisis), corporate restructuring, and changes in operation strategies. A distinct reason for organizational change was related to the ability of banks to develop both financial and *non-financial expertise* in relation to the financing of industries. Interaction with industrial firms resembled relation-based banking[29] in cases where banks exercised greater discretion in making financing decisions and therefore were arguably less risk-averse. Based on these characteristics, the article suggested the three stylized types of development banks: strategic, managerial, and transitional.

Constructing such a typology would allow to overcome the constraining debates over the lifecycle of development banks: whether they are meant to divest and exit policy landscape at some point or rather keep "reinventing" themselves. Further, the article attempted to encourage more conceptual approach to financing of innovation and development by looking at micro-level dynamics within specialized financial firms. Such coevolutionary dynamics has been analyzed on a macrolevel by Schumpeter-Minsky synthesis (Burlamaqui and Kregel 2005, 2006; Kregel and Burlamaqui 2005), whereas microlevel analysis, combined with historical-institutional approach, would enable one to study history to add to the theory (O'Sullivan 2006), thereby enabling one to produce more viable and relevant economic policy recommendations. Further research on extending the suggested typology and inquiring into the coevolutionary dynamics between financial and industrial firms would enlarge our understanding of the strategic investment function and would add to the policy-dominated discourse in the current debates over development banks.

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[29]This is not to suggest that 'relation-based' banking equals 'strategic' type since second-tier banks, such as German KfW or Business Development Bank of Canada, could be also 'strategic' despite re-financing nature of their operations.

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Co-Creation for the Reduction of Uncertainty in Financial Governance: The Case of Monetary Authority of Singapore

OLGA MIKHEEVA, TALLINN UNIVERSITY OF TECHNOLOGY, RAGNAR NURKSE DEPARTMENT OF INNOVATION AND GOVERNANCE, ESTONIA

PIRET TÕNURIST, DIRECTORATE FOR PUBLIC GOVERNANCE, OECD AND TALLINN UNIVERSITY OF TECHNOLOGY, RAGNAR NURKSE DEPARTMENT OF INNOVATION AND GOVERNANCE, ESTONIA

Abstract

Traditionally financial governance has been perceived and studied as a closed system. Yet, increasing sophistication of technology facilitates the emergence of new organizational forms of collaboration between the state and corporate actors. The study argues that co-creation becomes the way for public sector to mitigate new types of uncertainties, coming from increasing technological sophistication of the financial sector. Thus, new insights can be gained from looking at co-creation in financial governance, which is a unique setting for co-creation as state's partners are large and capable corporate organizations, especially in regards to financial innovation. Such an approach also brings new insight into co-production literature. To exemplify the argument, a closer look at how co-creation has been effectively applied by the Monetary Authority of Singapore in financial regulation and supervision as well as in policies related to promotion of the financial sector is provided.

Keywords: financial governance, co-creation, uncertainty, financial innovation, Singapore

1. Introduction

Governance is increasingly recognized as an evolving and dynamic set of multi-level structures which goes beyond a set of institutionalized relationships: "actors themselves influence the development of governance arrangements and the workings of governance" (Capano et al. 2015, 11-12). Financial governance, as a distinct policy domain, can be characterized by simultaneously relevant capacities to restrain (risks, systemic vulnerability) and to enable (competition, economic growth)[1], thereby operationalizing the so-called "finance-growth" nexus (Woo et al. 2016). Unlike most other policy areas, financial policy-making is dominated by closed communities as well as a close alliance between state and non-government actors (Underhill and Zhang 2008; Underhill 2007; Kregel and Tonveronachi 2014) and is contingent upon the existence of a "politically sustainable balance of power between public authorities and private interests" (Zhang 2006, 169). The latter are usually represented by internationally active financial institutions that increasingly influence financial architecture (Underhill 2015). These institutions are typically large and capable organizations with their own R&D departments, innovation labs and substantial investments in ICT.

[1] Regulatory choices shape the speed and variety of transactions, types of business models and the pace of technology-driven financial innovations (Cainey 2014).

The need for a dynamic governance of the financial sector comes from the inherent fragility and cyclical uncertainty which characterize financial systems (Minsky 1985, 1993, 1994, 2008). Financial governance has to continuously evolve to be effective as there is "a pervasive nature of incentives to circumvent regulations" in financial systems (Kregel and Tonveronachi 2014, 6; also Hubbard and O'Brien 2012). Avoidance of regulation in the sector – be it simple evasion, engaging in activities that do not technically violate existing regulation, or something more sinister – is part of how the sector evolves, innovates. Hence, financial governance can be characterized as rather reactive and incremental (Anheier and Fliegauf 2013), with uneven balance of powers and a non-reciprocal relationship among policy actors (Woo and Howlett 2015). Besides avoidance of regulations, another distinct driver of novel financial instruments is fast technological advancements, which have substantially increased with the digital revolution and resulted in ever growing investments in FinTech (Financial Technology) (Mackenzie 2015). Technological and market innovations have made national (international and supranational) regulatory actors heavily rely on industry expertise, which can be portrayed as a "closely-knit transnational policy community [that] constitutes a typical case of Michael Moran's 'esoteric politics' (Moran 1984), wherein an elite group works out the management of its own vital interests without wider public involvement" (Underhill 2015, 479). In other words, there are two major incentives for financial innovation identified as relevant in the context of this study: avoidance of regulations and technological advancement, which are interrelated but can also occur irrespective of each other and both contribute to the evolution of the financial sector.[2] In the aftermath of the recent Global Financial Crisis, public authorities are increasingly becoming aware of the discrepancy of technological power as a result of the surge of computational complexity in the financial sector. Technology-aided financial innovation is one of the strong drivers of complexity that financial regulators face (Cerny 1994a, 1994b), but this particular problem did not receive relevant attention in the financial governance literature. Economics and, more recently, legal scholarship have conceptualized "knightian" uncertainty of financial innovations and the reactive nature of financial regulations (Minksy 2008; also Pistor 2013) but literature on financial governance makes no mention of such characteristics of financial systems. Technological capacities have been analyzed in regard to the administrative capacity of public-sector organizations (e.g. Lember et al. 2016) or economic policy makers (Hallerberg and Wehner 2013), yet very few studies have analyzed capabilities of financial regulators in dealing with technology-driven innovations. While Karo and Kattel (2014) discuss the co-evolution of public- and private-sector capabilities in light of technological change, they do not differentiate between the sectors or policy domains.

Consequently, this article brings together concepts of financial innovation, fragility and uncertainty articulated mainly in economics literature and notions of technological capacities and modes of policy-making discussed in public administration and policy studies. References to economics and theories of financial instability provide an important *conceptual starting point* – namely, that innovation-related uncertainty is endogenous to any financial system and, as a result, to the governance thereof. Therefore the main focus of current study deals with capacities of policy actors to deal with such inherent uncertainty. While looking at how various

[2] In addition, a broader notion of financial innovation exists, which is related to the process of economic development and financing of innovative productive activities. A synthesis of Schumpeter's theory of innovation and Minsky's financial fragility hypothesis investigates how uncertainty of any innovative activity translates into related uncertainties in the financial sector, which finances it, thereby identifying a distinct source of financial instability as well as a particular type of uncertainty (Burlamaqui and Kregel 2005).

strains of public-policy literature discuss policy actors, the article aims to empirically show that public-sector organizations can demonstrate organizational dynamics and particular modes of policy-making – e.g. co-creation – as a response to uncertainty of financial innovations and in order to facilitate the development of technological competences. The paper emphasizes that the increasing sophistication of technology is one of the main forces behind such dynamics among financial policy actors. More precisely, the study builds on Woo and Howlett's (2015) assertion that dynamics in financial policy-making are not necessarily contingent on policy change and argues that *policy-making dynamics can also be characterized by changes in organizational forms of governance rather than changes in processes of policy-making only*. Further, such organizational change can be related to the evolution of particular competences on the part of government actors, such as expertise in financial technologies. In the context of this article, co-creation is understood as an active and often proactive relationship between both state and non-state actors who organizationally or individually contribute to the creation or implementation of public policy. While usually in co-creation the relationship between citizens and government is studied (Brandsen and Honingh 2015), we extend the perspective to include also corporate citizens and private, non-profit organizations, as in most cases also citizens are "organized" to some extent.

Literature on financial governance and regulation, especially post-crisis, highlights various aspects of policy design and formulation, and the importance of expert advice. Yet it remains policy-biased, that is, the actual skills, competences of policy actors as well as processes and forms of policy-making remain largely understudied, despite explicit recognition of the relevance thereof (see, for example, Bakir and Woo 2016). The main objective of the paper is to bring concepts of uncertainty and financial innovation into discussion of financial governance by looking at technological competences of policy actors and organizational forms involved in the policy-making process. *Looking at dynamics within organizational structures helps us locate such competences and the role they have in the policy process* as the first step to analyzing their effects. Without dealing with the latter in detail, the article brings forth the notion of technological competences and their relevance to a) incentives actors have to participate in the policy process, and b) organizational forms that exist in financial governance. In line with the growing insistence of scholars to study policy design (Bakir and Woo 2016), the article argues that organizational patterns and their evolution contribute to the understanding of competences of actors. Consequently, due to rapid technological advancements within financial industry, co-creation is increasingly applied in (previously more closed) financial policy communities by regulators to mitigate uncertainty and to maintain or further develop respective technological skills and competences in the public sector. This introduces a new dimension to the incentives to co-create and also puts co-creation into the new sectoral dimension, namely financial governance. This line of argument also expands financial-governance literature by extending the notion of actors' capacities and by introducing an additional, technological (technology-driven) logic thereto.

To exemplify the emergence of co-creation as a new form of organizational dynamics within a policy process in the financial sector, the case of the Monetary Authority of Singapore (MAS) is analyzed. More precisely, the case of the recently established FinTech and Innovation Group (FTIG), which includes the FinTech Innovation Lab, launched by MAS in August 2015, is presented.[3]

[3] Consisting of three divisions, FTIG is responsible for "regulatory policies and development strategies to facilitate the use of technology and innovation, to better manage risks, enhance efficiency, and strengthen competitiveness in the financial sector" while its FinTech Lab "scans the horizon for cutting-edge technologies with potential application to the financial industry and works with the industry and relevant parties to test-bed innovative new solutions" (http://www.mas.gov.sg/About-MAS/Overview/Groups-and-Departments.aspx).

One of the main rationales for launching a collaborative facility was to leverage on the private sector's technological competences in order to better address risks and legal aspects of financial innovations, which would both further facilitate the promotion of the financial sector (developmental policy goals) and feedback into policy-making (regulatory and supervisory policy goals).

The study is based on qualitative exploratory research and traces the evolution of interaction between state regulators and non-government actors within a given policy domain: financial governance and financial regulation in particular. Given its dynamic nature and the emphasis on novel aspects of financial governance – technology-driven innovation and related uncertainty – exploratory case-study methodology (Yin 2003) is employed to gain new insights into how policy actors interact on a national level. The case study relies on both primary and secondary sources: extensive review of archival materials, such as MAS annual reports since the year of

inception onwards (1971-2015), press releases and media records (non-systematic search in major national media archives from the 1970s-1980s based on keywords related to MAS and financial governance), as well as contemporary statements and reports. Secondary sources for empirical data collection consisted of accounts of financial history of Malaya and Singapore.

The article is organized as follows: after having introduced the literature analyzing financial governance, the following section examines theoretical discussions of policy actors and related capacities in co-creation, followed by the empirical part. The article gives a contextual account of how financial governance evolved in independent Singapore (that is, from 1965 onwards), discusses the dynamic relations between state and non-government actors therein and organizational forms thereof. The final section concludes by summarizing empirical findings and listing suggestions for future research.

2. Theoretical background

Changing nature of financial governance

Despite a small consensus in financial-governance literature (e.g. Underhill and Zhang 2008; Underhill 2007; Kregel and Tonveronachi 2014) that a close alliance exists between private and state actors in the financial domain, how financial governance structures are organized is discussed largely in regard to financial architecture (Goodhart 2002, 2007; Sheng 2009), the role of Central Banks (McNamara 2002; Montanaro 2016; Goodhart 2011), and financial bureaucracy (Nee and Opper 2006; Juuse et al. 2018). Nevertheless, such a close alliance or "public-private partnership" nature of financial regulation and supervision – as an essential part of financial governance – has been implicitly reflected in studies of financial history (e.g. Cameron 1961; Cassis 1992, 2006), in literature on International Financial Centers (e.g. Lee and Schmidt-Marwede 1993; Budd 1995), and in more recent studies focusing on socio-political elements of financial policy and governance. Literature on the regulatory state refers to various non-state actors involved in policy-making (Majone 1997), how such relations are becoming increasingly formalized (Levi-Faur 2005) and how international regulatory standards such as Basel Accords explicitly promote cooperation between public and private financial actors (Lütz 2004), but rarely are capacities of actors examined. Further, literature on policy sub-systems incorporates both state and non-state actors (Woo 2015a; Woo and Howlett 2015). However, it does not delineate between the types of actors and subsequent capacities involved in the way(s) actors collaborate. Hence, policy studies tend to highlight the multiplicity of actors – state, non-state, individual, corporate, networked etc. – involved in policy making, but the agency and capacity of these actors have not been well outlined, particularly in the context of financial policies.

Globally, regulatory authority is getting more dispersed with formal rules superseded by informal norms that emerge not from legislation but rather from everyday conduct: power is now more dispersed between state and societal actors (Cohen 2008; Tsingou 2015). While more traditional field-scoping practices exist, OECD (2010) refers to collaborative national practices (both formal and informal) as a recommended approach to financial governance in order to enable better coordination, oversight and control over financial institutions. At the same time, interaction with corporate financial actors varies greatly, and a multitude of mechanisms are usually at work: from strictly top-down and formal (e.g. monetary policy, exchange rate regimes) to more collaborative and formal/informal mixes (e.g. prudential regulation and supervision) to more inclusive practices through direct collaboration with either organized groups (associations) or selected actors. In addition, the dynamic nature of the regulatory process is reflected in the changing organizational forms involved therein: the recently growing formalization of collaborative initiatives.

This brings forth the notion of co-creation in the financial sector. In the private-sector literature co-creation in financial systems has been analyzed from the perspective of marketing and customer loyalty (e.g. Eisingerich and Bell 2006; Auh et al. 2007), while in the context of public sector, co-creation has been previously examined from the perspective of social innovation and direct input into service delivery to citizens. The latter – softer forms of coordination and provision of policy inputs by non-state actors – are entering the financial policy domain as financial supervisors have to draw upon external partners to stay on top of financial innovations. Consequently, given that financial regulatory governance is characterized by a close public-private alliance, co-creation appears as a valuable conceptual tool to "unpack" collaborative practices between the actors – incentives, agency, organizational structures – to assess them critically and to inquire about capacities from a collaborative perspective. As a form of collaborative governance, which is more loosely defined than other dominant theories of the policy process (e.g. advocacy coalition framework, policy subsystems, epistemic communities), and given a variety of applications in public policy and administration studies, co-creation allows for a wider approach by bringing new elements into public-private collaboration in financial governance: to capture the role of technology and uncertainty, which forces regulators and innovators to interact in new ways.

Co-creation: explaining new forms of policy collaboration

Traditional publica dministration literature puts an emphasis on a clear distinction between private and public interests and accountability settings. However, in the previous decades, the new governance research has increased, including a growing significance of "governance-beyond-the-state" (Swyngedouw 2005), "indirect government" or "government by proxy" (Brudney 1990), "collaborative governance" (e.g. Ansell and Gash 2008) and more recently co-production/co-creation (Bovaird 2007). While collaborative governance refers to a broader notion of increasingly interactive governance mechanisms, more narrow concepts of co-creation and co-production[4] refer to the engagement of citizens in the policy-making process (Voorberg et al. 2015). These complex governance mechanisms blur the distinction between public and private sectors in order to enable transformative changes (Joshi and Moore 2004). While the aforementioned approaches can be slightly different from one another (being more or less market-oriented, bureaucratic (expert-based) or collaborative (involvement of autonomous stakeholders) (Künzel 2012; Hartley et al. 2013), they all rely on the idea of interdependence between sectors (e.g. Lecy and Van Slyke 2013, 197) and resource integration (Vargo and Lusch 2004; 2008), meaning that policy outcomes cannot be reached without the direct involvement of the intended target group.

Public sector's motivation to coordinate and to co-create with non-government actors has been connected to both cost efficiency and the need for better quality services (Vangen and Huxham 2003, 61-62) but also with increasing the legitimacy of government (Pestoff 2006).[5] The basic assumption is that without the involvement of private partners it is difficult to reach the desired policy/service outcomes (Bovaird 2007). Typically this is associated with gains from combining resources, capabilities and also shared risks between different sectors (Gazley 2010, 53; Park and Rethemeyer 2014, 351-352; Calanni et al. 2015, 905) to "carry out a public purpose that could not otherwise be accomplished" (Emerson et al. 2012, 2). Co-creation, therefore, relies on the idea of interdependence between sectors (e.g. Lecy and Van Slyke 2013, 197) and resource integration (Vargo and Lusch 2004, 2008).

Similarly, following financial governance logic, which is traditionally somewhat advisory, regulatory authorities can no longer be effective without the ever growing input from the private sector due to substantial changes in financial industry and the role of technology therein. At the same time, academic attention to co-creation has usually involved studies of welfare services, social innovation and citizen participation (e.g. Callahan 2007), and thus, the emergence of co-creative practices in other sectors has received very limited attention. The participatory feedback loop to promote co-creation policies has also started to emerge in other sectors (e.g. in informatics and e-government – see Mergel 2015). Thus, the input of citizens in developing ICT solutions – and hence limiting uncertainties connected to the latter – has entered the topic of co-creation (Lember 2017).[6]

Co-creation is mostly studied from an actor-based approach (Voorberg et al. 2015) discussing both organizational factors (risk-averse/legalistic public-sector culture; attitudes of civil servants (professionalism); incentives; compatibility of the public sector) and citizen-relevant factors (willingness; feeling of ownership; social capital). The organizational capabilities on the citizens' side – also when they participate through non-profit organizations – are usually left unexamined. At the same time, the need to manage relationships in the collaborative governance setting is very important when incentives to collaborate – resources and power – are not equally divided between partners (Ansell and Gash 2008, 555). For collaboration

[4] In the context of this article, the concepts 'co-creation' and 'co-production' are treated as synonymous. Meanwhile, co-production is more relevant to policy areas where public service delivery takes places and end-users are identified (usually citizens) whereas in such broad domains as financial policy there is neither a service nor could end-users be defined with the same clarity, and therefore "co-creation" seems to be a more appropriate term.
[5] Government tries to increase participatory legitimacy when confronted with dissatisfaction with traditional governance methods.
[6] Similarly, experimental policy-making involves methods of dealing with uncertainty faced by policy-makers. Literature on experimental policy is rich and includes various domains. Among them are regulatory experiments including regulatory sandboxes and adaptive regulation (Guihot et al. 2017).

to effectively take place between state and non-state actors several conditions have to be fulfilled (see, for example, Sørensen and Torfing 2016). Among these, state and non-state actors need the capabilities to interact and process information. This is, however, a relatively underdeveloped area of study in the field of co-creation. Usually the assumption is that state actors are in a better position in terms of capabilities (if not knowledge), compared to their non-state counterparts. This might not be the case in financial governance and financial regulation. Hence, other theoretical streams need to be utilized to expand our understanding. For example, literature on policy capacities provides a useful toolkit for assessing policy actors, which are viewed as strategically behaving, since the analysis of such behaviors (micro-perspective) enables a better understanding of what practical governance actually is (Capano et al. 2015, 12).

Literature on policy capacity in the public sector is advanced and often differentiates between the types thereof (e.g. Painter and Pierre 2005 distinguish between state, policy and administrative capacities). Wu et al. (2015, 166) define policy capacity as a set of skills and resources – competences and capabilities – necessary to perform policy functions, and differentiate between individual, organizational and systemic levels. Various non-government actors possess their own capacities, which affect the government's own capacity to perform, that is, "the skills and resources of governments have counterparts in policy-oriented non-governmental organizations and need to exist or be built up if either of these actors is to be effective in their policy roles" (ibid., 167). Howlett (2009, 2015) refers to analytical capacity as the ability of governments to analytically process information, apply research methods and advanced modeling techniques while Hsu (2015) notes varying abilities among governments to do so. When coping with complexity and uncertainties, policy-makers appeal to analytical capacities prevalent in domestic regimes: referring to the Asian Financial Crisis, Woo et al. (2016, 275) observe "low analytical capacity in domestic regimes, given the inability of policy-makers to accurately perceive financial risks and at best, the presence of only moderate operational capacity." In other words, policy-makers should aim for close-to-optimal analytical skills and competences but those are also defined by broader national (regional, supranational) regimes. Meanwhile, uncertainty is inherent in financial activities, and financial systems are characterized by inherent instability or "stability that destabilizes" (Minsky 2008). Therefore operational or analytical capacity of financial policy-makers can never be optimal while the potential to learn in co-creation, especially if co-creation aims to minimize uncertainty, becomes essential to effective policy process. This, in turn, can be reflected in organizational dynamics and potentially results in novel organizational forms through which policy actors interact.

Learning has been an essential part of the policy subsystems approach and coalition framework (Sabatier 1988; Weible et al. 2011; Henry 2011; Montpetit 2011), while Ostrom (2005) claims that learning occurs more easily when opportunities for repeated interaction exist even when contrasting beliefs are present. In other words, "if collaboration is causally prior, then over time networked actors will learn and arrive at consensus in their policy-relevant beliefs" (Henry 2011, 380). Meanwhile, collaboration may take various organizational forms, which, as the article aims to demonstrate, are also non-static and evolve along with dynamic capabilities of policy actors. In existing literature learning is discussed through the prism of scientific information available to policy-makers and supplied by epistemic communities (Haas 2004; King 2005; Marier 2008; also Pahl-Wostl 2009). Yet it contains a constructivist approach, that is, the assumption that science should be "translated" into usable knowledge that, in turn, would be politically feasible, in order for scientific insights to make their way into the policy process. This is also discussed in studies dealing with analytical capacity of government actors (Howlett 2009), but technology-driven innovations represent expert knowledge and can be better categorized as technical capabilities, which regulatory bureaucrats need to comprehend. With the increasing use of financial technologies – described above – the need for soft coordination and strategic partnership with corporate actors increased. In certain areas, such as regulation and supervision, this has been "framed" as co-creation. This gets reflected in new organizational forms established within "conventional" public authorities such as Central Banks, as the case of Monetary Authority of Singapore (MAS) demonstrates.

3. Financial governance in Singapore

Singapore, where the financial sector currently contributes 13.1% of nominal gross value added (Statistics Singapore 2016), has had long-standing aspirations to become one of the International Financial Centers. Financial industry at large has been regarded as one of the national development priorities since the 1970s, and this is explicitly stated in the Monetary Authority Act (1970). Moreover, Singapore's financial system contains a clear "dichotomy", for the demarcation line between foreign (offshore) and domestic financial activities has been long maintained through a set of effective policy measures.

In terms of governance structures, MAS has been the sole regulator, maintaining a reputation of a pro-active and highly competent public agency, thereby reflecting the general tradition of competent national civil service as well as a peculiar practice of rotation among top officials between public and private organizations[7], which (in addition to continuous emphasis on human capital development) contributed to the development of capable and effective bureaucracy in the government. Larger formal consultation mechanisms with corporate actors at the national level have been present since the 1990s, when the Economic Review Committee was established (during the post-Asian Financial Crisis recession) and more recently through the Committee on the Future Economy.[8] Policy-wise, MAS has been actively consulting corporate actors both on formal and informal grounds, and recent studies claim that the corporate sector provides a real policy input, including the possibility to exercise a veto-power (Woo 2015a, 2015b, 2016). Among the most recent organizational innovations within MAS is a FinTech Lab, imitating already existing labs in large commercial banks, recently launched as part of the MAS FinTech and Innovation Group, in order to directly collaborate with financial industry. Among the policy initiatives designed and implemented by the Group are the "regulatory sandbox", which provides temporary flexible regulatory space for testing newly created FinTech solutions; Project Ubin, which aims to explore the viability of distributed ledger technology for interbank payments via multi-phase collaboration between MAS, a blockchain company R3 and a consortium of financial institutions. In addition, MAS is chairing the Payment Council launched in 2017, which

[7] E.g. a formal policy was adopted in the late 1960s when civil servants were seconded to sit on boards of industrial corporations. This was meant as a tool to increase their pay but "the directorship system also had the advantage of giving the top civil servants some experience in industrial management. It is now estimated that about 100 public officers hold directorships on the boards of most Government and DBS-owned companies such as the shipyards, the airlines, and manufacturing industries" (New Nation 23 July 1971). For more recent accounts, see Hamilton-Hart (2002).

[8] https://www.gov.sg/microsites/future-economy/about-us/about-the-future-economy-council.

consists of various financial institutions and representatives of industry associations. The injection of government funds in 2015 through the Financial Sector Technology and Innovation Fund (S$ 225 mln during 2015-2020) was meant to assist the development of FinTech industry and foster such public-private collaboration, which is also reflected in the official rhetoric of acting officials (as well as former MAS top executives) who refer to "policy co-creation" in both the regulation and the promotion of financial sector. These developments make Singapore a somewhat extreme yet rich case study, which altogether provides a valuable opportunity to look closer into new and dynamic ways of organizing national financial governance.

To better understand the empirical context, the section first briefly outlines some of the key historical developments in Singapore's financial sector and the role MAS has played therein; second, it refers to ways of interaction between MAS and corporate actors throughout the years; and finally it looks into the most recent organizational change, that is, the newly created FinTech and Innovation Group. Given the exploratory nature of the case study, historical accounts help better understand capabilities dynamics among both state and corporate actors, as well as evolving organizational structures embedded in the process of governance and policy-making that leads to co-creation.

Overview of financial policies and financial-sector development

Financial policies in Singapore should be viewed in the following context: a city-state with no rural areas; higher standards of living already in the 1950s as compared to the rest of the region (Hicks 1960); prioritized economic growth with no explicit distribution policies attached; emphasis on human-capital development; no explicit political opposition to foreign financial and commercial interests and historical "interconnectedness" between foreign and local banking communities[9]; long presence of foreign banks; and peculiar culture of the governing elite, which comprises the pool of top officials rotating between private, public and quasi-public organizations, such as statutory boards (Hamilton-Hart 2002).

It is from this context that the long-standing commitment of Singapore comes to become a regional financial hub and one of the International Financial Centers, which is reflected in MAS's formal mandate to "foster a sound and reputable financial centre and to promote financial stability" and "to grow Singapore as an internationally competitive financial centre" (MAS Act 1970). To achieve this, Singapore has been maintaining a "dual" financial system "intended to be world-class competitive for offshore transactions yet heavily *dirigiste* domestically" (Walter 1993, 109; see also Giap and Kang 1999). Indeed, foreign banks were encouraged to set up offshore operations[10] through a set of incentives (e.g. concessionary tax rates for a 20-year period; tax exemption for certain financing activities, such as syndicated lending, non-resident securities transactions) and by 1993 the foreign banking sector accounted for 45% of local-currency nonbank customer deposits, 57% of local-currency nonbank customer loans and 73% of local-currency trade financing, thereby contributing to the development of the domestic banking sector – the highest rates in the world (Walter 1993, 94-95). A turn towards liberalization

[9] The then economic advisor, Albert Winsemius (in office 1961-1984) advocated for non-hostility to existing foreign businesses owned by a former colonial power and Goh King Swee, the Deputy Prime Minister (in office 1974-1984), refers to "*the quiet manner in which European business has merged into the political and economic landscapes of Singapore*" and that "*the manner in which European financial and commercial interests have continued their roles from the colonial era to the stage of independence, is surely a remarkable phenomenon*" (Swee 1972, 112-116, emphasis added). This course held true even during the most politically turbulent times of 1960-1963, when despite fierce political disagreements no political party had the abolition of European business on its agenda. For more on colonial banking, see recent collections of historical cases in Bonin and Valério (2015) and Bonin et al. (2016), also Mackenzie (1954), Drake (1969).

[10] Offshore banking is generally characterized by such restrictive measures as inability to raise interest-bearing deposits from residents and certain restrictions on domestic lending.

and recognition of the need to "go regional" followed the first serious recession in 1985-1986 and was reinforced by the consequences of the Asian Financial Crisis (Lai 2013; MAS 2003). To facilitate the regional expansion of domestic financial institutions the government encouraged industry consolidation, and the number of banks was reduced from 10 in 1998 to 5 in 2003 (Tan 2005).

In parallel to this, Singapore has been maintaining non-internationalization of the dollar until the present day; although in 1998 the official non-internationalization policy has been substituted for lending restrictions in local currency, which apply both to resident and non-resident financial institutions. The policy has its rationale in the use of the exchange rate as the principal tool of monetary policy used by MAS[11] (MAS circular*, 20 December 2000*[12]). Despite continuous and gradual liberalization measures, the regulation of domestic institutions continued to be more stringent: in the 2000s domestic banks were subject to greater capital adequacy requirements than foreign ones (MAS 2003), while nowadays MAS keeps capital adequacy ratios for locally incorporated banks at a level that is 2% higher than recommended under Basel III[13].

Value-added created in financial industry is often considered highly policy-elastic, that is, it can be strongly influenced by policy measures (Walter 1993). Singaporean government has been effectively proactive and capable of utilizing various policy measures, both in regulating and promoting the financial sector, and its Central Bank (MAS) has been the single authority responsible for both. In terms of policy design, representatives from industry have been consulted on a continuous basis, while formal consultation was broadened when MAS introduced consultation papers in 1998. Woo (2015b) reports upon interviewing the currently acting MAS Managing Director, Ravi Menon, that almost all new policy issues now go through the process of public consultation. The most recent study concludes that the influence of industry actors on policy-making is substantial (including the possibility of exercising veto power), and both MAS and the private sector can initiate consultations (Woo 2015a, 2015b, 2015c). Apart from consultation papers available through the MAS website, another mode of interaction in a collaborative manner with the industry takes place through Nominating Committees. As stipulated by MAS during another round of liberalization measures in 1999, to strengthen corporate governance, local banks now had to appoint five-member Nominating Committees within their board with members appointed by the board, and subject to MAS approval. The aim of the committee is to ensure that only competent and qualified persons are appointed to the board and to important management positions, while MAS may ask the committee to submit record of its discussion so as to verify that it has tried to find the best person for an appointment (Tan 2005). Among the most recent policy initiatives is the FinTech Lab, launched as part of the FinTech and Innovation Group (FTIG) enabling MAS to tap further into the competences of financial industry. In a few formal talks and commentaries surrounding the initiative, MAS officials referred to the rationale of the new approach to legal and technological aspects of finance within the overall reference to the "Smart Financial Center", as follows from MAS Managing Director's keynote address at the Global Technology Law Conference in June 2015.[14]

[11] Despite a clear demarcation between dealings in foreign and domestic currency, deposits were freely convertible between the two, and therefore capital could be mobilized through arbitrage; hence domestic interest rates were largely determined by both foreign rates and expectations of future strength of the Singapore dollar (Giap and Kang 1999).
[12] http://www.mas.gov.sg/regulations-and-financial-stability/regulations-guidance-and-licensing/commercial-banks/circulars/2000/internationalisation-of-the-singapore-dollar.aspx.
[13] http://www.mas.gov.sg/news-and-publications/media-releases/2011/mas-strengthens-capital-requirements-for-singapore-incorporated-banks.aspx
[14] http://www.mas.gov.sg/news-and-publications/speeches-and-monetary-policy-statements/speeches/2015/a-smart-financial-centre.aspx.

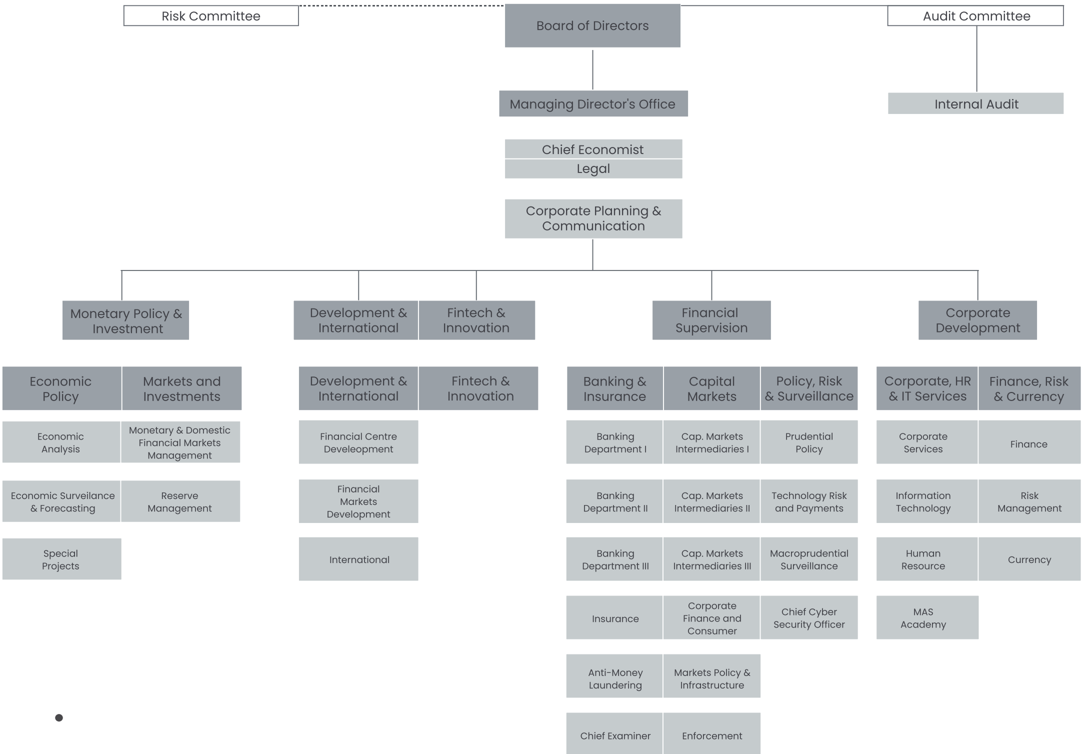
MAS as the sole regulator and promoter of the financial sector

MAS has never been independent from the government and in its own turn has been in charge of the developmental agenda in the form of providing various incentives to develop the financial sector. Yet, with its current 25 departments and one more additional Group officially working since May 2016 (FinTech and Innovation), it is a *de facto* Central Bank by any standard. Besides incentives to attract foreign banks and encourage them to set offshore operating centers in Singapore, MAS was proactive in identifying niche markets as a source of new competitive advantages. This strategic approach required more collaborative relations with the banking community – both domestic and foreign – in order to stay responsive towards industry needs

and changing the economic environment (Woo 2016). Quoting both acting and former MAS officers, Woo (2015a) refers to the official rhetoric of "policy co-creation" to emphasize a distinctly strategic and proactive way of effective engagement with the corporate sector in regulation, supervision and financial-sector promotion.

Currently, the overarching organization structure of MAS is as follows: the three Deputy Managing Directors are responsible for: 1) Financial Supervision; 2) Corporate Development; and 3) Monetary Policy, Development, and FinTech and Innovation. As Figure 1 illustrates, the following groups: Economic Policy, Markets and Investment; Development and International; and FinTech and Innovation report to the same Deputy Director. The supervision function is carried out by separate departments operating in accordance with different acts (e.g. Banking Act, Finance Companies Act, Securities Industry Act, Futures Trading Act), thereby resembling a multiple-agency system, as argued by Walter (1993, 107), while housing all the "agencies" in MAS ensures better co-ordination and allows supervision to be conducted on a consolidated basis more effectively while keeping up with changes in the financial market structure. Given the long history of effective coordination and regulatory practice of MAS, a new collaborative facility – Fin Tech Group and Fin Tech Lab – serves as an extension of existing competences of MAS, which has simultaneously performed both regulatory and promotion functions in regard to domestic financial industry.

Figure 1. Organizational structure of MAS (as of 2018)



Source: *http://www.mas.gov.sg/About-MAS/Overview/Organisation-Chart.aspx*

As becomes evident from earlier annual reports (1970s-1980s), various consultation initiatives were implemented through surveys, committees and working groups with financial industry actors, whenever specific guidelines, new products or market niche segments were to be identified and set up.[15] With domestic financial industry becoming more mature, regulators' collaborative efforts have been moving towards even greater responsiveness. Despite co-creation being the official rhetoric, which might carry a certain "promotional" connotation, the most recent FinTech and Innovation Group is explicitly meant for direct collaboration with the industry. At the same time, MAS continues to attract new private FinTech ventures through "conventional" incentive measures: currently there are 7 different types of grants offered by MAS, National Research Foundation, IMDA and SPRING agencies.

From a supervisory perspective, MAS relies on financial institutions and their boards of directors to demonstrate ownership of decisions. At the end of the 1990s MAS adopted a similar approach in its "disclosure-based" framework, which moved away from an institutional focus towards systemic supervision: to encourage innovation and to facilitate the development of a more sophisticated body of consumers (MAS 2004, 14), which also reflects the reformulation of financial citizenship triggered by increasing financialization (Lai and Tan 2015).

[15] E.g. Guide to Conduct and Market Practice in Foreign Exchange and Currency Deposit Transactions (1978/1979); development of an automated cheque clearing system for Singapore (1979); a survey to assess the interest in a financial futures market in Singapore and a working group performing feasibility studies (1981) (MAS annual reports, various years).

MAS FinTech and Innovation Office

A series of initiatives was announced in Summer 2015 signifying Singapore's public commitment to working on financial innovation jointly with the private sector:

the newly launched FinTech and Innovation Group included three sub-units:

- Payments and Technology Solutions Office (formulates regulatory policies and develops strategies for simple, swift and secure payments and other technology solutions for financial services);
- Technology Infrastructure Office (responsible for regulatory policies and strategies for developing safe and efficient technology-enabled infrastructures for the financial sector, in areas such as cloud computing, big data, and distributed ledgers);
- Technology Innovation Lab (scans the horizon for cutting-edge technologies with potential application to the financial industry and work with the industry and relevant parties to test-bed innovative new solutions).[16]

Financial Sector Technology and Innovation Fund of $225 mln (for the next 5 years) was set up by MAS to finance strategic initiatives with industry while further developing Singapore into a Smart Financial Center.[17]

These measures were part of a broader Smart Nation initiative[18] launched in 2014 where digitization of finance was named as one of the elements of digital society and economy (Infocomm Media Development Authority 2018; Ministry of Communication and Information 2018) which Singapore should strive to achieve. Recently, the Smart Nation and Digital Government Office was formed, and together with the Government Technology Agency (a former statutory body under the Ministry of Communications) the Smart Nation and Digital Government Group was placed

under the Prime Minister's Office in 2017. Therefore in the context of "cashless society" and "smart financial center" MAS has been working in close coordination with the above-mentioned agencies.

The new FinTech Office was designed to serve as a one-stop platform for all FinTech-related activities, including the promotion of Singapore as the regional FinTech hub. The office is co-led by the MAS Chief FinTech Officer, a former corporate executive, and a CEO of newly established agency SG-Innovate[19], a former deputy chairman of Singapore's Infocomm Development Authority[20] (IDA). Other members of the Office include representatives of MAS, Economic Development Board (EDB), IMDA, Infocomm Investments Pte Ltd (an investment arm of IMDA), National Research Foundation and SPRING agency. Meanwhile, the Fund targets start-up and tech companies with projects aiming to build industry-wide infrastructure, which are supported by financial industry. Non-financial institutions can also apply, although their eligibility is assessed on a case-by-case basis by MAS.

The first policy output of the MAS FinTech Office were the "FinTech regulatory sandbox" guidelines, issued in November 2016 after a round of public consultation. Following recommendations of the

[16] http://www.mas.gov.sg/News-and-Publications/Media-Releases/2015/MAS-sets-up-new-FinTech-and-Innovation-Group.aspx.

[17] http://www.mas.gov.sg/news-and-publications/speeches-and-monetary-policy-statements/speeches/2015/a-smart-financial-centre.aspx.

[18] https://www.smartnation.sg/why-Smart-Nation/pillars-of-smart-nation.

[19] A new agency established as part of the 2016 budget that operates under the National Research Foundation, and aims at bringing entrepreneurs, industry leaders, venture capitalists and researchers together to help build companies in the three key sectors: finance, energy and healthcare. Within partnership with MAS, its first acting partner, SG-Innovate is tasked with advising the Authority on FinTech funding.

[20] IDA has been recently succeeded by Infocomm and Media Development Authority (IMDA).

Financial Center Advisory Panel[21] and emulating an initiative launched by the British Financial Conduct Authority together with Project Innovate in 2015, the MAS FinTech Regulatory Sandbox allows FinTech solutions to be tested after sufficient laboratory tests within a limited customer base, following a limited timeframe and given lighter legal and regulatory requirements valid during the specified timeframe – all subject to formal agreement with MAS. The regulatory sandbox is displayed and implemented by an applicant company and operates in the production environment – where actual products and services are delivered to customers. All stages of the regulatory sandbox, including the exit stage, are closely monitored and assessed by MAS while upon additional request, the sandbox timeline can be extended.

The regulatory sandbox aims to encourage firms and extend their willingness to further develop FinTech solutions. Following the current supervisory approach outlined above, financial institutions are free to launch new ideas without first seeking MAS's approval, as long as they are satisfied with their own due diligence, since the concept "time to market" comes into play, which is crucial to competition. MAS puts an explicit emphasis on "*innovation through co-creation*":

> … co-creation is particularly relevant for developing rules or guidance on new technologies whose benefits and risks are not fully known and where a more flexible approach may be desired. A further possibility in co-creation might be MAS and the industry working together to develop common technology infrastructure that meets regulatory requirements. The aim is to clarify and address issues and uncertainties upfront during the course of development (Ravi Menon, June 2015).[22]

4. Discussion

One of the conclusions of systematic literature review on policy co-creation and co-production was related to the need for more empirical studies "to find out to what extent the policy field in which co-creation is implemented is influential with respect to the type and effects of these processes" (Voorberg et al. 2015, 18). In its attempt to bring the concept of co-creation to the domain of financial regulation, the current study reviewed developments in Singapore's financial policies and governance and argued that co-creative practices resulted in the emergence of organizational dynamics and new organizational forms, which should be regarded as an integral part of the policy process. The study is based on theoretical premises that for informed and evidence-based policy-making there is a growing need to conceptualize competences of public sector, especially when technical expertise is essential to the effectiveness of policies and to the very understanding of how the regulated sector works, as in the case of the financial sector, which at times invests in ICT on par with national governments.[23]

The study relied on historical-empirical material in order to demonstrate that collaborative practices in financial governance are not entirely new, but they have been increasingly

[21] Launched in July 2015 to advise MAS on recent and future developments in finance, the Panel consists of 26 executives from financial industry and runs biannual meetings chaired by MAS's Managing Director.
[22] http://www.mas.gov.sg/news-and-publications/speeches-and-monetary-policy-statements/speeches/2015/a-smart-financial-centre.aspx.
[23] The Development Bank of Singapore alone now spends some S$600 million on technology every year as compared with S$2.8 billion that Singapore's government spent on ICT tenders during the fiscal year 2017 (https://www.imda.gov.sg/infocomm-and-media-news/buzz-central/2016/6/investing-in-ict-for-smart-nation-growth).

formalized and manifested in novel organizational forms. The Monetary Authority of Singapore has been an effective regulator and promoter of domestic financial industry. Despite the general notion of financial regulation being rather reactive (Anheier and Fliegauf 2013), MAS has been serving "developmental" goals by proactively implementing policies conducive to growth: maintaining the "dual" financial system that effectively differentiates between domestic and off-shore sub-sectors, thereby making the national financial system more resilient to external shocks; effectively maintaining the non-internationalization of domestic currency despite a lack of capital controls and a small open economy, thereby keeping incentives for currency speculation at bay; initiating industry restructuring (consolidation in early 2000s) in order to encourage the internationalization of domestic financial firms. The prevailing regulatory culture among financial bureaucrats has been also described as "cooperative, less confrontational and antagonistic", which should not be equated with "regulatory capture" but rather related to trust and confidence (Lin 2009, 303). As the industry matures and financial institutions, both domestic and foreign, start competing closer to the technological frontier (FinTech), regulators are challenged by the sophistication and speed of financial innovations and related uncertainty. Recognizing this, MAS shifted from prescriptive merit-based supervision towards a disclosure-based principle at the end of the 1990s (Maysami and Tan 2003). From the governance perspective, however, scholars and practitioners emphasize the general conflict between existing rigid top-down bureaucracies and modern private financial organizations "that must respond quickly and flexibly to multidimensional changes in markets and social needs" (Sheng 2009, 405).

In recent years a growing number of FinTech Labs has been launched by commercial financial institutions worldwide, but it is in Singapore that a similar organization has been recently established within the Central Bank. Strategic collaboration between MAS and financial industry has been evolving since the 1970s but it is becoming increasingly direct and formalized through collaborative facilities such as FinTech Lab, "regulatory sandbox", and the recently inaugurated

Payment Council. For public authorities a more collaborative approach provides an opportunity to leverage on corporate sector's knowledge and expertise and potentially speed up the process of intervention, should such a need occur in case of a systemic risk. One may further suggest that by attracting foreign financial institutions MAS would tap into the pool of global financial technological expertise – and the dynamic capabilities it presents – more effectively and at lower costs. Indeed, such an aim is explicitly stated in MAS's response to the Parliamentary question regarding limited knowledge and skills related to digital finance (*6 February 2018*).[24] Following the capabilities approach, corporate actors with the greatest resources and expertise will be probably more active and more preferable as partners, which may raise concerns over which interests get best representation, which, in turn, is directly related to a broader national socio-economic agenda. There is also a delicate balance between nurturing innovative competition and ensuring financial stability (Cainey 2014), and although Singaporean financial bureaucracy has been known for being business-oriented, highly proactive and remarkably effective, to what extent MAS is capable to collaboratively shape brand new business models, products and technological solutions while keeping up with related risk assessment and technological sophistication remains to be seen.

[24] http://www.mas.gov.sg/News-and-Publications/Parliamentary-Replies/2018/Reply-to-Parliamentary-Question-on-talent-and-skills-in-the-financial-sector.aspx.

Meanwhile, increasingly formalized collaborative facilities appearing within financial-governance institutions, as the case of MAS suggests, represent *new organizational forms that become part of the dynamics within a policy process* through enhancing input from (selected) non-government actors and transforming a feedback mechanism into co-creation. Such organizational dynamics, however, have not received relevant attention in scholarly literature, which tends to emphasize either policy change or policy dynamics, i.e. to remain "policy-biased". Yet organizational dynamics, as a response to technological change, should be viewed as part of policy design studies because organizational forms reflect either existing competences or the need to develop new ones, as has been argued in the case of dealing with the uncertainty of financial technologies. In other words, despite the exploratory nature of the study, it contains an explanatory element: new forms of (closer) interaction emerge due to technology-driven complexity. The article further argues that by combining theoretical insights from literature on collaborative governance and co-creation, policy capacity, and by emphasizing the notion of technological capabilities, it would be possible to move further towards unpacking the constraints experienced by local bureaucracies while dealing with global finance, as was problematized by Sheng (2009). Moreover, by introducing the notion of technical capabilities – as complementary to analytical and administrative capacities – into the general discussion on financial regulation and supervision, the article suggests that putting policy design on the research agenda (Bakir and Woo 2016) implies a more deliberate approach to technological skills and competences of policy actors. Accordingly, avenues for future research may be outlined as follows:

- Further research on co-creation initiatives involving corporate actors with a well-established knowledge base (esp. in the financial sector and other sectors where governments are confronted with escalating technological change);
- Additional empirical studies on the engagement with non-government actors in financial policy-making, with specific reference to the issues of technology and the regulation thereof, including particular ways of interaction / co-creation and operational routines;
- Empirical research on modes and mechanisms of industry consultation in other international financial centers with a special focus on bureaucratic capabilities to perform and maintain such policy dialogues;
- Further empirical work, especially through interviewing public regulatory authorities and private actors, would be an important step towards process-tracing collaborative practices and pointing to more defined forms and outcomes of such practices; more rigorous empirical analysis would also make it possible to develop more narrowly defined conceptual frameworks within a wider notion of "co-creation" applied in the current study;
- A broader discussion of capabilities of financial bureaucracy (e.g. Nee and Opper 2009) would benefit scholarship on public administration, especially in regard to development studies.

To conclude, the article has highlighted that through outside pressure – dynamic technological change in the financial sector – even more traditional policy communities have opened up and embraced co-creation as the means to draw in the expertise and knowledge needed to fulfill core policy tasks. However, due to the needed capabilities to participate in this collaboration, there are high barriers to entry within these practices. Consequently, the extent of the influence and power of corporate actors in this collaboration should be analyzed in greater detail.

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Olga Mikheeva is a PhD candidate at Tallinn University of Technology and her research focuses on financing of innovation, development banks and financial bureaucracy. Currently she is working on development finance institutions in Central and Eastern Europe while her articles appeared in the Journal of Post-Keynesian Economics and Journal of Baltic Studies. She is also an associate research fellow at the Institute of Innovation and Public Purpose, University College London. Email: olga.mikheeva@taltech.ee

Piret Tõnurist currently works at the Directorate for Public Governance, OECD, as a lead in systems thinking and innovation measurement in Observatory of Public Sector Innovation (OPSI). She also holds a research fellowship at the Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology. Piret does research in Organizational Studies, Public Sector Innovation, Technology and Environmental Politics and Public Policy. Previously she has worked as a consultant to the parliament, performance auditor and freelance consultant. Piret Tõnurist holds a PhD and MA from Tallinn University of Technology in technology governance and Master of Science from KU Leuven in policy evaluation.
Email: piret.tonurist@taltech.ee

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The Europeanization of financial regulation and supervision on the Baltic–Nordic axis: the perspective of national bureaucracies

Egert Juuse, Ringa Raudla, Aleksandrs Cepilovs and Olga Mikheeva

Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology, Tallinn, Estonia

ABSTRACT
This article presents a comparative case study about the impact of Europeanization on two types of small North European states after 2008. For our case study countries, this is mainly a process of Europeanization. Our analysis focuses on interpreting the Europeanization process from the perspective of bureaucracies: we attempt to understand financial bureaucracies' perceptions of, attitudes toward, and reactions to the post-2008 developments in financial regulation and supervision in Sweden, Norway, Estonia, and Latvia. This enables us to reflect on the implementation performance and embeddedness of post-2008 regulatory and supervisory principles in these countries.

KEYWORDS Europeanization; financial bureaucracy; financial regulation; financial supervision; Estonia; Latvia; Sweden; Norway

Introduction

Over the last fifty years, financial regulation and supervision has moved from a system of 'repressed finance,' with extensive quantitative regulations, via a phase of deregulation into a period of efforts at re-regulation. There is by now the architecture of international bodies – transnational regulatory networks (see Avgouleas 2012) – reflecting to a large extent a division of labor in terms of the functions of the financial system and institutional specificities of its various fields. Many of the permanently functioning sub-organizations are linked to international organizations such as the IMF and the OECD, and the Bank for International Settlements (BIS) with its Basel committee on banking supervision, which produced the Basel Accords. The 2008 financial meltdown led to a further mushrooming of such boards/associations/bodies. Each of these global financial governance bodies issues segments of what should ideally add up to a relatively consistent regulatory framework.

The European Union (EU) relates to international financial governance via its own efforts to regulate the financial framework of the single market. At the same time, many of the EU-measures derive from and thus overlap with regulations suggested by international bodies. In such a multi-dimensional system of financial governance, the EU Commission is positioned between international regimes and the national level

CONTACT Egert Juuse egert.juuse@ttu.ee Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology, Akadeemia tee 3, Tallinn 12618, Estonia

(with Nordic financial integration between the EU and the national level). Thus, one needs to be cautious when attributing domestic changes only to Europeanization processes (see Börzel 2003; Vink and Graziano 2008; Dyson 2008), especially when it comes to financial regulations, as global standards and also horizontal linkages between nation states appear to matter as well for explaining developments at the domestic level. In other words, all governance levels – global, EU, Nordic, and national – interact in complex ways.

That said, the friction between the national and the EU level has been fueled by the delegation of powers to an increasing number of central regulatory agencies in the EU (Levi-Fleur 2008, 107). These kinds of developments can clearly be observed in the field of financial regulation, but also in the field of supervision with the establishment of the European Banking Authority (EBA) among other institutions. Especially during the last ten years, there has been an impressive deepening and widening of European policy competences that has also spurred a scholarly interest in studying institutional and regulatory reforms at the EU level in the field of finance (Mügge 2013; Busch 2004). In this regard, the Europeanization process, referring to the institutionalization of EU rules and policies at the national level through various transmission mechanisms (see Radaelli 2004, 6), has been found to entail a loss of political autonomy and control at the member states' level (Schmidt 2002, 52). It has been argued that such a hollowing out of the national state has negatively affected policy-making capacities, but also undermined the processes of democratic politics (see Olsen 2002) that may lead to contradicting preferences and conceptions of socio-economic problems between the EU and individual states. At the same time, there seems to be leeway when it comes to the national implementation of international regulations, including EU directives, implying that there are considerable differences in the profiles of implementation across varieties of capitalism.

When looking at the Europeanization literature, the broad spectrum of analyses entails an explanatory account of Europeanization processes (Hix and Goetz 2000; Jordan 2003). These studies usually investigate the effects of Europeanization on various domestic institutions (Vink and Graziano 2008; Lodge 2002; Knill and Lenschow 2005; Olsen 2002). Moreover, the scholarly focus tends to lie rather on the question of *how* the EU matters than to *what extent it* matters (Haverland 2008). Likewise, even though there is a collection of research that explores the Europeanization of national administrations, structures, and coordination processes, with some studies focusing on understanding the changing roles, identities, and behavior of national officials involved in EU decision-making processes, the literature has not paid much attention to how public officials have responded to the increasing effect of the EU on their domestic institutions, policies, and political processes.[1] As stated by Dyson (2008), there is a need for comparative research on the Europeanization of economic policies that focuses on technical elites and how the practical implementation of EU policies has affected their attitudes, practices, and relationships.

Accordingly, in this article, we study public officials who are implementing regulatory frameworks connected to new developments in global financial governance. More specifically, our exploratory analysis focuses on disclosing the profile of national financial bureaucrats in financial supervisory authorities (FSA), ministries of finance and central banks, i.e. their capacities, roles, perceptions, and attitudes in relation to regulations, standards, and supervisory procedures emerging from the system of international financial governance as outlined above – G-20/IMF/Basel-based organizations and the

EU's own system. Our aim is not to provide an explanation of the national impacts of European integration or to account for variations in national policy reforms for a financial sector. The ambition, rather, is to map the positions and discursive responses of national bureaucracies to European regulatory integration in finance. We also take a look at the patterns of structural arrangements between politicians and bureaucrats and forms of participation in the EU's financial policy framework as well as bureaucracies' identity within it. By and large, we examine the following research problems: How do civil servants in the four case study countries view the potential for implementation and the likely outcomes of the implementation of EU/global financial governance regulations and supervision procedures in their financial sectors after the financial crisis? How do the views on capacity for implementation differ between the recently formed financial bureaucracies of the Baltic 'transition economies' and the 'Nordic model' financial bureaucracies marked by deep-rooted traditions? In essence, we explore how the studied actors assign meaning to some of the key mediating factors (see Schmidt 2002, 62) associated with different, but interrelated and complementary institutional approaches.

The article adopts a comparative case study design. We have selected two Baltic and two Nordic countries that share similarities (e.g. they are all parliamentary democracies with proportional electoral systems and coalition governments) but also have differences. In particular, the countries vary in terms of their integration with the EU: Estonia and Latvia are new members from 2004; Estonia has been a Eurozone member since 2011, Latvia since 2014; Sweden is an older EU member, but does not use the euro; Norway is not a member, but it is closely integrated through the European Economic Area (EEA) agreement. By looking at different settings, we can explore the variation in the perceived roles of financial bureaucracies. The added value of our research stems from contributing to comparative knowledge about the Nordic and Baltic countries, i.e. in a way bridging the analysis of the Europeanization of 'West' and 'East' that has been rarely undertaken (see Meyer-Sahling and van Stolk 2015, 230).

The data for the qualitative analysis was collected via semi-structured interviews as well as document analyses. Altogether 24 interviews were conducted over a period of two years (from September 2014 to December 2016) with officials involved in the financial regulation and supervision in Estonia, Latvia, Sweden, and Norway. While the focus of exploratory interviews was on EU–national level interactions, the implementation of EU financial policies, and the influence of supranational policies on domestic arrangements, there were also attitude questions about the impacts of EU activities.

The article proceeds as follows. The second section provides the theoretical lens for the analysis of Europeanization with respect to financial regulation and supervision. The article derives its analytical framework from the tradition of actor-centred institutionalism (see Scharpf 1997; Hix and Goetz 2000; Knill and Lehmkuhl 1999; Jordan 2003). The third section outlines the main empirical findings. The last section presents the discussion and conclusions.

Theoretical considerations

The EU Commission has taken an interactive step-by-step approach with a screening exercise intended to ensure a maximum degree of harmonization across the EU. Despite this and other measures such as the use of concordance tables, impact assessment or the creation of dedicated networks to share, discuss, and exchange advice on transposition issues, evidence suggests that member states, for several reasons, have used various options – delaying, gold-plating or literal transposition – to evade the consequences of transposition (Renda 2009, xviii; Montoya and Schrefler 2009, 74; Falkner and Treib 2008).[2] Hence, it is mostly national institutions, policy-making processes, and actors that have been found to affect to what extent and how the Europeanization process plays out at the national level (Busch 2004, 327; Hix and Goetz 2000, 20). Thus, by and large, domestic structural conditions that explain the differential impact of Europeanization on national policies could be conceptualized as mediating factors or manifold intervening variables (see Caporaso 2008; Schmidt 2002; Lehmkuhl 2008; Risse, Caporaso, and Green Cowles 2001 on mediating factors).[3]

First, the degree of Europeanization is affected by the affiliation of countries to the EU but also the timing of accession as well as the size of the state (see Lægreid, Steinthorsson, and Thorhallsson 2004). For instance, officials from smaller and in particular older member states are likely to be more Europeanized due to prolonged exposure to certain institutions, values, and codes of conduct that are perceived to have gained legitimacy and virtue (Egeberg 1999; Trondal 2000; Jacobsson, Lægreid, and Pedersen 2004, 146). Even in new member states, however, once transposed, regulations and policies may prove to be resilient and difficult to repeal, resulting in the internalization of the Europeanization process by national officials (Schimmelfennig and Sedelmeier 2005b, 227–8).

Second, directly associated with national bureaucracies is the amount of available human, financial, and other resources that affect the implementation performance of EU policies (Bache 2008; Hille and Knill 2006; Knill and Lehmkuhl 1999). Usually, human and financial capital in small states tends to be inadequate. Accordingly, one can observe distinctive characteristics in smaller bureaucracies such as the multi-functionalist nature of jobs and the rarity of specialists in some fields (Randma-Liiv 2002, 376–8). Overall, the aforementioned features of small states have a negative effect on administrative capacity in negotiating EU policies (Kattel, Randma-Liiv, and Kalvet 2011, 63–71).

Aside from hampering the ability to form a national position in relation to EU policies, lack of administrative capacity has an adverse impact on implementation as well (Schimmlefennig and Sedelmeier 2008; Knill 1998, 2001). This aspect is especially critical, given that the involvement in the Europeanization process necessitates the development of a wide spectrum of regulatory-administrative capacities for information processing (Mahoney and Thelen 2010, 12; Levi-Fleur 2008, 105). Thus, the more bounded the rationality of national officials in terms of having limited information and time, the more challenging it is to adjust domestic arrangements to external impulses (Sverdrup 2008, 205).

Third, the Europeanization (and also the broader policy-transfer) literature emphasizes the ‘logic of appropriateness’ for effective implementation, meaning that EU regulatory principles need to resonate with domestic traditions and legacies, practices, ideas, values, and norms (see Knill 1998; Jacobsson, Lægreid, and Pedersen 2004; Börzel 2003; Börzel and Risse 2003; Caporaso 2008; Scharpf 1997; Dolowitz and Marsh 2000 on the ‘degree of fit’ argument) or alternatively, be seen as relevant in filling the national regulatory void and perceived as effective in solving domestic policy problems (Schimmelfennig and Sedelmeier 2005a, 18–22).[4] As stated by Börzel (2002, 193–94), ‘the better the fit between European and domestic policies, the lower the implementation costs at the national level.’ The more a political system entails the features of a consensus democracy, for example, by having institutionalized professional relationships with cross-border and cross-institutional epistemic communities that stand behind EU values, the better it is able to align its policies toward the EU (Hille and Knill 2006; Schimmelfennig and Sedelmeier 2005a; Steen and Schaap 2004). Moreover, the growing interaction between member states raises the awareness of regulatory practices of counterparts, which contributes to the diffusion of, and susceptibility to, outside ideas (Lodge 2002). Ultimately, the acceptance of rules and legitimacy as well as the cohesion of rule-making procedures increases the likelihood of EU rule implementation. That said, the distinction has to be made between the dynamics of the 'bottom-up' and 'top-down' Europeanization process.[5] Bottom-up policy-*making* entails shaping and 'uploading' domestic policy models to the EU level. The top-down approach entails policy-*taking*, i.e. 'downloading' EU policies. These opposing approaches, in turn, correspond to two patterns of governance in the formulation of financial policies (see Bulmer and Radaelli 2004): governance by negotiation with the vertical dimension of uploading, and governance through hierarchy with a coercive element of downloading market-correcting rules.[6] By and large, the balance between these two approaches influences the likelihood of rule adoption through the perception of policy 'ownership' or representativeness (Schimmelfennig and Sedelmeier 2005a, 18–20; Sverdrup 2008, 205; Renda 2009, 4; Montoya and Schrefler 2009, 77). Moreover, success in 'uploading' national policies to the EU level can save administrative adjustment costs (Heritier 2005, 200). Correspondingly, in line with the rationalist perspective, the adoption of EU rules takes place if the benefits exceed the implementation costs and without clashing with the interests of, or incurring unfavorable consequences for, domestic actors as potential veto players (Olsen 2002; Schimmelfennig and Sedelmeier 2005a; Maggi 2015).

Lastly, one can add that clarity, or the ability to reduce ambiguity, and the formality (i.e. hard or soft law) of policies have an effect on rule implementation (Schimmelfennig and Sedelmeier 2005a, 10–17; Sverdrup 2008, 208; Olsen 2002, 933). That said, conformity to the EU rules is inherently intricate, given that not all aspects of real life can be addressed with regulations, especially when the EU directives leave room for manoeuvring (Mahoney and Thelen 2010, 11; Busch 2004, 327; Jacobsson, Lægreid, and Pedersen 2004, 19). Furthermore, political-administrative relations can affect the clarity of mandates, because 'as long as there is no clear political vision about a certain theme, there isn't much vision that is developed among civil servants either' (Gueijen and Hart 2010, 181). This issue is particularly sensitive in the areas of finance and banking that tend to be less politicized due to a rather technical nature (Busch 2004; Jacobsson, Lægreid, and Pedersen 2004, 53), and hence, civil servants often act without clear political guidance or instructions in these fields of low politics (Gueijen and Hart 2010). In light of the aforementioned theoretical explanations, the following sections present empirical evidence and discussion about the views of national public officials on various structural conditions that affect the Europeanization of national policies.

Empirical analysis: four case studies

Estonia: a poster-child policy-taker but a 'Potemkin' harmonizer

The Estonian experience in the regulatory harmonization with the EU policies has revealed the embeddedness of EU financial policies in the national legislation leading to path-dependencies in the created structures and approaches to the Europeanization process. From the early 1990s, both the need to build up the institutional framework for private finance and to address re-occurring crises anchored banking regulation and supervision to the EU and other international principles and practices, implying a kind of regulatory 'autopiloting.' In these circumstances, however, rather technocratic policy-making through the transposition of directives, including in the field of banking, has led to nonfunctional rules. In other words, one can observe, at least to some degree, 'Potemkin harmonization,' meaning that there has been formal (legislative) convergence with EU legislation, but, at the same time, non-adaptation of rules to established market structures and practices, as institutional analyses on the implications of alignment with EU banking regulation for financial supervision and overall stability have shown (see Juuse 2016a; Mügge 2013; Bohle and Greskovits 2012; Schimmelfennig and Sedelmeier 2005a, 2008; Dyson 2008). Furthermore, given the almost full foreign ownership of the commercial banking sector, Estonian authorities have faced coordination and supervision challenges (see Lehmann, Levi, and Tabak 2011). Therefore, effect-based regulations and supervisory activities have been curtailed to a great extent within the established Europeanized framework (Juuse 2016a).

Indeed, as our interviews show, the general position of policy-makers reflects the above-mentioned developments and can be summed up with the declaration that 'since financial sector regulation is pretty much harmonized with European Union law, then all the reforms and changes start generally from there. In this sense, one cannot talk about independent Estonian reforms and changes' (Est7). At the same time, there has not been much faith in the effectiveness of the EU regulatory framework in dealing with or mitigating financial crises due to time lags between the policy formulation, its transposition, and eventual implementation (Est5). In other words, even if a high degree of Europeanization seems to be related to pro-EU attitudes as well as structural and institutional path-dependencies established during the pre-accession period, one can observe a weak correlation between the scope of Europeanization of policy areas and the backing by national officials for further EU integration (see Meyer-Sahling and van Stolk 2015, 241–45).

The interviewees acknowledged that the EU financial regulations follow a top-down logic, with limited possibilities for the member states to take any discretionary decisions at the national level to have more or less stringent rules (Est1; Est2; Est4). Moreover, 'for our own steps the EU frames have actually constrained and obstructed [us].' (Est2) Even if any 'bottom-up' domestic regulatory efforts for financial stability could be well reasoned on economic grounds, the Europeanization process has put brakes on these initiatives. For instance, in relation to higher capital requirements for mortgage lending to counter overheating, the new EU level regulations actually meant a pro-cyclical loosening of requirements for Estonia as (stricter) domestic regulations had to be scaled down in the mid-2000s. Similarly, stricter rules pertaining to capitalization requirements could not be introduced in Estonia alone since that would have made the equal treatment of branches and subsidiaries problematic; also, the initiatives to introduce stricter risk weights on mortgage loans at the regional level would have contradicted with the broader process of harmonization of regulations (see Sutt, Korju, and Siibak 2011; Ross 2013).

In addition, overregulation by the EU in terms of stipulating too detailed rules that cannot be implemented in Estonia due to missing regulatory objects at the local market level has been indicated as one of the problems (Est1; Est2; Est3; Est5; Est6; Est7). As stated by one interviewee, '[We] have to be honest and say that these things are not for us' (Est2). One of the interviewees (Est5) even questioned the meticulous transposition of EU directives in Estonia with the opportunity cost argument that it would be less costly to pay the fines for noncompliance than to invest efforts and resources for embracing EU rules, not to mention the extra costs incurred for the service providers and consumers. Paradoxically, however, so far Estonian policy-makers have emphasized the 'quantity' and aimed for maximum harmonization, rather than focusing on its quality (Est5). To some extent, this can be explained by a legalist approach to policy-formulation, where the legal-normative perspective of civil servants dominates over the macro-financial one (see Juuse 2016b; Randma-Liiv, Nakrošis, and György 2011).

With regard to human resources and capabilities in terms of skills and know-how, these are perceived to be severely limited in Estonia for the implementation of EU policies, but also for formulating alternative policy solutions. This, in turn, creates a large administrative burden and necessitated a lot of adaptation for local officials, especially in the context of fiscal austerity resulting in lay-offs of public officials after the global financial crisis (Est1; Est2; Est3; Est5). As a senior official at the supervisory authority (Est4) stated, there is disproportionality in the EU's approach to financial policies, which, aside from the inappropriateness of the EU's regulatory scope for local market conditions in Estonia is also revealed in the EU's requirements for the creation and staffing of supervisory positions.[7] In essence, the low absorptive capacity as well as lacking competences for the implementation of the EU financial policies can be explained by the lack of specialists in the field that has implied a need for capacity-building in various policy areas, in particular, on the macro-prudential aspects as well as bank recovery and resolution issues (Est2; Est4). A lack of on the spot analytical work by national authorities on the impact of the adopted regulations and hence, reliance on analysis done at the EU level (Est1), reveals limited capabilities as well as resources, but also the level of embeddedness into the EU regulatory framework.

As to supervisory arrangements, the local bureaucracy in Estonia highlighted the formalization of cross-border supervisory cooperation after the last global financial crisis, but parallels between the previously existing college system in the Scandinavian countries and the formalization tendencies at the EU level in the form of requiring supervisory colleges were also pointed out (Est1). Thus, no major institutional changes have occurred in Estonia in that regard but concerns have been raised about the culture adopted by the European Central Bank (ECB) for the work in the colleges: will it be based on the Swedish consensus approach as it has been so far or some other principles? (Est4). The Single Supervisory Mechanism has caused some concerns and skepticism among national officials because it leaves them out of the decision-making processes or is even viewed as undermining the sovereignty of nation states, because supervisory responsibilities have been centralized at the ECB level but the responsibility for the resolution of problematic banks has been placed at the national government level, which has to cover the resolution costs (Est1; Est3; Est6).[8]

Lastly, several interviewees (Est1; Est2; Est7) envisaged a more active role of politicians for influencing the financial stability legislation at the EU level. On the other hand, the officials are skeptical about the ability of politicians to comprehend the voluminous, specific, and complex policy initiatives at the EU level (Est3). Likewise, the low political appeal of finance topics implies that there is little interference, if any, into the work of civil servants from the Cabinet or the relevant minister. In that regard, the only real constraint for the national bureaucracy has stemmed from the EU, not local politics (Est5; Est7).

Overall, the public officials we interviewed tended to express the feeling of being dictated instructions 'from above' and having essentially no indigenous, homespun policies. As a testimony to that, 'decisions over us are made at the EU level, and we cannot speak about the local financial sector policies' (Est2). Or, in the words of another official, 'policies are most affected by external actors … We are, after all, also in the EU, but we don't raise major issues' (Est6). Thus, we can conclude that the Estonian case is clearly characterized by a policy-*taking* approach; the regulations are externally imposed (i.e. outsourced and depoliticized) whereas endogenous policy-*making* is limited. This is certainly not unique to Estonia, however. As observed by Meyer-Sahling and van Stolk (2015, 242), officials in Central and Eastern European countries tend to stress the importance of policy-taking rather than policy-making activities. Similar conclusion has been drawn by Börzel (2002), who attributed the inactivity in shaping European policies to insufficient staff, expertise, and other resources as well as to underdeveloped regulatory structures. On the other hand, there is a widespread perception among Estonian policy-makers about overregulation and misfit (Est3; Ministry of Finance 2010) that could be considered as an explanatory factor behind the ineffective implementation of EU policies in the finance sector (see Juuse 2016a). Indeed, as Juuse (2016a) pointed out, involuntary delays in implementation are due to administrative incapacity and the irrelevance of some EU regulations for the Estonian domestic market. This has implied a 'fence-sitting stance' in Estonia but also in other small states in terms of neither blocking nor uploading EU policies, but as in the words of Börzel (2002), preferring 'to avoid costly European policies simply by not implementing them … '

Sweden: self-conscious and proactive policy 'uploader'

The regulatory approach to financial legislation in Nordic countries, including Sweden, has been categorized as 'market friendly' (Fenger and Quaglia 2013). Although Sweden has contributed to tempering the rigor of new EU rules since joining the EU in 1995, it has also managed to induce discussions on various issues related to transparency and information disclosure that have resulted, on multiple occasions, in exporting Swedish institutional practices to the EU level (Heritier 2005, 204). For instance, the Swedish experience with supervisory colleges is a good example of using a member state's practice to adopt a new institution at the EU level (Swe4). The Swedish bureaucracy has taken a proactive stance and tried to align the EU's approaches with Swedish traditions in both the administrative and policy sphere (see Jacobsson, Lægreid, and Pedersen 2004, 113; Lægreid, Steinthorsson, and Thorhallsson 2004, 350). In a way, joining the EU increased the sense of duty for proactive policy-making in order to protect sovereignty. Such a stance was also influenced by the prevailing corporatist traditions and comprehensive coordination system that necessitated the creation of new networks through the engagement of additional interest groups for further EU integration (see Bache 2008; Kassim 2003). Indeed, as stated by one of the senior civil servants in the financial supervision authority (Swe4), public institutions follow the overriding principle of being transparent and analytical in their policy thinking in terms of providing reasoning for taken policy positions and being open to public scrutiny for finding an appropriate calibration of policy measures.

As a testimony to the previous statements and given the wave of new regulations on financial markets from various international institutions, including the EU, where national governmental organizations need to participate, there is more and more domestic interaction for policy-making and -coordination (Swe1). Accordingly, while it is the Ministry of Finance that negotiates the policies at the EU level, the central bank provides support and discusses with the ministry how global standards need to be implemented and hence, what could be the policy approach from Sweden's perspective to have the expected financial stability effects at the local level (Swe2). Further, the work-stream on the EU bank recovery and resolution directive implied a close cooperation between the Financial Supervisory Authority and the Swedish National Debt Office (Swe4). Moreover, as the embodiment of the collegial decision-making process through inter-ministerial committees (see Harmsen 1999), the Financial Stability Council (FSC) can be seen as the domestic coordination mechanism of EU policies. The FSC, chaired by the minister of financial markets, encompasses four key public institutions for discussions on financial stability issues and measures for preventing the buildup of financial imbalances (FSC 2017).[9] On that account, it is evident that the political leadership takes an active part in the elaboration of EU issues, which underpins the general finding of a relatively small separation between politicians and the bureaucracy in Sweden (see Lægreid, Steinthorsson, and Thorhallsson 2004, 365; Jacobsson, Lægreid, and Pedersen 2004). The political involvement in EU affairs, in turn, forms the basis for having clear directions for the bureaucracy's interaction with the EU. As a result, the prerequisites for reaching a consensus on a financial stability approach and measures on the political-administration axis exist at the national level (see Jacobsson, Lægreid, and Pedersen 2004, 41).

Moreover, a strong position of Swedish civil servants in EU affairs has allowed the Swedish government to further its national interests. Indeed, the essential difference from other countries in our study is the pro-active stance of Swedish public officials in policy-design in the international arena. As one of the officials explained, 'some very important initiatives from the EU have landed there because of preparatory work in the Basel Committee, [where] we participated in that initial process, and then went to Brussels and then Brussels in a way sort of calibrates this policy' (Swe1). The reason for Sweden's active role in the Basel Committee stems from the direct link the central bank has with it through the governor of Riksbank, Stefan Ingves, who has been the chairman of the Basel Committee. In a way, the organizational specialization in providing input for international standards has contributed to re-shaping the identities and roles of the bureaucracy in Sweden (see Trondal 2001, 9). The roles and attitudes of Swedish public officials can be summed up with the following two quotes:

> We are very much involved in the Basel Committee and also in FSB work … [which are] like the channels, where we are actually mostly connecting our policy work … Since most of the things are coming from the international level, we find that it's most efficient to influence there. I would say we have a really active part in international groups … Normally, we are just normal members in these working groups, but now we have had more influence and then also more work than normal in these working groups … So, we are taking part in the design of the framework, instead of just getting it on the table and to have to implement it. (Swe2)

> One can also perhaps mention that at the EU level you have the advisory scientific committee to the ESRB [European Systemic Risk Board], where we actively participate, which is also the kind of the think-tank that helps the European Systemic Risk Board to fulfil their functions. (Swe4)

Hence, the officials of the central bank and the FSA have been drawn extensively into international regulatory processes and contribute actively to regulatory developments at international level through the Basel Committee, Financial Stability Board, and EU institutions such the European Banking Authority or the European Systemic Risk Board (Swe1; Swe3; Swe4). This is also in line with the Swedish tendency to have the most complex international relations and contacts to international organizations among the Nordic countries (see Jacobsson, Lægreid, and Pedersen 2004, 67–9). Even though the awareness and the ability of Swedish civil servants to navigate on the international regulatory landscape has increased and that has enabled them to fight against the bricolage of rules, some of the EU initiatives have still been perceived as not the most effective or relevant for Sweden (Swe1; Swe2; Swe3). As noted by a civil servant at the central bank, ' … a lot of things are watered-down at the EU level [after global work in the Basel Committee] … and that can be frustrating' (Swe2). The aim of maximum harmonization at the EU level and hence, the adoption of minimum standards, runs counter to the Swedish regulators' preference for being more hawkish in regulatory approach (Swe2; Swe3). In the Swedish case, the coordination and decision-making mechanism conducive for a more prudent approach is the afore-mentioned Financial Stability Council, where discussions take place on whether tougher regulations, compared to international ones, or anything else is needed in Sweden (Swe3). Overall, the sheer volume of new regulations and also diverging viewpoints on regulatory rigor between the EU agenda and Swedish policy-makers have caused some feelings of 'reform-exhaustion,' including of EU policies among local civil servants (Swe2). Interviewees (Swe3; Swe4) in Sweden, however, do not see a regulatory pause but rather a continuous dynamic process in devising various measures for resolving the problems of the last global financial crisis.

Nonetheless, the extent of the EU's influence on financial policies in Sweden has been perceived as significant, which is the same as in Estonia and Latvia. As confirmed by an interviewee, ' … there are a lot of directives that come from Brussels, where member states actually don't have any choice but to implement them' (Swe1). Hence, national discretion is rather limited, except for areas of macro-prudential policy and supervisory review (Pillar 2) processes for banks' capital adequacy assessment (Swe4). Even though a two-way Europeanization process has enhanced the institutional fit between the Swedish and EU approaches, concerns have been raised about the appropriateness of EU regulatory principles for local market circumstances. For instance, irrespective of the size and profile of credit institutions, the same reporting formats have been set for all commercial banks and the amount of data to be reported by banks to the supervisory authorities has increased about 50 times after the last global financial crisis (Swe4). Similarly, it has been brought out that implementing EU directives and in broader terms, international law, takes as much time for a small country as it does for larger ones, which puts strain on the resources of public institutions involved in the financial stability policy area (Swe1). That said, in order to deal with EU pressures, but more importantly, to build up policy-making capacities and administrative capabilities, there has been an increase in the number of civil servants working in the field of financial policy (Swe5), who are able to make knowledge- and judgement-based decisions for regulation and supervision. In the words of one interviewee, 'we have created, for instance, a separate policy department for just bank policy issues just to show … how intensive the policy work really is.' (Swe4)

All in all, in relation to the pressures from the EU and on the global level, interaction with external actors has been bidirectional: Swedish counterparts have taken a bottom-up and proactive approach in policy-*making* that is driven by endogenous (organic) learning, based on local experiences. This aspect came out from all interviews conducted in Sweden, which also explains an inclination of public officials to have a leeway for implementing discretionary and somewhat tougher regulations. In that regard, Sweden can be considered as a forerunner or pusher (see Börzel 2002, 203) that endeavors to preserve a space for developing its political agenda within the frames of EU legislation, but whenever possible and required, with stricter standards than the EU ones. To an extent, the two-way street of the Europeanization process has enabled Swedish bureaucracy to reduce the ambiguity of regulations, which provides the foundation for effective implementation owing to the well-anticipated consequences of enforced policies (see Sverdrup 2008). Moreover, such a bidirectional policy-design and implementation process with efforts made for uploading policy practices onto the international arena contributes to lower institutional adjustment costs at the national level (see Heritier 2005).

Norway: a skeptical opportunist

Norway is not a member of the EU. Through the EEA agreement, however, Norway is fully integrated in the single market, which is seen as a major advantage by Norway's export industries. It implies, however, that Norway has to write any piece of single market-related legislation from Brussels into its legislation, and this has been criticized by political forces that oppose Norwegian membership in the EU. Apart from technical committees and informal diplomacy, Norway has no way to influence EU legislation. As one of the interviewees remarked,

> "a typical problem for Norwegian authorities is that we are a small country outside [the] EU and we don't get the information we ask for. We don't get as much power that would make us sensible [visible], given the size of the banks relative to the Norwegian economy, etc. It's a small country and has small-country troubles" (Nor7).

Since the 1994 EEA decision, however, the issue of EU membership has no longer been a major point of conflict in Norwegian politics. The Norwegian government could veto any EEA-provision, but so far this has never happened (Claes and Fossum 2004; Nor8). Norway retains sovereignty in foreign policies, monetary policies and decisions concerning its main natural resources.

It has been argued that the asymmetrical form of association with the EU tends to 'dampen political engagement and debate in Norway and makes it difficult to monitor the government and hold it accountable in its European policy' (NOU 2012, 9). The Norwegian parliament has also been assigned a modest advisory role in EU matters (Nordby 2000 cited in Jacobsson, Lægreid, and Pedersen 2004, 111) and generally, there are quite weak and ambiguous political mandates and signals from politicians (Lægreid and Pedersen 2001, 9). In other words, adaptation to the EU has been delegated to national officials and experts. In terms of the bureaucracy, the Weberian organizational forms (strong hierarchy and strong specialization) of the central government in Norway have been supplemented by internal working teams, a collegial network-based approach, and project groups working across hierarchical levels and sectoral boundaries (Christensen et al. 2013, 115). The important role of committees was emphasized by respondents from all key financial agencies (Norges Bank, Ministry of Finance, Financial Supervisory Authorities) as they allow for better internal coordination of financial policies and effective engagement of third parties. In addition, the Norwegian Cabinet is working 'like a unit, a college, so all major decisions are made by the government – that is the unit – and not by the single ministers' (Nor5).

What is peculiar about the Norwegian case is that such relational inequalities with the EU have led to the emphasis on Nordic networking that appears to be an important 'feature of Norway's relationship with the EU – member states offer information about European activities and even provide opportunities for lobbying in Brussels' (Lægreid and Stenby 2010, 20). Norway's Central Bank also emphasized a strategic importance of cooperation on stricter rules at the Nordic level, especially in relation to home state supervision, and strongly supported the initiative to expand Nordic cooperation in the area of financial markets (Norges Bank 2011). Meetings among Nordic financial regulators have been conducted on a bi-annual basis for different sectors (banking, insurance, etc.), thereby contributing to the development of informal networks that tend to be more productive, as compared to more formal forums at the EU level, to which Norway is invited (Nor1, Nor4). A voluntary reciprocity between Norway, Sweden, and Denmark, for example, was gained in the area of weighting risks in the banking sector (Nor5). Among other tangible outcomes of Nordic regional cooperation is the jointly developed electronic system for reporting on securities transactions whereby domestic firms report to a national FSA, which later reports to EU bodies. Initiated by the Swedes, it reduced the costs for each national regulator, and the Netherlands has already asked about the possibility of joining (Nor1, Nor4). In addition, a Memorandum of Understanding between Norwegian, Swedish, Danish, and Finnish Ministry of Finances on cooperation regarding significant branches of cross-border banking groups was signed in December 2016.[10]

Following the report by Norway's Financial Crisis Commission, the Norwegian rules have been stricter than EU minimum requirements, including requirements for the quality of banks' equity and therefore, 'if it is desirable to have rules that, within a national scope, are more stringent or otherwise go beyond EU minimum requirements … it should be achieved at the Nordic level through harmonization of the relevant policies in the Nordic countries.' The Commission made a similar suggestion regarding a stability fee, which was to be imposed on Norwegian financial institutions based on debt in excess of equity and guaranteed deposits: 'if future EU rules do not imply proper charges, Norway should work towards a harmonized approach among the other Nordic countries' (NOU 2011, 242, 244, 247).

That said, Norway continues to exercise certain discretion in micro prudential regulation (e.g. minimum capital requirements, deposit insurance) and especially financial supervision, which, however, is substantially reducing as a result of increasing EU-led harmonization. Only in some areas did Norway have to scale up national regulations because of the EU: liquidity requirements for banks were precisely defined by the EU and replaced a more general definition used in Norway. Similar formalization occurred in home/host supervision, which is also regarded as beneficial (Nor7). Regulations from the EU, however, are perceived to be more detailed and more rigid (Nor4) and the largest concern of Norwegian regulators relates to supervisory convergence, which might affect the effectiveness of national supervision in the long-term (Nor3, Nor4). Supervisory convergence, which has been high on the agenda, also results in increasing amount of information to be reported and processed.[11] In this regard, Norway's FSA even issued a recommendation to the Ministry of Finance to decrease the amount of reporting from quarterly to a semiannual basis (Nor1, Nor4). The issue of sub-optimal effects from maximum harmonization and the possible need to set stricter national requirements is also emphasized in Norway's written response to the European Commission's consultation on the European macro-prudential policy framework in 2016.[12] The official response states that, ultimately, fiscal responsibility is borne on the national level, and indeed the oil sector makes Norwegian economic patterns quite specific with subsequent effects on its financial system (e.g. through asymmetric oil-related shocks) (Nor5).

Therefore, in certain areas Norway went further ahead in regulatory rigor than most European countries in the field of financial stability surveillance and macro-prudential tools (Nor2, Nor3, Nor7, also IMF 2015). On the macro-prudential policy side, Norway has been active in implementing new tools and stricter measures faster than other countries (Nor2, Nor7). Also, concerning the micro-prudential tools, the Norwegian FSA called for stronger capitalization requirements after the 2008/9 global financial crisis, both in quantitative and qualitative terms, which was ahead of the European Capital Requirements Directive as well as other Nordic regulators (Nor1). A similar trend concerns consumer protection, both in banking and financial markets (funds and securities industries), which has been elevated to another level 'in spite of EU regulations' (Nor4). The areas of 'common good' and consumer protection have been important in Norway and continue being subject to national law, which altogether might provide an avenue for maintaining greater national discretion in the future (Nor8). In this regard, one respondent referred to Britain and its tendency to push toward options for greater national discretion since 'they are a significant force when comes to that.' (Nor7)

At the same time, given that the crisis did not affect Norway that much, proper internal discussion has been lacking, and therefore, the adoption of some suitable EU-led regulations in the financial sphere is perceived as an opportunity (Nor7). Still, despite strong EU influence, the Norwegian debate over financial regulation is rooted in the lessons learned from the 1990s crisis, thereby supplementing the European debate (Nor5), especially given that the Norwegian solution in 1992 implied that 'shareholders should lose money first, and then the taxpayers, not the other way around.' (Nor1) Consequently, a somewhat stricter implementation of Basel I was introduced in Norway compared to other European countries (Berg and Eitrheim 2009), while the FSA won political support and was able to substantially increase its staff capacity (Steigum 2011). The experience of the 1990s financial crisis can arguably be connected to the eagerness of Norway to implement stricter regulations in the area of financial stability and being among the first to adopt macro prudential tools today (e.g. a countercyclical buffer) (Nor3).

Latvia: policy-taker with domestic policy learning elements

Latvia shares many similarities with Estonia in geographic, political, economic, and other domains. When it comes to the financial sector, however, a slightly different picture emerges. Although Swedish banks dominate financial markets across the Baltic states, subsidiaries and branches of foreign banks control over 90% of the Estonian market, whereas in Latvia this number is close to 60% (Ingves 2010). The remaining 40% of the Latvian market is divided between locally-owned banks with a substantial share of nonresident customers. Latvia has developed this niche in financial services since the 1990s, given the substantial Russophone minority, as well as the fact that Latvia, with a relatively stable banking system, currency, and political environment, was seen as a safe haven for financial assets of Russian companies and private individuals, as well as their money laundering operations (Koivu 2002).

The process of regulatory convergence with standard practices applied in developed countries, which were mainly based on the Basel recommendations on banking supervision, began already in 1993–4. Similarly to Estonia, however, most of the regulatory measures were not so much based on the evaluation of local needs and requirements for regulation and supervision, but on continued convergence with international best practices, taking the Basel accord for reference, as well as transposition of relevant European directives as part of the *acquis communautaire* (Banka 2000). Some of the prudential requirements, including capital adequacy and minimum liquidity were somewhat stricter than the standard international practice according to the Basel Accord, while other specific requirements, e.g. on country exposure limits and foreign exchange position limits, were introduced to account for local specificities (IMF 2002). It was, however, the regulatory capacity and capabilities as well as the division of tasks that hampered effective enforcement of the existing regulations. Here, one can mention the alignment of organizational arrangements to supervision alongside the ones of the Financial Services Authority in the UK (Hodson and Mabbett 2009; Rimšēvičs 2002). The interviewees recognized, however, (Lat3; Lat4), that the adopted approach, where the central bank and the supervisory agency were separated, precluded effective oversight of the systemic risks building up in advance of the crisis in late 2000s: the Financial and Capital Market Commission (FCMC) did not have sufficient analytical capacity for determining the accumulation of systemic risks, while the central bank did not have access to the information necessary for estimating systemic risks. On top of that, interpersonal networks on an informal ad-hoc basis were not enough to secure sufficient information sharing between the two institutions. The current arrangement with the Bank of Latvia responsible for macro-prudential supervision, as well as the tri-partite Macro-prudential Council, involving the Ministry of Finance, the FCMC, and the Bank of Latvia with formalized mechanisms for information exchange effectively addresses this issue (Lat3; Lat4).

The process of transposition of the European directives into national legislation in Latvia at the later stages, leading to and after becoming a member of the EU, was similar to that in Estonia, although with some caveats. First, the Ministry of Finance, formally responsible for policy making in the domain of financial services, did not have a department dedicated to financial policy making. As a result, policy making in the domain of financial regulation was effectively performed by supervisory institutions: first, by the Bank of Latvia, the Securities Market Commission, and the Insurance Supervision Inspectorate, and later by a single supervisory institution – the FCMC. The Ministry of Finance at the time was largely performing a 'mail-box' function, coordinating communication between international institutions and their respective domestic counterparts (Lat1). Second, although most of the interviewees argue that a significant part of their work is related to the transposition of EU directives and regulations as well as studying best practices in other countries, some suggested that part of the policy change, both prior to and after the global financial crisis of 2008, was a result of policy learning based on domestic experience, in particular in relation to the implementation of liquidity requirements as well as targeted capital requirements aimed at banks serving nonresident customers (Lat2).

Similar to the Estonian case, some interviewees shared their reservations regarding some aspects of financial regulation in Europe in both pre- and post-crisis years. As one of the interviewees argued (Lat3), the instruments of micro-prudential supervision available before the crisis were not sufficient to address the inflow of foreign capital, suggesting that the instruments 'would not have been effective really, because we are part of a single financial market, and thus one could easily circumvent those measures. . . . because in the other countries there isn't a unified position regarding this . . . .' This also suggests that cross-border coordination in supervision of financial institutions was not fully operational, and supervisory agencies in home and host countries often had conflicting incentives. While most of the interviewees viewed the changes introduced in the area of financial supervision, and in particular in regards to macro-prudential supervision, as positive, they had some reservations regarding the changes introduced after the crisis. One interviewee (Lat3) mirrored the concern voiced in Norway that the formalization of cross-border coordination in supervision between home and host countries through regulation would not bring the same results, given that effective collaboration will likely depend on personal networks of individuals working in the respective institutions. Another interviewee (Lat5) suggested that the blind adoption of European directives was not positive for the development of the Latvian financial industry, arguing the following:

> It seems to me that it is not particularly good that we are content with the fact that in conditions where most of the context definition has been transferred to Europe, in areas where we can still solve issues on our own, in the best case we don't deal with these issues at all. Let them do it all … in worst cases we don't use the flexibility offered in these few domains that we have left.

One of the core issues raised by several interviewees is the issue of capacity of the regulatory agency to implement all the requirements included in European regulatory acts. They voiced their concerns regarding the functioning of the Single Supervisory Mechanism, which could potentially drain the FCMC's recourses, as it would require involvement in the evaluation of cases in other countries. Similar to interviewees in Estonia, an interviewee in Latvia raised the issue of burden sharing within the scope of the Bank Resolution and Recovery Directive and its application to Banks operating across borders, where responsibility for the resolution of failed banks lies on the shoulders of the host country. The interviewee also suggested that with increasing involvement in the Single Supervisory Mechanism at the EU level, and given the limited capacity of regulatory agency, fewer resources would be available for regional coordination with supervisors from the Nordic countries, which, arguably, is more important for the stability of the local financial system (Lat2).

The concerns pertaining to the European banking union, the Single Supervisory Mechanism, and the Single Resolution Mechanism are particularly relevant, given that Sweden, while being a major player in the banking sector in the Baltic states, opted out of the European banking union. This introduced additional challenges in supervisory coordination, since the ECB is responsible for the supervision of systemically-important branches of the Swedish banks in the Baltic states, while in their home countries these banks are under domestic supervision (Spendzharova and Emre Bayram 2016). In Latvia, however, Eurozone membership was the primary political objective, trumping all other policy concerns, including financial regulation or cross-border oversight. In part, this was caused by the technocratic mode of financial policy making, in which, until very recently, politicians had limited interest, but also the fact that further European integration has been at the centre of political programs of governing parties, largely perceived as an exit strategy similarly to Estonia (see Raudla and Kattel 2011).

Overall, similarly to the Estonia case, the interviewed public officials in Latvia shared the opinion that largely the EU defines the agenda in financial regulation. While the interviewees mostly viewed the changes introduced with the extensive package of regulations by the EU after the crisis in a positive light, some interviewees shared their concerns regarding the effectiveness of the proposed measures.

Conclusion

By exploring some of the theoretical explanations, associated with different, but interrelated and complementing institutional approaches about the Europeanization process and its effects on civil servants, we gained insights into the positions of bureaucracies that enable us to reflect on the implementation performance, i.e. the effectiveness and embeddedness of the EU regulatory and supervisory principles, at the national level. Here, the narratives of four case study countries – Estonia, Latvia, Sweden, and Norway – reveal both common and contrasting elements in the Europeanization of national officials and their attitudes in the domain of financial regulation and supervision.

When looking at the studied cases, certain patterns and typologies of countries can be delineated: these are summarized in Table 1. Following Kattel, Randma-Liiv, and Kalvet (2011, 78), it is possible to distinguish Nordic welfare states with a strong historical background of corporatist tradition and international/regional policy influence that are opposed to the Baltic states as policy-takers with weak administrative capacity and hollowed-out states (see also Juuse 2016b). Along all dimensions – political interference, regulatory, and administrative capacity, resources, involvement in policy-design, degree of fit, ability to reduce ambiguity of regulations – there have been contrasting developments on the Nordic-Baltic axis that have had different effects on the implementation performance as well as attitudes and perceptions of officials about the EU's impact at the national level. These divergences, in turn, reflect two patterns of governance in the formulation of financial policies – governance by negotiation and governance through hierarchy with a coercive dimension, as discussed above.

Given that effective implementation is dependent on the commitment to the issue at stake, institutional capacity to fulfil international obligations, and indigenous learning (see Sverdrup 2008, 197–208), Sweden has the leading position in meeting these prerequisites. The essential difference from the other studied countries is the proactive stance of the Swedish public officials in policy-design in the international arena. In a way, proactive policy-making can be seen as the Swedish attempt to protect sovereignty, but also to lower institutional adjustment costs. To an extent, the embeddedness of a two-way street of Europeanization process has enabled the local bureaucracy to reduce the ambiguity of regulations. At the same time, dealing with Europeanization pressures has been supported by sufficient resources. Especially after the last global financial crisis, more people have been recruited for dealing with the EU and other affairs and additional functions have been adopted.

The Estonian and Latvian cases, however, are in sharp contrast to Sweden. Overall, public officials have tended to express a feeling of being dictated to from above and having essentially no indigenous policies. Here, it also emerged that in several cases the EU frames have constrained and obstructed 'bottom-up' domestic regulatory efforts for financial stability purposes. Moreover, human resources and capabilities are perceived to be severely limited in both countries for the implementation of EU policies but also to come up with alternative policy solutions. As was claimed, this has implied a large administrative burden and necessitated a lot of adaptation for local officials, especially in the context of fiscal austerity resulting in layoffs of public officials after the global financial crisis. The lack of competency in the implementation of EU financial policies can be explained by the insufficient number of specialists in the field that has implied a need for capacity-building in various policy areas, e.g. macro-prudential aspects, bank recovery, and resolution issues etc. To some extent, such a position of financial bureaucracy in the Baltic states helps to explain the expectation of the civil servants that politicians should have a more active role at the EU level policy-making for voicing and defending national interests.

Norway tends to be an outlier due to a distinct form of affiliation with the EU and overall skepticism of political integration and supranational commitments that have also had implications for the position of the national bureaucracy. Even though Norway could not escape an increasing EU-led harmonization process, stricter regulations are preferred, where

Table 1. Summary of country cases.

Dimension/Country case	Estonia	Sweden	Norway	Latvia
Mode of governance	Hierarchy	Negotiation	Hierarchy with some discretion	Hierarchy
Mechanism of Europeanization	Vertical (downloading)	Vertical (uploading)	Vertical (downloading) with some discretion	Vertical (downloading)
Political interference	Low	High	Moderate	Low
Regulatory and administrative capacity/ resources	Low	High	Medium	Low
Degree of fit of the regulatory framework	Partial (extensiveness of the framework)	Partial (lack of focus on regional stability)	Partial (lack of focus on regional stability)	Partial (extensiveness of the framework)
Ability to reduce ambiguity	Low	High	High	Low

Source: Authors' elaboration.

national discretion is still possible. The perceived sub-optimal effects of the Europeanization process can explain this, while the EU is mostly seen as an opportunity to clarify or specify national rules. In addition, the adoption of the EU principles is perceived to entail a higher administrative burden (e.g. in reporting activities), but the largest concern relates to supervisory convergence that is seen to be too rigid and detailed, so questions have been raised over the effectiveness of supranational supervision in the long-term and the unnecessary burden on existing administrative capacities of national supervisors. Furthermore, as an alternative to formalized structures adopted at the EU level, Norway is active in strengthening informal networks in financial oversight, especially at the regional level.

In light of these contrasting developments in the national bureaucracies, one can interpret the position, roles, perceptions, and attitudes of civil servants according to the typologies that are elaborated in the literature on Europeanization of national administrations (see Mahoney and Thelen 2010). In that respect, Estonia is a poster-child policy-taker, but 'Potemkin' harmonizer – a *symbiont* or *fence-sitter* – who depends on externally imposed rules and institutions, but often has limited capacity to comply with them, leading to a mismatch between reality and rules. Latvia is a milder version of Estonia due to the peculiarities of the local financial market (locally-owned banks serving mostly nonresidents). This has implied that aside from the EU harmonization in Latvia, part of the policy change both prior to the crisis, as well as in the immediate aftermath, was a result of policy learning based on domestic experience. Sweden can be described as a self-conscious and proactive policy 'uploader' – a *forerunner* or *pusher* – that endeavors to preserve a space for developing its political agenda within the established frames of the EU legislation, but whenever possible and required, with stricter standards than the EU ones by adding new layers of rules that eventually lead to institutional change. Norway emerges as an *opportunist* who neither supports nor confronts the international rules, but reveals the preference of officials to adopt the ones deemed most suitable and meeting national peculiarities – practices and legacies.

Despite the differences, one commonality among civil servants in all four countries is the perceived irrelevance and inappropriateness of several facets of the EU regulatory approach for rather idiosyncratic national financial systems. While some officials share the perception of misfit and overregulation, others feel that the regulations have been watered down at the EU level. Particularly in Estonia and Latvia, but also in Norway to some extent, de-contextualization of the EU regulatory framework has occurred in relation to some specific issues. In addition, among our interviewees there is not much faith in the effectiveness of the EU regulatory framework in dealing with or mitigating financial crises. Such a rather skeptical position of national bureaucracies in both Nordic and Baltic countries on the EU's ability to come up with effective financial stability policies, suitable for all member states, reflects the general difficulty in cross-border banking issues, i.e. crisis management and resolution in light of the deeply integrated as well as concentrated inter-regional banking systems in the region. The issue has been aggravated by the heterogeneous political context and the affiliation with the EU institutions (e.g. banking union) that varies among countries (see Montanaro 2016, 282–83). Based on responses from interviewees, the general perception of financial regulators and supervisors leans toward even greater harmonization of both domains – regulation and supervision – in the future. This implies an ever-greater pressure on technical and administrative capacities within member states and arguably a greater emphasis on coordination with Brussels rather than regional partners/initiatives.

That said, there are still both political and institutional challenges at the broader EU level to complete the well-functioning and stable internal single financial market, or even the

Eurozone, where the current setup is still considered to be incomplete and incoherent with inconsistencies between regulatory, fiscal, and monetary frameworks. Pursued financial integration presumes maximum harmonization and stricter centralization in these three aforementioned dimensions (i.e. the creation of a banking union with fiscal union and eventually political union) that is hard to foresee in the EU due to dependence of financial sectors on national conditions and the heterogeneity of EU members in terms of their specific needs and features (see Tonveronachi 2016; Kregel and Tonveronachi 2014). Consistent with the results of the current analysis, uniform treatment with equal rules for all banks and EU countries is likely to fail in the long-term, given national specificities among countries with diverse financial institutions and business models of banks, varying compositions of national economies, and legal-institutional systems (see Tonveronachi 2016). Likewise, as attested by the interviewees, the crisis of 2008 brought out the shortcomings in designing a regulatory framework based on industry standards taken from developed countries for large global banks, but applied to all financial institutions across countries. Accounting for differences in national institutional structures, some scholars (Kregel and Tonveronachi 2014; Tonveronachi 2016) see a need for a focus on economic and social wellbeing as well as stability with a functional perspective in a regulatory approach that targets specific functions instead of institutions and thereby undermines the creation of excess liquidity with innovative instruments in the financial system. Overall, the coordination of fiscal, monetary, and financial regulatory policies with the substitution of regulatory rigidity and complexity for flexible macroprudential regulation on a case-by-case basis is called for. Only the next crisis can reveal the fundamental fallacies of the established banking union with a maximum harmonization approach that presumes homogeneity at the EU level.

Notes

1. See Börzel (2002), Kassim (2003), Knill (2001), Trondal (2000), Lægreid, Steinthorsson, and Thorhallsson (2004), Egeberg (1999), and Steen and Schaap (2004) on the Europeanization of national administrations and public officials.
2. Transposition is ‘the way in which EU legislation is incorporated into national law, whereas implementation looks at the application of EU law at national level’ (Montoya and Schrefler 2009, 72).
3. There are various typologies of impacts or outcomes of Europeanization that reflect the degree and substance of changes such as inertia, absorption, transformation, etc. at the national level (see Radaelli and Pasquier 2008; Börzel and Risse 2003; Bulmer 2008; Schmidt 2002; Heritier 2005; Caporaso 2008).
4. These can include the scope and type of market interventions, the role of central banks and other government institutions and the involvement of various stakeholders in policy design as well as implementation that varies among nation states (Lynggaard 2013).
5. See Börzel (2002); Bulmer (2008); Dyson (2008); Jordan (2003); Lodge (2002); Randma-Liiv (2002); Jacobsson, Lægreid, and Pedersen (2004) on these opposing functional approaches.
6. The third pattern of governance elaborated by Bulmer and Radaelli (2004) – facilitated coordination – is irrelevant in the context of the current article, as it addresses policy areas, where the EU arena is of secondary importance, while the national governments are the main players.
7. Often, EU regulatory policies also define procedural aspects as well as organizational structures (Knill and Lenschow 2005, 586) such as in relation to the registration and processing of prospectuses at the supervisory authority. In the Estonian case, no specialists have been hired to deal with prospectuses and these are dealt with by an accountant and a lawyer at the FSA (Est4), which reveals the adaptation of a job position to a person’s profile rather than the other way around (Randma-Liiv 2002, 380).

8. In addition, general trends toward supervisory consolidation based on the home-country principle and the centralization of banks' business functions have made the supervision of subsidiaries by host country authorities more difficult (Juuse 2016a).
9. These are the Ministry of Finance, Central Bank, Financial Supervision Authority, and National Debt Office.
10. 'Memorandum of understanding between the Finnish, Norwegian and Swedish Ministries of Finance and the Danish Ministry of Business on cooperation regarding significant branches of cross-border banking groups,' 9 December 2016. https://www.regjeringen.no/contentassets/1d66c88174d44d78a87ba618eca17d52/mou.pdf.
11. There has been the accommodation of the EEA agreement to the EU's financial supervisory system: the Norwegian FSA has been made a member of the EU's three supervisory authorities (without voting rights) and now participates in all work of a non-binding nature (Finanstilsynet 2016, 40).
12. 'Response to the European Commission's Consultation on the Review of the EU Macro-Prudential Policy Framework,' European Commssion DG Financial Stability; Financial Services and Capital Markets Union, 24 October 2016. https://www.regjeringen.no/contentassets/9e6be89d2410407d8d4bee061a1c1c9f/letter_spor.pdf.

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Notes on contributors

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Olga Mikheeva BA MA (Tallinn University of Technology) is a junior research fellow at Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology. She takes part in the research projects 'Innovation and the state: How should government finance and implement innovation policy' financed by the Institute of New Economic Thinking (INET) and 'Institutions and Economic Development in East Asia and Central and Eastern Europe'. In addition, Olga acted as the coordinator for the research project 'Understanding policy change: Financial and fiscal bureaucracy in the Baltic Sea Region' (EEA grants Norway). Her main research interests include economic development and governance of innovation policies in regards to the developing countries with a special focus on East Asian states as well as Asian regionalism.

ORCID

Aleksandrs Cepilovs http://orcid.org/0000-0003-0436-0583

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Estonia:
Est1: Official of the Financial Supervisory Authorities (FSA), 8 October 2014
Est2: Official of the Eesti Pank, 9 October 2014

Est3: Official of the Ministry of Finance, 30 September 2014
Est4: Official of FSA, 6 October 2014
Est5: Official of Ministry of Finance, 16 October 2014
Est6: Official of Ministry of Finance, 22 September 2014
Est7: Official of Ministry of Finance, 25 September 2014
Latvia:
Lat1: Official of Ministry of Finance, 17 September 2014
Lat2: Official of Financial and Capital Market Commission (FCMC), 18 September 2014
Lat3: Official of Latvijas Banka, 19 August 2014
Lat4: Official of Latvijas Banka, 19 August 2014
Lat5: Former official of FCMC, 14 November 2014
Sweden:
Swe1: Official of Sveriges Riksbank, 4 November 2015
Swe2: Official of Sveriges Riksbank, 4 November 2015
Swe3: Official of Sveriges Riksbank, 4 November 2015
Swe4: Official of FSA, 11 December 2015
Swe5: Official of FSA, 10 December 2015
Norway:
Nor1: Official of FSA, 4 May 2016
Nor2: Official of Norges Bank, 4 May 2016
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Publication IV

IV **Mikheeva, O.** & Juuse, E. 2020. 'Development Finance in the Baltic States and the Process of Europeanisation.' In M. Thiemann, D. Mertens and P. Volberding (eds.) *The Reinvention of Development Banking in the EU*. Oxford University Press, *forthcoming*.

Development Finance in the Baltic States and the process of Europeanisation[1]

Olga Mikheeva and Egert Juuse

1. Introduction

After the fall of the Berlin Wall, many countries of the former socialist bloc had development banks established in early 1990s and in some cases, they resumed their operations from pre-WWII times, as was the case in Poland (Piroska and Merö, this volume). The Baltic countries, however, differed from other Central and Eastern European (CEE) countries with a clear U-turn from any notion of industrial policy, including industrial financing. *Gradual* transition towards a capitalist financial system as elsewhere did not seem to be an option for political reasons. As the economist Hyman Minsky (1991, 1) noted: '[…] there [was] a great deal of public impatience. It is understandable that there [was] little tolerance for delayed real results in societies in which so much has been sacrificed for so long to no veil.' In all three countries there was an immediate and sharp focus on European integration – the very choice of becoming part of political Europe has never been questioned or faced any opposition from business and political elites (Furman 2002), implying a significant EU influence on these economies (Bauer et al. 2007, see also Suurna and Kattel 2010).

Within the context of rapid European integration, the old industrial structures were not upgraded but were rapidly replaced with foreign-owned factories operating within Western European value-chains and where productivity remains the lowest in the EU (Reinert 2006; Reinert and Kattel 2014; Kattel and Reinert 2018). At the same time, the financial structures needed for economic development based on foreign direct investments (FDI) consisted of increasingly foreign-owned financial institutions and very small capital markets. In particular, Estonia's development path is one of the starkest instances of applying a liberal market economy model. However, some properties such as nearly full foreign ownership of the banking industry and a heavy reliance on foreign public and private financing of capital development make not only

[1] Forthcoming in Matthias Thiemann, Daniel Mertens and Peter Volberding (eds.). (2020). *The Reinvention of Development Banking in the EU.* Oxford University Press.

Estonia, but also Latvia, quite extreme cases. This is important in the context of our analysis that looks at the national development finance institutions[2] (DFIs) and the challenges in development financing, stemming from the countries' historical background, policy choices and patterns of European integration.

In particular, we place the analysis of the creation of DFIs in the Baltics into a broader policy landscape on national and supranational levels since DFIs never function in isolation but are integral to economic policies. Hence, for understanding the role of DFIs in the peculiar economic and financial context of the Baltic States, we adhere to Nurkse's ([1953] 2009, 120) notion of "circular constellation of forces" for presenting a broader picture. In other words, the analysis focuses not only on institutional, but also on economic and political interrelationships that operate through feedback mechanisms. And, given that newly created DFIs have been the result of EU-led external policies, we are interested in the process of "Europeanisation"[3] in relation to development financing. As noted by Suurna and Kattel (2010), EU funding could be considered as the main vehicle for Brussels to exercise strong influence over national innovation and economic policy decisions. In the financial policy domain, the process of Europeanisation in CEE countries has been previously studied but through the lenses of financial integration (Juuse 2016a; Juuse 2016b; Quaglia 2007), banking regulation and supervision (Juuse 2015; Kattel 2010; Juuse et al. 2019), and European Monetary Union (EMU) and monetary policy (Dyson 2000).

Our comparative study focuses on three Baltic countries – Estonia, Latvia and Lithuania – where Estonia serves as the primary case of analysis while Latvia and

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[2] There is a re-emerging interest towards strategic roles that national development banks can play, both from the academic community (Mazzucato and Penna 2016; Griffith-Jones and Ocampo 2018) as well as policy makers (European Commission 2017). Within the EU, it has been acknowledged that innovation-led development policies should have an innovation-oriented financing component because various types of finance (e.g. internal vs. external; short- vs. longer-term) result in various types of investments made. In the context of this article, 'development bank' seems to be a less appropriate term to use due to the nature of these financial institutions operating in the three Baltic states, which are in most cases oriented towards provision of guarantees and/or soft loans rather than development-oriented investment activities. Therefore, the term Development Finance Institution seems to be more appropriate and will be used instead.

[3] Following Börzel and Risse (2000, 2-4), the term Europeanisation is used to describe the domestic change resulting from the interplay of EU and national policies, institutions and policy-making processes, where the design and implementation of general policy approaches and policy measures are dependent on the administrative structures and patterns of interest intermediation. Here, either a 'top-down' and a 'bottom-up' dimension in the concept of Europeanisation can be distinguished.

Lithuania as ‘shadow’ or supporting cases. The three republics represent a homogeneous sample in terms of key characteristics: economic structures, socio-political history, over-dependency on EU external funding, monetary regimes, and a continuous prevalence of neoliberal political discourses. The time frame for our study spans the period of roughly ten years, 2007 – 2018, i.e. since the time of the first programming period (2007-2013), which involved the first significant injection of structural funds, until most recent data are available. When structuring the case studies, we were guided by the three main aspects of financing of development in the Baltic region:

- The transition of post-Soviet industrial structures towards integration into foreign-controlled value chains and respective financing patterns with the supportive contextual factors of transformation;
- The importance of EU structural funds in national budgets and public investments;
- The role of Development Finance Institutions, their capacities in implementing respective policy mandates, and the types of policy instruments. Among all DFIs existing in each country we focus on those, which provide support to businesses through various financial instruments; namely, KredEx in Estonia, ALTUM in Latvia and INVEGA in Lithuania.

In terms of data collection, we relied on previously conducted studies in the case of Estonia, largely because the Estonian financial system was extensively analysed as part of the FESSUD project[4]. In addition, inputs from academia, industry representatives and policy-makers were gained through four focus group interviews conducted in late-2018. We relied on descriptive statistics and (scarce) secondary sources in order to show fundamental similarities in structural dynamics in the three small Baltic economies. In addition, a total of six interviews were conducted in the three countries with top managers of selected DFIs and supervising ministries (Ministries of Economy and Ministries of Finance) during May-July 2019. Interviews were essential to gain a more nuanced understanding of how DFIs were conceived or recently restructured, how they coordinate their work with supervising ministries and to what extent they have operational discretion (e.g. designing financial instruments,

[4] Financialisation, Economy, Society and Sustainable Development (FESSUD), http://fessud.eu, last accessed 19 November 2019.

defining terms of financing, helping identify priority sectors and financing needs, etc.) By doing so, we aim to emphasize differences in design that nevertheless largely remain differences in degree and, thus, support our overall hypothesis: In close coordination with the EU, DFIs in the Baltics perform managerial roles within a supranational state-aid framework by acting as efficient managers of state-aid programmes rather than development-oriented investment bankers.

The structure of the paper is as follows: (1) first, we briefly introduce the context of transition economies of the three Baltic countries, including an overview of economic structures, main economic policy trajectories and governance mechanisms in terms of implementing an EU-led policy agenda; (2) subsequently we elaborate on the financing of development and the case of national DFIs in Estonia; (3) next, two supporting cases of DFIs in Latvia and Lithuania are presented, largely building on interview materials; (4) we then provide a comparative summary with the focus on the process of Europeanisation and its effects on capacities of DFIs; and (5) we conclude by outlining limitations of the study and provide suggestions for future research.

2. Eastern enlargement and the three Baltic Republics

The three Baltic republics (Estonia, Latvia and Lithuania) have been characterised by a strictly neoliberal policy agenda since the 1990s (Bohle and Greskovits 2012), which has been reinforced by very rapid integration into the EU common market (for a comparison with a more gradual integration of Spain and Greece see Reinert and Kattel 2007). This can also be observed from similar policy responses to the Global Recession after 2007-2008 in the three countries: austerity policies resulted in low government deficits combined with sharp contractions of GDP and high unemployment rates. Estonia differed in substantially lower government indebtedness and entered into the Euro Zone in 2011, that is, in the middle of the recession. Table 1 lists selected economic and policy indicators.

Table 1. Economic and policy indicators in Estonia, Latvia and Lithuania (2007-2018)

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Real GDP growth (%)												
Estonia	7,7	-5,4	-14,7	2,3	7,6	4,3	1,9	2,9	1,9	3,5	4,9	3,9
Latvia	10	-3,5	-14,4	-3,9	6,4	4	2,4	1,9	3	2,1	4,6	4,8

Lithuania	11,1	2,6	-14,8	1,6	6	3,8	3,5	3,5	2	2,4	4,1	3,5
Unemployment rate (% of active population, annual average)												
Estonia	4,6	5,5	13,5	16,7	12,3	10,0	8,6	7,4	6,2	6,8	5,8	5,4
Latvia	6,1	7,7	17,5	19,5	16,2	15,0	11,9	10,8	9,9	9,6	8,7	7,4
Lithuania	4,3	5,8	13,8	17,8	15,4	13,4	11,8	10,7	9,1	7,9	7,1	6,2
General government deficit (% of GDP)												
Estonia	-	-2,7	-2,2	0,2	1,2	-0,3	-0,2	0,7	0,1	-0,3	-0,4	-0,6
Latvia	-0,5	-4,2	-9,5	-8,6	-4,3	-1,2	-1,2	-1,4	-1,4	0,1	-0,6	-1
Lithuania	-0,8	-3,1	-9,1	-6,9	-8,9	-3,1	-2,6	-0,6	-0,3	0,2	0,5	0,7
General government gross consolidated debt (% of GDP)												
Estonia	3,7	4,5	7,0	6,6	6,1	9,7	10,2	10,5	9,9	9,2	9,2	8,4
Latvia	8,0	18,2	36,3	47,3	43,1	41,6	39,4	40,9	36,8	40,3	40,0	35,9
Lithuania	15,9	14,6	28,0	36,2	37,2	39,8	38,8	40,5	42,6	40,0	39,4	34,2
FDI inward stock (% of GDP)												
Estonia	70,5	63,9	80,6	79,7	70,6	82,2	87,8	80,0	84,0	84,6	92,2	82,5
Latvia	35,6	31,8	44,4	46,0	42,5	48,1	52,7	48,1	54,7	51,4	57,5	49,7
Lithuania	37,1	26,7	35,4	36,1	32,8	37,2	37,8	31,9	35,4	34,2	37,4	33,3
Balance of FDI flows (inward minus outward; % of GDP)												
Estonia	2,8	2,8	2,4	6,9	10,6	2,2	1,0	2,4	-0,7	2,4	3,7	4,5
Latvia	6,3	2,9	0,6	1,5	4,9	3,3	1,6	1,3	2,4	0,1	1,9	2,1
Lithuania	3,5	3,4	-0,6	2,2	3,2	0,7	0,6	0,0	1,9	0,4	1,3	0,1
Foreign ownership of the banking sector (% of total assets)												
Estonia	-	98,9	98,9	98,5	94,2	96,4	95,7	95,1	94,2	93,4	74,1	72,7
Latvia	-	65,9	66,7	65,9	62,3	61,3	59,0	52,5	47,4	49,7	51,6	67,1
Lithuania	83,1	85,1	82,8	78,4	90,0	94,4	91,5	92,0	91,8	91,9	91,6	91,1

Source: authors' calculations based on Eurostat, OECD, UNCTAD and ECB statistics

While higher rates of Foreign Direct Investments (FDI) have been present in Estonia and Latvia, considering the net balance of FDI flows, all three countries represent small open economies. FDI has been particularly strong in the financial sector (banking) and all three countries demonstrate high share of foreign ownership. The Baltic republics also share similar structural characteristics: knowledge intensity has been growing as more complex economic structures developed but this has not always translated into similar dynamics in productivity. Karo et al. (2015) point out the close proximity of Estonia to Scandinavian production networks and markets as one of the reasons why it outperforms Latvia and Lithuania. Nevertheless, productivity has been stagnating: despite an increasing trend in the industrial value added, production of new knowledge (can be measured in charges for IP) has been stagnating, especially in the last decade[5]. Such dynamics largely reveal an asymmetrical integration of the Baltics into the EU[6] (also see Reinert and Kattel 2014).

2.1 Cohesion Policy funds

Accession to the EU implied an inflow of EU financial assistance, following the Cohesion Policy priorities in terms of convergence of productivity and economic activities across the EU. National governments in the CEE region got acquainted with the Cohesion Policy funds during pre-access negotiations in early 2000s through the PHARE, ISPA (Instrument for Structural Policies for Pre-Accession, infrastructure and environment) and SAPARD (agricultural and rural development) programmes. Creating financial management capacities in national governments was one of the explicit priorities of pre-accession financial support, which would increase exponentially after the accession in 2004. Table 2 illustrates the amount of structural funds as a share of average expenditures for development in Central and Eastern European (CEE) countries during 2000-2006.

Table 2. Relevance of Cohesion Policy on National Expenditure for Development in selected CEE countries (annual average 2000-2006).

Country	Structural and Cohesion Funds as % of expenditure for development
Latvia	**81,8**
Lithuania	**80,9**
Slovakia	58,9
Estonia	**55,3**
Poland	50,3
Hungary	29,7
Slovenia	21,7
Czech Republic	13,5

Source: Ferry and McMaster (2013)

Note: Estimate calculated based on total allocation and in relation to the period 2004–2006 for new member countries and EU25. ESF is not included in coherence with EfD calculation.

[5] See, for example, World Bank's World Development Indicators Database.

[6] Asymmetrical integration refers to the main characteristic of the Eastern Enlargement whereby a block of CEE countries with lower levels of development were included to the common market and many of them - subsequently into the common currency union. This is in contrast with more symmetrical integration of South European countries into the EU before the Eastern Enlargement. Asymmetrical integration resulted in significant structural imbalances within the common market, which have persisted ever since. (Reinert and Kattel 2014)

In all three republics the EU support forms more than 10% of their state budget revenues and the lion share of all public investments made (Varblane 2016, 121). Although immediate post-crisis figures should be treated with care (due to considerable decline in budgetary revenues and spending), during 2010-2012 the share of EU funds was 79% of Lithuanian, 70% of Estonian and 61% of all Latvian public sector investments (European Commission 2013). Indeed, as one of the interviewees commented, most investments in Latvia are being financed from structural funds. Table 3 presents the amount of structural and cohesion policy support in comparison to investments by the government sector during the first programming period: in all cases the share has been steadily growing and in 2013 reached 50%, 68% and 78% for Estonia, Latvia and Lithuania, respectively. Given almost the same allocations for the ongoing programming period (2014-2020[7]) in nominal terms to all three countries, we may conclude that structural funds continue forming the major share in government investments in the Baltics.

Table 3. Structural and Cohesion Policy funds as a share of investments by the government sector in Estonia, Latvia, Lithuania (2007-2013)

	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Estimated structural and cohesion funds interventions (mln EUR)*							
Estonia	356	380	405	433	463	494	527
Latvia	480	513	549	584	619	655	691
Lithuania	725	772	820	868	918	971	1023
Gross fixed capital formation - government sector (mln EUR)							
Estonia	977	1025	882	713	819	1134	1055
Latvia	1340	1256	913	841	1009	1072	1012
Lithuania	1572	1759	1189	1391	1479	1326	1309
Structural and cohesion funds as a share of gross fixed capital formation by the government sector							
Estonia	36,5%	37,1%	45,9%	60,8%	56,5%	43,6%	50,0%
Latvia	35,8%	40,8%	60,1%	69,5%	61,4%	61,1%	68,3%
Lithuania	46,1%	43,9%	69,0%	62,4%	62,1%	73,2%	78,1%

*Source: authors' calculations based on AMECO database; *Veld 2007 based on DG REGIO*

[7] https://cohesiondata.ec.europa.eu/dataset/Available-Budget-per-MS-2014-2020_chart/7rq3-5nxf Last accessed 19 November 2019

Such dependency on external financing and its conditionality, which comes as a set of policy priorities (e.g. 'Smart Specialisation'), has several implications for nation states and the governance of development financing. First, a significant inflow of funds has implied a strain on domestic administrative capacities. Even the bigger countries of the CEE region, such as Poland, faced significant challenges in terms of management and implementation of funded programmes, exacerbated by existing weaknesses and fragmentation in domestic innovation systems and related public agencies (Breznitz and Ornston 2017). Second, the co-financing requirement has affected Member States (MS) differently. The burden of substantial increase in the national contribution particularly affected the newer member states where both, the nominal amount of cohesion funds and respective national contributions, have been higher than elsewhere (Ferry and McMaster 2013).

At the same time, as one of the interviewees has noted, co-financing can come from the private sources and not necessarily from the public sector, but smaller countries tend to have greater difficulties in finding matching resources in the private sector. Third, dependency on and conditionality of EU funds have produced an institutional environment where 'absorptive capacity' and financial prudence have been prioritised. For example, respective Ministries of Finance report on the rate of absorption of EU structural funds by different ministries to the EC on a monthly basis (Varblane 2016). Likewise, an explicit emphasis on spending ('we have to spend it all and quickly') associated with 'absorption capacity' incentivises adherence to more short-term policy horizons while also strengthening managerial competences. The latter were needed following the creation of regional and local agencies – 'agencification' – to administer EU funds as one of the EU conditionalities (arguments in favor of agencification included decentralisation and accountability, professionalisation of agencies and their (more) active engagement with the clients and real-life circumstances) (Suurna and Kattel 2010).

In the following sections, we will show how such a context de-incentivises and hinders the development of a more strategic and long-term take on public investments and on using DFIs as policy tools. We shed a light on the establishment of agencies as government-backed Venture Capital Funds in line with the overall innovation/industrial policy discourse that rested on a high-technology bias (industrial parks, incubators) and short-term plans, resulting in a decontextualised formulation of innovation/industrial policies in almost all CEE countries. By 'decontextualisation' we refer to the mismatch between policy objectives and actual socio-economic and technological structural problems[8]. And here, the EU's impact cannot be overestimated, in particular on innovation/industrial policies in CEE countries. In the Baltics, innovation policy formulation is an extreme example of policy import: the policy mix has strongly reflected the priorities of and objectives defined in the EU programmes for R&D and innovation (see for example INNO-Policy TrendCharts; Suurna and Kattel 2010, 653) Under such conditions, there is little space left for DFIs in terms of developing capacities and competences as strategic investors or active financing agents of development.

3. The case of Estonia

3.1 Institutional landscape, policies and economic structures

After re-gaining independence in 1991, Estonia has not practiced extensive intervention in the economy beyond fiscal reforms for the purpose of macroeconomic stability. Already in the early years of independence in the 1990s, there was a clear tendency towards a 'regulatory state' model in socio-economic reforms, as public institutions were not supposed to intervene in the economy other than regulate (see Bohle and Greskovits 2012). As one of the key reformers at that time, Siim Kallas, who was in charge of the central bank then, has argued, such choice was a conscious one, as there was low trust in government's ability to get interventions right (Kallas 2003, 511). At the same time, the political rhetoric since the early years has reinstated the need to fill the savings gap with foreign capital because development has been conceived as savings-constrained (Juuse 2015). In Estonia, FDI was seen as a supplement to internal resources for financing the growth and restructuring of the economy (Juuse 2016d; Bank of Estonia 1995).

[8] There is an extensive literature based on empirical studies on how EU-led innovation policy priorities were not aligned to the actual structural problems of former Socialist economies: emphasis on commercialisation, R&D funding and clustering / networking was at odds with prevalent absence of university-industry linkages, lack of collective action and dismantled Soviet R&D system. (see, for example, Radosevic 1998, 1999, 2004)

Subject to this mainstream economics approach, Estonia has sympathised with monetarist principles by relying on market-based self-adjustment mechanisms (Juuse 2015). For instance, the Central Bank of Estonia imposed upon itself a lender-of-last-resort constraint, implying an inability to provide reserves without limits, when needed. In this regard, the risks associated with the speculative financing or Schumpeterian financing of innovative activities have not been socialised (see Minsky [1986] 2008, 48-49). Under the currency board system, the central bank was deprived of the right to credit commercial banks or governments with either advances or purchases of government securities, respectively (see Godley and Lavoie 2012, 214 on the currency board system in general). Cooperation between the central bank and other financial institutions regarding the provision of industrial finance was never on the agenda in order to overcome long-term financing bottlenecks, typical for a transition economy (see Singleton 2011, 139; Juuse 2016b). Essentially, such a conservative monetary regime entailed a commitment to fiscal prudence (Hansson 1994 cited in Feldmann 2013, 361), implying a meager government role for providing economic security to private entities. In that respect, countercyclical demand management and active industrial policies as the inherent elements of Keynesianism (see Soskice 2007; Davies and Green 2010) have been eschewed in Estonia and replaced by the emphasis on the improvement of supply-side conditions such as labor market and business environment.

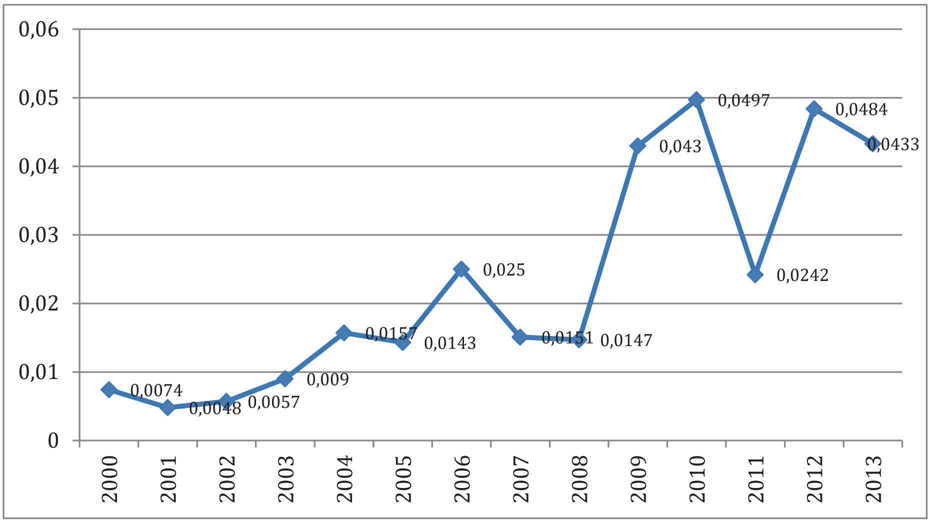
In principle, the stabilisation of aggregate demand has been to a great extent outsourced to external actors, i.e. the EU funding in the form of transfer payments for capital formation, and the provision of liquidity from foreign public institutions (Scandinavian central banks) to support the banking reserves (Juuse 2016d), since domestic banking structures have been largely foreign-owned. Such liberalism and exposure to external factors have been accompanied by the Europeanisation process, i.e. the transposition of the EU legislation as the major force affecting and directing developments in regulation and policy-making. However, the anchoring to EU directives and policies has detached local financial market regulations from real-life business practices (Juuse 2016a). The same could be seen in the EU-funded policy measures for economic and industrial development that have been detached from business needs and real economic problems.

By and large, peculiarities of the Estonian economy are related to the dual structure of the productive economy whereby medium-sized and large businesses – as a rule, foreign-owned who have access to foreign credit and know-how – are able to undertake innovation activities and thereby affect prices with their market power. These entities tend to have heightened (export) sales as well as profit expectations, while the financing of growth is undertaken with external (foreign) funds, which partially explains the disembeddedness of Multinational Enterprises (MNEs) from the local productive conditions (Juuse 2015; Juuse 2016d; Kilicaslan and Taymaz 2006). Likewise, the reality of FDI-led growth with a modular production profile has resulted in a number of MNEs having essentially no contacts with locally created, but EU-funded, R&D competence centers. This, in turn, created another dual structure: local high-tech small enclaves with no linkages to MNEs operating in the region (Radosevic and Reid 2006; Karo and Kattel 2015). Locally owned micro- and small enterprises, on the other hand, which predominantly operate in the services sector, target the volatile local market and rely on internal funds and when possible, loans from domestic banks (Juuse 2016d; Kaarna et al. 2012, 15-16). Thus, one can observe power imbalances in both market concentration, i.e. oligopolistic market features, and the increasing control of foreign owners over some of the industries, such as banking and electronics.

3.2 The importance of structural funds

As stated above, state budget revenues and public investments for capital development purposes (in particular entrepreneurship, R&D and innovation) have been largely comprised of EU structural funds. For instance, the share of EU structural funds in public investments was 70% in Estonia in 2010-2012 (European Commission 2013, see also Figure 1 and Tables 2 and 3). Respectively, strategic plans for EU structural funding have become more important tools for providing substantive innovation policy priorities than national innovation policy and budgetary strategies (Karo 2011, 522). In that respect, one can observe a form of external anchoring and embeddedness in institutional structures that increase the country's vulnerability to external developments. Even though the EU-funded socialisation of investment has kept up aggregate demand and employment, such a fiscal framework presents hazards to tranquil progress and leads to further dependence on foreign financial assistance. This is especially apparent when most government expenditures have been consumption supporting transfer payments, which are not self-sustaining (Juuse 2016c).

Figure 1. The net contribution (excluding national co-financing) from the EU budget as a percentage of Estonia's GDP (2000-2013)



Source: replicated from Varblane (2016)
Note: data for 2008-2010 should be treated with caution due to sharp contraction in GDP (down 19% in 2010 before went to 95% of pre-crisis level in 2011-2012).

Already in the 1990s there were public support schemes that targeted small and medium-sized enterprises (SME) and were funded by external actors, such as the EBRD, while during the pre-accession period, Estonia used the PHARE fund of the EU to finance entrepreneurship and employment growth (Kinks 2000; OECD 2000). Since the accession to the EU in 2004, several development programs have targeted new technologies in prioritised key areas as well as encouraging innovation in companies. In order to improve the competitiveness of businesses in the international arena, due to insufficient private investments in R&D, innovation, product development and export marketing (see Kalvet 2006; Reid 2011), several EU-funded public financing schemes have been established and mainly operated by *Enterprise Estonia* and *KredEx,* since the early 2000s. The priority in allocating public grants and loans has been given to growing enterprises in prioritised technology fields, which have the potential to produce products with higher value-added and export potential, and thus pay higher than average salaries (Traks 2012). Hence, in a catching-up process, access to EU financing (structural funds) has become an alternative source of financing for SMEs in different economic sectors (see e.g. Madureira et al. 2007, 36-37).

3.3 Financing patterns

By and large, the preferred source of financing of Estonian enterprises has been internal equity capital, while bank loans or funds from intra-group foreign parent companies have been used in case of dire necessity or when internal resources are insufficient (Kõomägi and Sander 2006; Sander and Kõomägi 2007; Raudsepp et al. 2003, 61-67). Here, the nature of privatisation of state-owned business, which in essence dismantled large production complexes in manufacturing and agriculture sectors (see Purju 2000), had a significant impact on bank-industry relations. As the privatisation policy targeted strategic (foreign) investors, the result was a high concentration of ownership with the control over financial decisions (OECD 2000), which explains why businesses have been reluctant to being influenced by external actors, such as foreign banks (Juuse 2015). Moreover, the tax reform of 2000 incentivised the accumulation of retained earnings[9].

At the same time, foreign takeovers led to the centralisation and concentration of the banking market, which drifted the banking practices away from the locally embedded *relationship-oriented banking* (see Levy Economics Institute 2012, 19-20). This was manifested in the shift of banks' focus from local businesses to FDI-led companies – the result of the internationalisation of production, which explains the *follow-the-client* approach taken by foreign banks – and to households in the 2000s (Juuse 2016c). At the same time, the restructuring of the economy, which has entailed the emergence of small businesses, delinking processes, decreased capitalisation, and primitivisation of the productive base, has suppressed the demand for bank or market-based financing (Raudsepp et al. 2003; Karo et al. 2018; Sander and Kõomägi 2007). Recently, the main obstacle for local businesses in accessing bank loans has been insufficient collateral or guarantees, as foreign-owned banks operating in Estonia

[9] For instance, accumulated retained earnings of the non-financial corporate sector increased from 7% of GDP in 2000 to 113.5% of GDP in 2009 (authors' calculations based on Statistics Estonia 2018).

have taken a uniform stance in their credit policy at the regional level (Bank of Estonia 2019, 12). Overall, in light of the heavy reliance on foreign savings in both, financial and nonfinancial sectors, the links between the Estonian financial sector and the productive part of the economy were gradually and substantially weakened.

The financing structure of Estonian businesses in terms of reliance on internal funds and occasional use of government support is predicated by some stylised characteristics of companies. Namely, a profile of an average Estonian business unit is a non-listed, owner-managed SME, which is active in low-technology sectors (Juuse 2015; Juuse 2016d; Polt 2007). It is precisely low and medium-low technology sectors, where business expenditures on R&D account for 90.62% of total manufacturing business expenditures on R&D, and where the vast majority of firms (89.10% in 2011) report to have received government support in the form of loans, grants or procurement contracts to undertake R&D activities (OECD 2013).

3.4 Development Finance Institutions

The Estonian Development Fund (EDF), which is sometimes listed as a DFI, never played a role of a financial institution with the exception of its managerial role in a state-owned fund of funds 'SmartCap'. EDF was established in 2006 and operated under the supervision of the Estonian Parliament until its reorganisation and liquidation in 2017. During 10 years of its operations, it played a substantial role in the development of the Smart Specialisation strategy for Estonia and acted as a national foresight think-tank as well as a Venture Capital (VC) fund (seed and start-up phases), thereby facilitating the development of a national VC industry and related ecosystem. The case of EDF is an illustrative example of a high-tech bias – by channeling EU support to targeted high-tech sectors, EDF was holding a portfolio of 15 high-tech companies (own investment around 7 mln EUR) by 2011 and had produced a number of foresight exercises in selected industries (EDF 2011).

After the liquidation of EDF, its investment activities were transferred to KredEx that has been envisioned to function as a national development bank with the mission to deal with market failures in the financial services' market on a reactive basis[10] without taking excessive risks (Majandus- ja kommunikatsiooniministeerium 2017; KredEx 2012). Established in the form of a foundation in 2001, KredEx provides access to capital (for SMEs primarily) through various market-correcting and supplementing financial instruments such as loan guarantees primarily, but also industry loans, start-up loans, export loans, and credit insurance solutions. In essence, KredEx has become a link between Estonian financial institutions and borrowers (KredEx 2019a) and in principle, it has been functioning as a bridge-financing provider or arm's extension of commercial banks.

Since 2001, KredEx has guaranteed bank loans, bank guarantees and leasing transactions for 3735 companies in the total amount of 1.4 billion EUR that has made possible for enterprises to raise additional funding from banks (KredEx 2019b). In addition, KredEx has continued to act as a venture capital investor, mainly through funds of funds such as SmartCap, the Baltic Innovation Fund I (and II), and the EstFund, whose capital has been used by subsidiary funds for investments in the Baltic region and beyond. At the same time, there has been a shift towards more passive state interventions in the investment activities: e.g. SmartCap, a subsidiary of KredEx, does not invest directly in enterprises since 2017 but instead invests in accelerator funds managed by private companies (KredEx 2018). Cooperation with EIF resulted in EstFund (est. 2016), a dedicated initiative to provide equity investments to high growth SMEs and financed under EU structural funds. The initiative was believed to catalyse further development of early-stage equity investments in Estonia.

In the case of KredEx, shifting the emphasis on the second-tier development banking, i.e. allocating public funds to financial institutions to make credit and investment decisions, implies higher risks of bypassing projects with higher social returns and making lending programmes (e.g. via the creation of funds of funds) ineffective (see

[10] For instance, this is reflected in the recent decision of the Ministry of Economic Affairs and Communications in cooperation with the Ministry of Finance to design a policy instrument – industrial loan guarantee for businesses – that would solve the problem of lacking collateral by SMEs for getting a bank loan in rural areas (see Sutt 2019).

Fernández-Arias et al. 2014, 197). In this case, it is also hard to identify market gaps[11] or gain knowledge on systemic failures to be able to propose or formulate any policy solutions, instead of mere implementation, due to the lack of contact with productive firms (*ibid*, 199-200).

The same supply-based approach is reflected in its activities in the start-up field, where the focus is on building a strong ecosystem and designing friendly regulations. At the same time, corresponding to the above-mentioned shift of credit policy of commercial banks, the large component of the KredEx portfolio consists of various instruments and support measures such as grants directed towards the housing sector. As of 2018, eight different grant and loan instruments were on offer for the purposes of increasing energy efficiency, rejuvenating the housing stock or real estate purchases (KredEx 2019b). In its activities, KredEx uses both internal and external funds, including EU structural funds, but raises capital from other external sources, such as the European Investment Fund and the Council of Europe Development Bank (*ibid*).

Aside from KredEx, one can bring out the foundation Enterprise Estonia that offers various grants and public services to businesses, but both institutions have been established in response to EU integration with clearly defined equity and state-aid rules as well as limitations on (investment) activities for the purpose of absorbing EU structural funds. Likewise, both institutions have been closely associated with and supervised by the Ministry of Economic Affairs and Communication, as most of the policy instruments are designed by the latter in cooperation with KredEx and Enterprise Estonia. In that regard, neither Enterprise Estonia nor KredEx possess strategic policy autonomy, as they do not decide on activities, policy instruments, outputs, or outcomes and effects. The agencies are primarily policy implementers and hence, the goal has been efficiency in delivery, de-politisation, and responsiveness (Tavits and Annus 2006). Even though there are bi-directional consultations between the ministries and KredEx (or Enterprise Estonia) on designing and implementing policy instruments, any discretionary actions or leeway for adjustments are hampered

[11] It is not uncommon that *ex ante* and impact analyses are outsourced to private sector contractors – consultancies – who bring the knowledge on existing market failures and potential solutions.

by national development strategies and operational programmes that are coordinated with and, in principle, mandated and approved by the EU[12].

4. Development Finance Institutions in Latvia and Lithuania

Similar to Estonia, the policy discourse in Latvia has been dominated by neoliberal policies while the production sector has a high share of foreign ownership among large industrial firms, lower wages and lower productivity. In March of 2016 the Innovation Department was established within the Ministry of Economy to enhance synergies between the policy planning functions and the EU support instruments as well as to insure more effective implementation of the state administration functions. In the same year the Ministry of Economy started to develop sectoral development strategies with the aim to encourage companies move towards more knowledge-intensive products and to increase labour productivity. While there is still little visible progress, the focus of the current policies is placed on productivity (Kulikovskis et al. 2018).

Lithuania has also placed productivity at the top of industrial and innovation policies. In both countries, productivity levels and wages are among the lowest in the EU while increasing labour costs further undermine competitiveness of Lithuania's industrial exports. As was mentioned earlier, all three Baltic republics represent small open economies that have been historically relying on FDI. Similar to Estonia, the dual structure of Latvia's and Lithuania's national productive bases is made up of large foreign-owned MNEs and low-tech domestically-owned SMEs with very few linkages between these two sectors. On the other hand, Lithuania and Latvia recently had taken a more active policy approach to industrial strategy as compared to Estonia. This is reflected in policy documents such as Latvia's 'National Development Plan 2014-2020' and 'National Industrial Policy Guidelines 2014-2020' and Lithuania's 'Industry Digitalisation Roadmap 2013-2019'. Nevertheless, the dependence on EU external financial assistance in the two countries is only slightly less than in Estonia (Table 3). Further, both countries exhibit high foreign ownership of the banking

[12] See operational programmes for 2014-2020 period in Estonia, https://www.struktuurifondid.ee/et/oigusaktid/rakenduskava-2014-2020, last accessed 22 November 2019.

sector, which makes the availability of finance for capital investments similarly limited, as in Estonia.

4.1 Latvia

The main agencies in charge of financing of development in Latvia are ALTUM, which is a non-banking development finance institution and Latvia's Investment and Development Agency (LIDA), which mostly administers grants. Both agencies are supervised by the Ministry of Economy (MoE) while ALTUM has two additional shareholders: Ministry of Finance (MoF) and Ministry of Agriculture. ALTUM is tasked to provide SMEs with access to finance and non-financial professional support services (consulting, training, monitoring). The range of financial instruments it provides includes loans, guarantees, export credit, investments in risk capital funds, as well as alternative risk capital funding for businesses in the event of insufficient collateral. ALTUM also administers EU-funded targeted funds such as Loan Guarantees and Mezzanine Loans (target: all enterprises), Seed Capital Funds (target: start-ups, SMEs), Business Angel Co-Investment (target: SMEs), Technology Accelerator (target: start-ups, SMEs).

In the merger-based foundation by the separate Law of the Parliament, the establishment of new ALTUM in 2015 was closely coordinated with the European Commission (EC) in a consensual manner[13]. The design of the new institution's mandate, scope and operations was proposed already in line with all key EU regulations, particularly state aid rules, overall eligibility criteria of structural funding, and EC guidelines on financial engineering. The overall policy framework proposed by Latvia to the EC implied that ALTUM would be operating as a non-commercial institution providing state aid through various financial instruments. The plan suggested by the government was also based on the overview of demand for financing programmes and did not include any commercial activities, although the EC allows some room for commercial activities. The government did not see the need or any

[13] A successor of a mortgage bank ALTUM, the newly established Development Finance Institution ALTUM resulted from a merger of the old Development Finance Institution (state-owned mortgage bank, which had a development finance and a commercial divisions; the former was liquidated during reorganization in 2015), Latvian Rural Development Fund and Latvian Guarantee Agency.

potential areas of expansion of ALTUM's mandate and scope: closing market gaps by supporting agriculture, SMEs, micro firms and MidCaps, providing acceleration funds, Venture Capital and guarantees. In other words, the establishment of ALTUM involved 'playing by the [EC] rules' from the very start, as suggested by one of interviewees. As follows from ALTUM's annual reports, its *raison d'être* is promoting economic development through efficient state aid (e.g. ALTUM 2015).

The implementation of financing programmes implies ex-ante appraisals by both, MoF and MoE, as well as the approval of the Cabinet. Every financing programme is designed by the MoE (ALTUM has a strong say in the regulatory side of the programme), for which ALTUM must design a business plan. The financing programme typically represents a rather broad framework defining eligibility criteria, maximum size of a loan or other type of financial instrument and remains rather broad as it is meant for the entire programming period. The substance of every programme is checked by the line ministries while there is a group of sector-specific managers in the MoE who oversee the implementation of every programme.

ALTUM has embarked on a strategy to minimize the share of EU structural funds in its funding portfolio and instead to raise funds from multilateral banks such as the EIB/EIF and the EBRD. Minimizing the share of structural funds was a strategic decision due to demanding reporting and less flexible guidelines for spending the funds. Further, a lot of reporting and regulatory requirements connected to the EU funds were designed for grants and therefore reporting on other financial instruments (even just loans) is quite cumbersome due to grant-dominated logic of financial reporting. Borrowing from multilateral financial institutions involves much less reporting and at the same time helps build a stronger image of ALTUM on capital markets.

ALTUM directly interacts with the borrowers and only a very modest share of financing facilities is provided through other financial intermediaries. In terms of sector-specific expertise, ALTUM has the leading competences in financing agriculture and in energy efficiency financing. In addition, the potential to provide financing to local municipalities for implementing programmes in energy efficiency is currently being discussed within the Ministry of Economy. ALTUM is confined to the domain of SMEs and describes this as one of major limitations to diversifying its operations. Interestingly, the National Association of Commercial Banks equally supports the vision of ALTUM to work with large companies too as they refer to the 'signaling effect' whereby ALTUM successfully finances projects in new sectors. Yet, this is not possible since the DFI has a clear-cut SME-related mandate. Further, ALTUM does not see itself venturing into financing of innovation-oriented economic activities since, in their view, financing of innovation involves grants since 'it is all about projects' as business companies reported to ALTUM. Repayable assistance is considered an area where ALTUM could contribute with its appraisal and evaluation skills: evaluating company's competitiveness and performance targets (defined by MoE). Further, shall MoE decide to be part of InvestEU, ALTUM would be well positioned to become an implementing agency and it is planning to apply for the verification procedure to the EC. The MoE also sees regional initiatives in the Baltic countries as an opportunity for collaborative development of regional infrastructure, energy and transport sectors.[14]

4.2 Lithuania

There are two major DFIs in Lithuania with quite distinct mandates. VIPA (Public Investment Development Agency) was established in 2012 in order to provide various financing facilities for urban development, infrastructure and energy efficiency programmes. Its financing portfolio is smaller than that of INVEGA and VIPA tends to be involved in the financing of public entities to a large extent. Currently VIPA also features prominently on an emerging green financing policy landscape in Lithuania.

INVEGA was established in 2001 as a guarantee institution to assist the development of SMEs and is now fully owned by the Ministry of Economics and Innovation (MEI). In 2018 it was granted the status of a 'development finance institution'. The new status implies that the agency is now supervised by the Central Bank, in line with the general supervisory requirements for financial intermediary institutions. Further,

[14] The Baltic Innovation Fund (BIF), started in 2014, and established by the three Baltic countries together with EIF is an illustrative example of such a cooperation. In 2019, the BIF 2 Agreement was signed in order to extend the activities of BIF through investing into local investment funds (mezzanine, growth capital, venture capital).

INVEGA sees the change of status as a very positive development: it has now become the single implementing agency of programmes financed by EU structural funds. In terms of governance structure, INVEGA is supervised by the Board, which is independent from the government and consists of only business representatives.

In essence, INVEGA acts as the Fund of Funds while managing two types of financial pools. Two of them represent EU structural funds, and the other two Funds are made of national/repaid loans from the previous programming period (2007-2013). The proportion of national/EU funds is roughly 50/50 in the total portfolio and each of the Funds used to be supervised by a dedicated committee formed by representatives from MoF and MEI. The overall portfolio of funds managed by INVEGA is around 700 mln EUR (as of May 2019) and includes some 30 financial instruments. The funds are channeled through the MEI, which designs financing programmes for prioritised sectors and according to development targets (e.g. increase in productivity, support to SMEs). INVEGA designs financial instruments for these programmes as well as advises the Ministry on market gaps. INVEGA is a second-tier financial institution and implements financial instruments mainly through commercial banks and credit unions. Intermediary organisations are selected as a result of the bidding process conducted by INVEGA. The bidding process is launched for each financial instrument and there might be a few financial intermediaries selected to work with one type of the instrument. The duration of cooperation with financial intermediaries is usually defined by the amount of funding available for each financial instrument.

INVEGA sees itself primarily as the manager of both, EU and national finances, and does not see the need to diversify its funding sources, unlike ALTUM in Latvia. In that regard, structural funds require extensive reporting and are more rigid in terms of allowing for new types of financing facilities. For example, co-financing provided to individuals who obtained initial financing from crowd-funded platforms was implemented from the national funds (re-paid structural funds from 2007-2013 period) as it would not qualify to be supported from the EU funds. Interaction with MEI and implementation of the funding programmes happens in a similar way as described for Latvia: programmes and financial instruments are designed according to pre-defined market gaps as part of ex-ante evaluation conducted prior to a seven-year programming period. In the meantime, when financing programmes involve national funds, the government is keener to review ex-ante evaluations, which adds to the flexibility INVEGA has in designing new financial instruments.

To conclude, while drawing some parallels with the Estonian KredEx, ALTUM is actively seeking to lessen the dependency on EU structural funds and to have some key non-financial competences such as project appraisal, in particular in energy efficiency and agriculture. They nevertheless remain constrained by the mandate: financing of SMEs provided within the state aid framework with no commercial activities allowed. INVEGA, on the other hand, has similarities with KredEx in its emphasis on structural funds (as the main implementing agency) and in operating through financial intermediaries. In that respect, there are differences in the operations of covered DFIs in the Baltics in terms of first-tier vs. second-tier banking (see Fernández-Arias et al. 2014): ALTUM adhering to the first-tier banking approach, INVEGA taking the second-tier banking stance and KredEx having a hybrid structure of both forms[15]. Despite the differences, ALTUM, INVEGA and KredEx are all subordinated to ministerial oversight (MoE/MEI, MoF) and have to face constraints stemming from the absorption of EU funds, while at the same time, are required to be self-sustainable. Further, all three DFIs operate in a highly limited policy space and adhere to the market failure logic of intervention by primarily addressing the market gaps identified through ex-ante evaluations. All this makes the three cases comparable only in differences in degree with no substantive differences in how little operational discretion DFIs have been given.

5. Europeanisation tendencies: missing capacities and de-contextualisation of policy measures

As already claimed (see Suurna and Kattel 2010), the EU is the key actor in having an impact on the evolution of industrial/innovation policy, i.e. ideas and models[16], and the related structures since the late 1990s, as the EU had the means and tools to

[15] KredEx has been considering enlarging direct financing to companies, which up to now has been very modest. Yet, the lack of capacities (human capital, competences) and other related factors make this uncertain.
[16] The Action Plan for Growth and Jobs 2008-2011 and the National Strategic Reference Framework 2007-2013 both served as examples of European-type innovation policy (Kalvet 2010).

demand rather specific changes in policy plans. At the same time, the Europeanisation process has also brought afore specific problems, such as a weak administrative environment with lacking policy skills for networking and long-term policies. These challenges were reinforced by the prolonged adherence to the Washington Consensus policies that were considered as implicit innovation and industrial policy measures (see Karo 2011, 529; also see Piroska and Mero, this volume). Hence, the capacity building in economic policies was directed at macro-economic competencies with no proper innovation policies and related institution-building, as indicated above.

Efforts were mainly made in the creation of regional and local institutions - a system of implementation agencies - for being prepared to administer EU's structural funds (European Commission 2003a; European Council 1999; European Commission 2003b; Grabbe 2006, 82). This explains a meager public attention on and discussion of policy strategies (Tiits et al. 2008; also Tavits and Annus 2006). Hence, it is not a surprise that the newly established implementation agencies were mostly for managing external (EU) funding, as policy creation and respective capacity-building played almost no role there (Suurna and Kattel 2010, 652; Karo and Kattel 2010, 183).

Within such context, the DFIs act as implementers of structural funds within quite rigid guidelines and which are related to 'typical' policy priority areas such as support to entrepreneurship, start-ups and midcaps, and SMEs. As the interviews conducted for this study revealed, the capacities of DFIs have been mostly related to the management of EU funds rather than making strategic decisions related to public investments or to act as active investing agents while leveraging on government funds. Management and reporting on the use of EU funds also require complex coordination competences but due to specific incentives (absorption, short-termism), the existing policy discourse and financing conditions have not been conducive to a more strategic and long-term take on financing of development and innovation-led growth in the Baltics.

The Europeanisation of industrial/innovation policy tends to substitute national perspectives with the EU-based models, while the the rigidity and path-dependency of the fragmented industrial/innovation policy model undermines any potential to develop policy capacities, all of which reinforce the de-contextualisation tendencies in development financing (Karo 2011, 530-531). For instance, the interviewed stakeholders[17] have recognised a meager or no effect of various Smart Specialisation measures on the selected priority fields of economic activity, which reflects the growing mismatch between R&D system, high-tech biased innovation policy and actual industry circumstances. Likewise, SMEs have been given preference by DFIs due to both EU stipulations and market-failure logic, but this approach has been heavily criticised, e.g. in Estonia by industry representatives on the grounds of capture and rent-seeking. In this light, there are expectations for expanding policy instruments for supporting large businesses, who seem to have more export and R&D cooperation potential, which implies adopting more selective policies (see Espenberg et al. 2018). By and large, the industry repreresentatives have acknowledged the need for flexible and agile innovation and industrial policies with sector-specific tailor-made (export and R&D supporting) measures that respond to the development needs of companies in different industries, including in the Smart Specialisation areas. However, these issues have not been addressed by policy-makers in the core activities of Smart Specialisation strategies or various policy instruments (Karo et al. 2018; Espenberg et al. 2018).

Overall, the building of new institutions has not managed to respond to specific local needs (see Suurna and Kattel 2010, 654). Almost all policy implementation problems go back to weak or non-organised actors, capacity shortages and the fragmented policy-making system[18], resulting in considerable coordination problems in policy design and implementation together with accountability problems and insufficient policy appraisal, evaluation, monitoring and policy-learning systems (INNO-Policy Trend Chart 2006–2007; OECD 2005; also Radosevic 2002, 355). At the same time, enterprises have been deterred from submitting project-proposals for governmental support due to prejudices, fears and high bureaucratic burden as well as rigidity, e.g.

[17] We conducted focus group interviews with representatives of businesses, associations and academic experts in the field of Smart Specialisation areas in Estonia - ICT, health technologies (biotechnology and food), knowledge-based construction, and material technologies.

[18] While policy plannning is done at the ‘core executive’ level in Estonia, coordination between the Ministry of Economic Affairs, the Ministry of Education and Research and the Ministry of Finance has been complicated in the current innovation policy governance model – all parties are driven by their own visions on R&D, innovation development and support, which has created a need for higher coordination mechanisms, i.e. the establishment of R&D and innovation councils and other bodies to support coordination, priority setting, and decision making (Suurna and Kattel 2010). In addition, for a comparative view of policy and administrative capacities in the Baltic countries see Karo (2011); for Central and Eastern Europe see Reinert and Kattel (2014); also Breznitz and Ornston (2017).

in terms of qualification terms (Karo et al. 2018; Espenberg et al. 2018) – elements that are associated with the administration of EU structural funds.

6. Conclusion and further research

In the longitudinal perspective, as the Baltic economies have evolved after re-gaining their independence, economic and financial policies have not been altered accordingly, but instead have either been left to stagnate or have been driven by external sources – mainly the EU policies. Accordingly, little attention has been paid to assuring the coherence between the EU-anchored industrial and financial policies and their relevance for the local circumstances, which to some extent has been out of the scope of local policy-makers (Juuse 2016a; Juuse 2016b). Moreover, a simplistic approach to running the economy, where monetary, banking or innovation policies are outsourced to external actors – either the EU or foreign countries – has resulted in poorly coordinated and fragmented policies, typical of transition economies.

One could argue that Baltic states have ended up in a situation that can be denoted as "foregone autonomy" (i.e. an ineffective institutional structure reflecting a bureaucracy without a holistic insight into and understanding of evolving finance, banking and productive economy), if to follow Evans' perspective on the autonomy of states (1992, 141). Moreover, the recent financial crisis and a series of fiscal crises across Europe resulted in empowered EU institutions, especially in financial and fiscal governance, thereby substantially reducing (needed) national discrepancies in respective policy domains. (Juuse et al. 2019).

One of the recurring themes in current literature on national development banks is the heterogeneity of its roles and setups. There is a growing consensus over strategic roles that government-backed financial institutions can play in facilitating more inclusive, innovation-led growth: there are many examples of strategic development banks or financing agencies (e.g. SBIR or DARPA in the US, BNDES in Brazil, BDC in Canada, or FINNVERA in Finland) which played precisely that role. Yet, there are many instances when despite a 'strategic rhetoric' development banks are confined to more managerial roles whereby they are not able to exercise the role of active investment agents (Mikheeva 2018, 2019). In addition, the three Baltic cases demonstrate that what constitutes ‘strategic’ should be necessarily considered with a broader economic policy discourse, the processes of policy priority setting and coordination thereof. A combination of national policy choices and the EU agenda (accession and rapid integration, Smart Specialisation) makes the experience of Baltic and other CEE countries particularly worth noting due to inability of these states to benefit from post-WWII protectionist industrial policies and a significant pressure from the EU just some years after regaining political and economic independence. Further, external financing in the form of EU structural funds resulted in a set of incentives that reinforced managerial competences: financial instruments are provided by DFIs within a very narrow space of an allegedly efficient state aid framework.

There are some differences between the three DFIs, however: INVEGA sees its mandate as the manager of EU funds and its design (fund of funds) suggests carrying out mainly managerial functions, while ALTUM has decided to develop another avenue of interaction with the EU through financing agencies such as the EIB/EIF, and KredEx is operating on both spectrums (although its direct financing operations are currently very limited). It is too early to say whether there will be a shift in their financing competences but ALTUM and KredEx resemble agencies operating with the latest policy initiatives at the EU level, particularly, to switch from grants towards financial instruments, which arguably implies a greater role of DFIs/promotional banks (European Commission 2017). At the same time, the overall policy discourse(s) and a very limited attention to the actual financing and policy-support needs of domestic productive structures, act as inhibiting factors to develop stronger and more strategic competences in development financing by DFIs in the Baltics.

Further research should be done in other CEE countries where dependency on EU financial assistance is combined with a stronger legacy of national industrial strategies, larger domestic industrial structures and, in some cases, more protectionist economic and financial (such as in Poland or Hungary) policies. Following the ‘convergence hypothesis’ – which states that despite an initial variety of capitalisms, CEE countries have been moving towards the neoliberal type (Bohle and Greskovits 2012) – it would be useful to test it against recent developments in national policy financing agencies, which in some cases have been substantially empowered (in Poland and Slovenia). Further, the literature on development banks and financing of development would benefit from more thorough and nuanced conceptualization of what strategic development banking entail in various national policy and ideational contexts/discourses. Synthesizing the literature on varieties of capitalism with empirical studies on political economy of EU financing in CEE countries would enable to better differentiate between the types of DFIs operating in the EU as well as to emphasize various institutional contexts and capacities that should be part of discussion on national development banks.

List of interviews

Int 1 Latvia, Ministry of Economy (2.05.2019)
Int 2 Latvia, ALTUM (6.05.2019)
Int 3 Lithuania, INVEGA (7.05.2019)
Int 4 Latvia, Ministry of Finance (19.06.2019)
Int 5 Lithuania, VIPA (26.06.2019)
Int 6 Estonia, KredEx (10.07.2019)

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Annex

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RAGNAR NURKSE DEPARTMENT OF INNOVATION AND GOVERNANCE

CONTACT: Rainer Kattel, rainer.kattel@taltech.ee; Wolfgang Drechsler, wolfgang.drechsler@taltech.ee; Erik S. Reinert, erik.reinert@taltech.ee

Institutional context and the typology of functions of national development banks.

The case of Development Finance Institutions (DFIs) in Malaysia

Olga Mikheeva (olga.mikheeva@taltech.ee) Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology, Estonia and Institute for Innovation and Public Purpose, University College London, UK

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Abstract

Conceived as policy institutions, development banks are specialized financial firms that follow a dual mandate: to operate in line with developmental goals and to be financially sustainable. At the same time, emerging literature on mission-oriented finance and development banks tends to focus on their policy roles while overlooking the overall institutional landscape, which affects such specialized financial institutions. Following institutionalist approach, the study looks at how Malaysia's development finance institutions (DFIs) evolved over time and how they have been positioned in the overall policy landscape. Following a historical description of Malaysia's specialized development banks, the study proposes a contextualized institutional framework and the typology of functions performed by national development banks, which can be further applied to other national contexts and especially in comparative studies.

Keywords: development finance institutions, financing of industrialisation, Malaysia, Southeast Asia, typology

JEL codes: G21, O20

1. Introduction

National development finance institutions have been increasingly capturing attention of academics and practitioners across the globe. Emerging literature on the various roles development banks – more precisely, state investment banks – play, has been dealing with their institutional histories (Griffith-Jones and Ocampo 2018), financial instruments (Mazzucato and Penna, 2015a; 2015b; 2017), political economy of their operations (Rezende, 2015). At the same time empirical, especially comparative studies are scarce. In this regard, a considerable contribution to empirical literature was made by a series of case studies from Latin American countries as well as China and Germany (Griffith-Jones and Ocampo 2018).

The revival of development banking in both developed and developing countries has been largely spurred by the consequences of the Global Recession and therefore contemporary literature gravitates towards policy-oriented approach, which emphasizes counter-cyclical lending, greater willingness to take risks, long-term orientation of state-backed financing and the ability of development banks to undertake projects with non-bankable positive externalities such as, for example, employment, preservation of environmental, financial inclusion. The major theoretical underpinnings of existing literature are located on the continuum of market efficiency/inefficiency and refer either to the need to 'fix market failures' or to go beyond 'fixing' towards 'creating markets' (Mazzucato and Perez 2015; Mazzucato and Wray, *forthcoming*). In other words, framed within the debate 'markets vs state' the discussion so far has been dominated by empirical cases of success stories. Namely, in empirical terms, contemporary literature on development banks has been centered over strategic development finance institutions such as German *Kreditanstalt für Wiederaufbau* (KfW), Korea Development Bank (KDB), Canadian Business Development Bank (BDC) or China Development Bank (CDB). This is not surprising since the idea of state-backed finance complementing market-based financing has been continuously in and out of fashion since the beginning of the 20th century. At the same time, echoing a survey by the World Bank, there is a growing need to inquire into the heterogeneity of over 500 national development finance institutions existing today. (Luna-Martinez and Vicente, 2012) The great variety of mandates, tasks and financing facilities provided by development banks has been widely acknowledged (Luna-Martinez & Vicente, 2012; Bruck, 2005; Fresneda, 2008; Yeyati *et al*, 2004; Lazzarini *et al*, 2015) and now that some of the most successful cases have been presented and discussed, the next step would be to move from micro-level (single institution) analysis towards macro-level studies. If we are to understand why some Development Finance Institutions (DFIs) work while others don't – or rather, perform or not perform strategic complementary roles – there is a need to build a broader framework, which would put a DFI into the national context and help identify how a DFI is positioned vis-à-vis private financial institutions, vis-à-vis industrial sector, and vis-à-vis government agencies. Such an approach is based on the initial assumption that state-backed DFIs are specialized financial firms operating with financial and non-financial (developmental) goals thereby being uniquely positioned at the intersection of public, financial and socio-economic interests.

Current study, therefore, aims at identifying a broader institutional context of development finance institutions (DFIs) in Malaysia and at constructing a typology of their functions. Malaysia represents a rich case study due to the variety of DFIs, their long history and continuity of their mandates as policy-relevant specialised financial institutions (Thiruchelvam *et al*, 2011). The main focus remains on development banks in charge of financing of industries and services sector and excludes guarantee agencies, export promotion banks, and DFIs in charge of consumer lending. Empirically-historically grounded, the study aims to contribute to existing scholarship on development banking and to provide directions for further empirical research on the various functions of development banks and their institutional context. Availability of data and its consistency remains the main limitation of empirical findings and, subsequently, their defining factor. Empirical data collection for this study was based on extensive archival work with reports of Malaysia's Central Bank for 1960–2016, annual reports of selected DFIs for the same period, and semi-structured interviews with representatives of DFIs, both acting and retired, as well as government officials (a total of 12 interviews were conducted between October 2015 and October 2016).

The structure of the paper is as follows: next comes a brief overview of literature on national development banks including theoretical propositions and historical accounts; next, the provision of industrial capital in Malaysia and evolution of Malaysia's DFIs are presented; empirical findings are then summarized by suggesting an institutional framework and the typology of functions; the paper concludes with suggestions for further research.

2. Historical and theoretical perspectives on financing of industrialisation and development

Financial aspect of economic development has been an essential part of classical development theories developed by A. Hirschman, R. Nurkse, P. Rosenstein-Rodin, G. Myrdal in the mid-20th century. The main focus of the time was on whether finance for development should be imported (come from external sources) or 'made at home' and the so-called 'high development theorists' argued in favor of the latter. (Kattel *et al*, 2009; Kregel, 2004) Analysis of financial structures, which emerged in the 1960s, put 'financial deepening' on policy agenda[1] and national development banks have been long associated with facilitating the development of domestic capital markets thereby sharing this policy task with Central Banks. Gerschenkron's (1962) notion of the *extent* of economic backwardness and respective extent of state-led mobilization of resources has been also reflected in literature on catching-up industrialisation: policy finance comprised an essential part of rapid industrialisation in newly industrialized countries of East and Southeast Asia. (Amsden, 1989; Hobday, 2003; Wade, 2004)

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1 Goldsmith (1969) looked at national accounts of developed countries. Financial deepening, which continues to be one of the key policy dimensions of Central Banks (in ASEAN and beyond) is measured by 'financial interrelations ratio' (ratio between total financial assets and GNP), which was widely used by Goldsmith. (Rimall, 1987, p. 239) Later discussion was framed by Zysman (1983), Mayer (1989) and more recently – by Demirguc-Kunt and Levine (1996) and Levine (2002).

Historically, the idea of a state-backed financial institution directly assisting in industrialization was institutionalized during the first decades of the 20th century: initially, public ownership was minoritarian (Armendariz de Aghion, 1999) and fully state-owned development banks were largely a product of post-WWII development discourse characterized by massive reconstruction efforts and the process of decolonisation. The World Bank's Industry Department has been a vivid promoter of the concept of development finance institutions since 1950s (Diamond, 1957; Boskey, 1959), although it was latter recognized that development financing from international lenders is not sufficient in the long-run and "a critical element in the institutional context [of a development bank] is to have sufficient capital on its own to back its operations and, over the long run the[se] institutions also must [be] able to mobilize domestic resources to become an integral part of the domestic financial system." (Bruck, 2001, p. 15) In the long run, nevertheless, the enthusiastic advocacy of development banks during 1950s-70s changed to more cautious approach, following a wave of mismanagement in public banks during 1970s, especially in Latin America. The danger of political capture was the main argument against 'financial repression', which developed into the outright criticism of public development banks during mid-1980s–90s.[2] At the same time, studies on information asymmetry and credit rationing (Stiglitz and Weiss, 1981; 1988) helped recognize that there are certain types of risks that private investors and financial markets are not able to undertake as well as certain types of positive externalities (such as employment, education, preservation of environment, better infrastructure) that cannot be internalized by private financial agents. In light of the recent Global Recession, complementary roles of 'fixing market failures' and counter cyclical lending have been attributed to state-backed development banks. Further, an emerging literature on mission-oriented financing extends the notion of 'fixing markets' towards 'creating markets' thereby arguing that state-backed development banks have the potential to facilitate structural change and innovation-led growth by investing into riskier technologies and ambitious projects. (Bruck 2005; Mazzucato and Semeniuk, 2018; Griffith-Jones *et al*, 2017; Mazzucato and Penna, 2015a; 2015b; 2017; Mazzucato and Wray, *forthcoming*) In addition, the most recent survey by the World Bank (Luna-Martinez and Vicente, 2012) indicated a returning interest towards what national development banks do, how they operate and what roles they perform.

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2 The discussions within a community of policy makers in the Asian regiona reflected the same trend – see, for example, SEANZA lectures published by Reserve Bank of India in 1990. (SEANZA is an Association of Central Banks from Southeast Asia, New Zealand, and Australia, established in 1956, which initially included members of the British Commonwealth. Association later expanded towards 20 members from the Asian region.

Besides financial constraints, developing countries are believed to experience organizational and managerial constraints (Kregel, 2004), following Schumpeterian notion of entrepreneurship as the driver of innovation and development. Operating within economic policy mandates, development banks can become, at least in theory, the focal points of such organisational and managerial learning: as specialized financial institutions they interact with newly established industries, both domestic and foreign-owned operating locally; with international lending agencies and capital markets; they conduct feasibility studies and industry research; and finance imported technologies. If during the course of development, learning occurs in industry (Lazonick and O'Sullivan, 1996; Dosi, 1990; Aoki and Dosi, 2000) *as well as* in finance (Sraffa, 1929-30; Minsky, 1988), then development banks, tasked with facilitating the development of industries, would be exposed to both processes. Mayer (1989) suggests that indeed managerial competences tend to accumulate within banking institutions at first place. At the same time, because development usually conceived as policy institutions, the process of internal competence building is also affected by policy trajectories. Further, as specialized financial firms, development banks would also respond to changes in both, industrial and financial structures, which, in turn, occur on domestic as well as international levels.

3. Provision of industrial capital through the banking system in Malaysia

Resource-rich Malayan peninsula (tin, rubber, palm oil, oil and gas) has been generating extensive revenues for Colonial administration since late 19th century and its trade accounts have been in substantial surplus even during the times of Great Depression (Li, 1982, p. 40-62). Malaysia, which continues being one of the most dynamic economies in the region, has been credited with successful economic diversification: from commodity-based economy in the 1970s towards middle-income nation with manufacturing becoming one of the major components of GDP, at least until 2000s. (Rasiah 2011) Backed by the discovery of new oil fields and as a response to social unrest of 1969, New Economic Policy (1970) has been associated with substantially increased state intervention aiming at both growth and redistribution of wealth among ethnic groups. Financial intervention was limited to state ownership of banks and did not involve extensive use of 'policy' loans as was the case of Northeast Asian developmental states (South Korea, Taiwan). Most of Southeast Asian countries have a richer natural endowments and hence had larger trade accounts at the start of industrialization while Rasiah and Hing (2009) note the difference in capital used for industrialization: unlike Northeast

Asian experience, not local capital but foreign ownership led export-oriented growth in most of Southeast Asian countries. Yun (1987, 421-422) reports that by 1985 the proportion of loans advanced to agriculture, manufacturing and mining altogether stood at only 23.4% and, referring to Bank Negara (BNM)[3] sources, confirms that internal financing, that is, retained earnings and allowances for depreciation (also incl. foreign investments) constituted the bulk of financing that went to supporting productive activities. Jomo and Hamilton-Hart (2003, 244-245) also conclude that even specialized industrial finance institutions accounted for a very small share of lending to industry; most industrial development in the 1970s was due to foreign investment, often in export processing zones, with little linkages to the domestic economy.

According to the first comprehensive economic assessment of the Federation of Malaya and Singapore conducted by the IBRD (World Bank) mission in 1954, public investments in Singapore had been already higher than on the peninsula while the state of private enterprise in both cases has been identified as strong and well-established, and infrastructure services such as roads, communication, power, shipping and post – of relatively high quality. In this light, recommendations for public investments were related to expansion of existing facilities, provision of official housing and, industry-wise, greater support to agricultural sector to increase the yields. Medium- and long-term capital was recognized as a growing need, for which a pan-Malayan industrial finance institution was recommended: private ownership to ensure independence from the government, no subsidized lending, funds to be raised through loans from the Central Bank, minority equity participation in borrowing enterprises possible in principle, technical expertise needed for project appraisal should come from an Industrial Research Institute (to be established) and from commercial banks. (IBRD, 1955, p. 231–232) Malaysian Industrial Development Finance Company (MIDF) was established in 1960 and, indeed, with the exception of a few interest-free loans during the very first years, MIDF was raising funds from Bank Negara (BNM) at non-subsidized rates (5.5-7.5% on average), which in practice at times were higher than from certain external sources, such as ASEAN-Japan Development Fund (3.5-4.85%)[4]. (MIDF annual report 1989) At the same time, other DFIs kept receiving government long-term loans at subsidized rates (between 2% and 5%). (Salim,[5] 1980)

3 Malaysia's Central Bank
4 Japan needed to recycle some $20 bln of current account surplus by aiding developing economies in the region through Overseas Economic Cooperation Fund.
5 The then acting Executive Director of *Bank Pembangunan Malaysia* (Development Bank of Malaysia, est. 1973).

The case of MIDF makes another trend in provision of industrial capital in Malaysia apparent: newly established development bank benefited large, often foreign-owned firms due to a large size of loans and strict requirements towards borrowers (e.g. managerial experience, collateral). Adherence to prudent banking practices and low non-performing-loan (NPL) ratio have been emphasized by MIDF from early on as becomes evident from its annual reports while Jomo (1986) refers to the general high risk-averse attitude of industrial bankers.[6] Following another IBRD report, "there [wa]s a considerable amount of capital available in Malaysia but not enough capital of the right type and on the right terms." (IBRD, 1963, p. 15) At the same time, a number of State Development Corporations carried out industrial investment functions similar to development banks. Established in mid-1950s to advance commerce and industry[7], they were subject to state-level jurisdiction with the state Chief Minister appointed as chair. (Gomez *et al*, 2015) State Development Corporations served as important vehicles in wealth redistribution in line with the New Economic Policy[8] by holding around 250 subsidiary companies and agencies by the end of 1980s.[9] (Puthucheary, 1990)

In terms of policy intervention, policy lending was low, as compared with Northeast Asian developmental states such as Korea and Taiwan, with the exception of export credit. (Chin and Jomo 2000; Chin 2001; Thillainathan, 2003) Priority sectors were mentioned in guidelines issued by Bank Negara since 1974 and included rather broad categories: the *bumiputras*,[10] SMEs, low-cost housing, manufacturing and agriculture. (Chin, 2001) Commercial banks had to make sure that lending to manufacturing was no less than 20% of their loan portfolio (1970s and mid-

6 This, however, helped MIDF maintain a reputation of a prudent borrower among its international lenders such as World Bank and German KfW.

7 E.g. Sabah Credit Corporation (1955) and Borneo Development Corporation (1958) were initially set up as wholly owned subsidiaries of the Commonwealth Development Corporation to assist diversification of predominantly agricultural Malaysian states of Sabah and Sarawak on North Borneo. (Nik, 2000) Yet, the first federal DFI was MIDF (1960).

8 Backed by the discovery of new oil fields and as a response to social unrest of 1969, New Economic Policy (1970) was associated with substantially increased state intervention aiming at both growth and redistribution of wealth among ethnic groups. In 1971 indigenous people of Malay ethnicity (*bumiputra*) comprised 64% of population but owned 2% of national wealth; Chinese owned 25% while foreign ownership was 63%. (Yun 1987)

9 Today, Borneo Development Corporations in both Sabah and Sarawak belong to respective State governments and are included in the list of DFIs although having a clear regional scope together with Sabah Development Bank. Johor State Development Corporation has been in operation since 1968 while is not included in the Bank Negara's list of main DFIs.

10 Indigenous people of Malay ethnicity, see ft. 8. Chin (2001) notes that *bumiputra* lending targets did not contain any discriminatory measures among various uses of loans and the majority of loans went to unproductive investments: mostly broad property (over 30% on average; author's calculations) and consumption (around 40% on average; author's calculations), based on data for 1976–96. Looking at lending statistics of DFIs, a similar trend becomes apparent.

1980s) while from 2006 onwards the primary focus has been solely on credit access for SMEs. Despite government's interference via ownership, private banks (except for those belonging to politically connected *bumiputra*) did not establish any synergetic relations with business conglomerates, largely due to effective regulation that aimed at preserving arms-length relations between banks and corporate interests and to keep their market power in check: banks were limited to holding 10% of equity in any firm and bank officials were prohibited from sitting on any company's board of directors. (Yun, 1987) At the same time, the government has exercised a substantial influence over allocation of investments: throughout the time of Mahathir (in PM office 1981-2003) certain 'mega' projects were implemented with commercial banks making their decisions not only based on project cash flows but also on collateral and implied government support (the projects were meant not to fail); the government held significant equity in domestic financial institutions (through statutory bodies) and directly controlled DFIs. (Lai, 2012, p. 89-91)

4. Evolution of DFIs in Malaysia

Since 1960, when MIDF was founded upon recommendation of IBRD, more specialized development banks emerged with the latest reorganisation taking place in 2005 when SME financing was transferred to the newly established SME Bank, a former integral unit of *Bank Pembangunan* (Development Bank). Gomez et al (2015) provide a good historical overview: Agrobank (former *Bank Pertanian*) was established in 1969 with a special emphasis to support agricultural SMEs; *Bank Pembangunan dan Industri* (Development Bank) founded in 1973 was meant to assist *bumiputra* investors through each stage of enterprise development, which after the merge with *Bank Industri dan Teknologi* (Industry and Technology Bank) and re-organization in 2005 was mandated to finance four major strategic sectors: maritime, oil and gas, infrastructure, and technology. The Bank does not engage in retail banking, its client base consists of around 400 corporate clients and its current lending portfolio is made of 85% infrastructure lending. (*The Sun Daily 26.08.2015*) The Export-Import Bank was incorporated in 1995. The two savings banks *Bank Rakyat* (The People's Bank) and *Bank Simpanan Nasional* (National Saving's Bank) promote thrift, financial inclusion and affordable housing, and both engage in deposit taking. State-controlled *Bank Rakyat* was established in 1954 by merging 11 union banks owned by cooperatives and by mid-2000s it had 1200 cooperatives (Gomez *et al*, 2015) and in 1989 was placed under the Ministry of Land and Cooperative Development and the Ministry of Finance; in 2002 it became subject to the DFI Act 2002 and direct supervision of Bank Negara and in 2004 – an agency under the Ministry of Entrepreneurship and Cooperative Development. (Ahmad and

Kazmi, 2011) *Bank Simpanan* emerged in 1974 by taking over the Post Office Savings Bank and was tasked with facilitating financial inclusion and providing micro financing. (Islam 2011) Credit Guarantee Corporation was established in 1972 to ensure credit access for SMEs and was owned by Bank Negara (76%) together with commercial banks. Sabah Credit Corporation, Sabah Development Bank and Borneo Development Corporation in both Sabah and Sarawak have been predominantly established to facilitate regional development in poorer areas and tasked with various activities, from financing and corporate participation to act as financial intermediaries for state governments and its agencies to engage in joint ventures with local land owners for development of residential, commercial and industrial properties. (Gomez *et al*, 2015) In addition, Tabung Haji was established in 1963 to act as a specialized fund to facilitate savings for *hajj* to Mecca by devoted Muslims living in Malaysia. In other words, the system of specialized development banks in Malaysia (Table 1) reflects a broader definition of development finance, which combines industrial development with wealth redistribution and, more recently, financial inclusion and consumer lending.[11]

11 This paragraph draws on Mikheeva 2018.

Table 1. System of Development Finance Institutions (DFIs) in Malaysia

DFI	Founding year and scope	Sectors	Ownership and supervision
Sabah Credit Corporation	Est. 1955, regional (Sabah state)	Regional industrial development	Sabah state government; not covered by DFI act (2002)
Bank Rakyat (The People's Bank)	Est. 1954, federal	Savings, financial inclusion	Federal government (Ministry of Domestic Trade, Cooperatives and Consumerism since 2004); supervised by Bank Negara under DFI Act (2002)
Borneo Development Corporation	Est. 1958, regional (Sabah and Sarawak states)	Regional industrial development, commerce, housing	Sabah and Sarawak governments (until 1975); Sarawak government (since 1975); not covered by DFI act (2002)
Malaysian Industrial Development Finance Institution (MIDF)	Est. 1960, federal	Industrial development (and services), SMEs	Indirectly controlled by federal government (through investment company *Yayasan Pelaburan Bumiputra*); not covered by DFI act (2002); agency under the Ministry of International Trade and Industry (MITI)
Lembaga Tabung Haji	Est. 1963, federal	Specialized savings (*hajj*)	Federal government; not covered by DFI act (2002)
Agrobank (former *Bank Pertanian*)	Est. 1969, federal	Industrial agriculture, SMEs, financial inclusion	Federal government (Ministry of Finance); supervised by Bank Negara under DFI Act (2002); agency under the Ministry of Agriculture and Agro-based Industry (MOA)
Credit Guarantee Corporation	Est. 1972, federal	SMEs in manufacturing, agriculture, commerce	Majority owned by Bank Negara (78%); not covered by DFI act (2002)
Bank Pembangunan dan Industri (Development Bank)	Est. 1973, reorganized 2005, federal	Assisting *bumiputra* entrepreneurs; since 2005: maritime, oil and gas, infrastructure, and technology	Federal government (Ministry of Finance); supervised by Bank Negara under DFI Act (2002)
Bank Simpanan Nasional (National Saving's Bank)	Est. 1974, federal	Financial inclusion, micro-financing	Federal government (Ministry of Finance); supervised by Bank Negara under DFI Act (2002)
Sabah Development Bank	Est. 1977, regional (Sabah state)	Regional industrial development, advisory to regional government	Sabah state government; not covered by DFI act (2002)
Bank Industri dan Teknologi (Industry and Technology Bank)	1979-2005, federal	Industrial development, maritime	Was owned by the Ministry of Finance
Export-Import Bank	Est. 1995, federal	Export and imports	Federal government (Ministry of Finance); supervised by Bank Negara under DFI Act (2002)
SME Bank	Est. 2005, federal	SMEs	Federal government (Ministry of Finance); supervised by Bank Negara under DFI Act (2002); agency under the Ministry of International Trade and Industry (MITI)

Source: compiled by the author.

The most appropriate way of looking at DFIs in any given national context is to inquire into their share in total *long-term loans* extended to local industry. Technically this is possible by gathering data from banks' balance sheets but availability of archival records often leaves much to be desired: in Malaysia an entire collection of annual reports exists only for MIDF. For other DFIs materials are substantially more fragmented and are not always available in English. Figure 1 depicts industrial loans by selected DFIs during the first three decades of industrialisation in local currency, while Figure 2 – as a share of GDP.

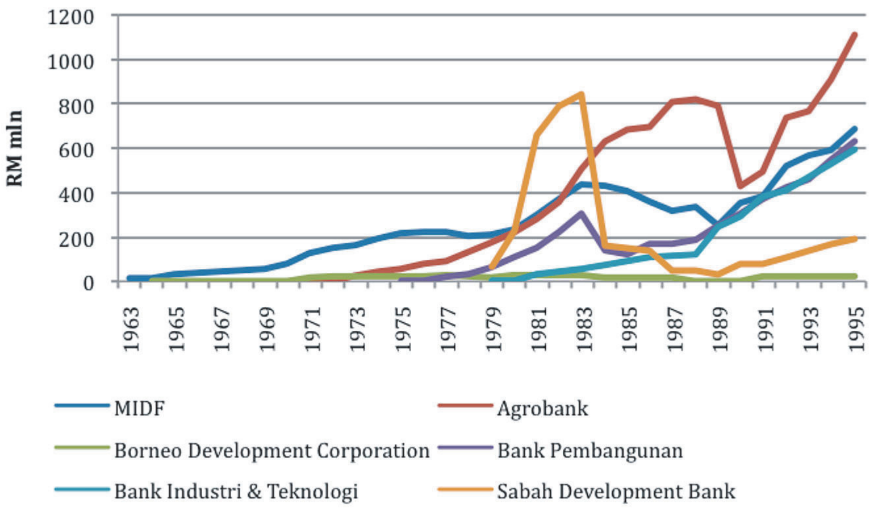

Figure 1. Loans to the industrial sector by selected DFIs 1963-1995

Source: BNM annual reports, various years; compiled by the author.

Notes: Until 1997 BNM reported for selected DFIs separately with a sector-specific breakdown of loans for large DFIs such as MIDF and Agrobank. A sharp decline in lending by MIDF during 1989-1991 reflects a gap between availability of government funds. (MIDF annual report 1989) Sharp decline in lending by Sabah Development Bank and Bank Pembangunan in 1984 owes to the change of methods of BNM's reporting. Sharp decline in lending by Agrobank in 1990 was due to 'substantial erosion of deposits'. (BNM annual report 1990)

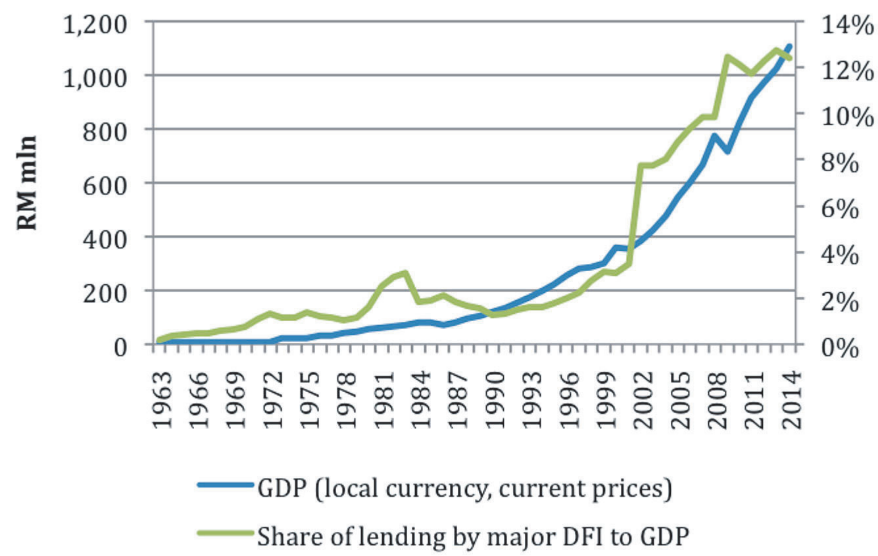

Figure 2. Lending by major DFIs as a share of GDP 1963-2014.

Source: BNM annual reports, various years; World Bank for GDP.
Notes: sharp increase in 2002 reflects changes in reporting following the DFI Act.

In terms of share in total financing of economy, DFIs accounted for 4.7% of total assets and for 2.9% of total loans outstanding in the banking sector in 1999[12]. Of total loans extended by DFIs in the same year, 31% was to manufacturing, 17% - to construction, 13.4% - to agriculture, 12.1 % - to transport and storage, and 10.3 % - to the real estate sector. (Md. Noor,[13] 2001, p. 18) DFIs that lent to industry, accounted for 17.4% of total industrial loans extended in Malaysia in 1983, which gradually decreased to 4.3% in 1995. The trend parallels a gradual decrease in public financing of fixed investment from 51% in 1983 to 31.8% in 1994, although the upward trend could be observed from mid-1970s until the peak in 1983. (Bank Negara annual reports, various years, author's calculations) Subsequently, the share of industrial loans extended by commercial banks grew from 41% in 1982 to 83.4% in 1995. (BNM annual reports, various years)

Although Bank Negara has been diligently providing statistics on DFIs from 1961 onwards, the consistency of data varies due to changing number of DFIs following changes in regulatory framework, and differences in

12 Although an increase in government funds aiming to assist recovery from the Asian financial crisis should be taken into account. After a year of austerity policies recommended by the IMF, Malaysian government reversed the course towards expansionary measures. (Interview 4)
13 The then acting Group Managing Director in *Bank Industri & Teknologi*.

reporting itself. The most consistent statistical period can be observed from 2002 onwards, i.e. after the DFI Act came into force, although aggregate data do not differentiate between the types of loans made and therefore include a substantial portion of consumer credit and lending to real estate. (Figure 3)

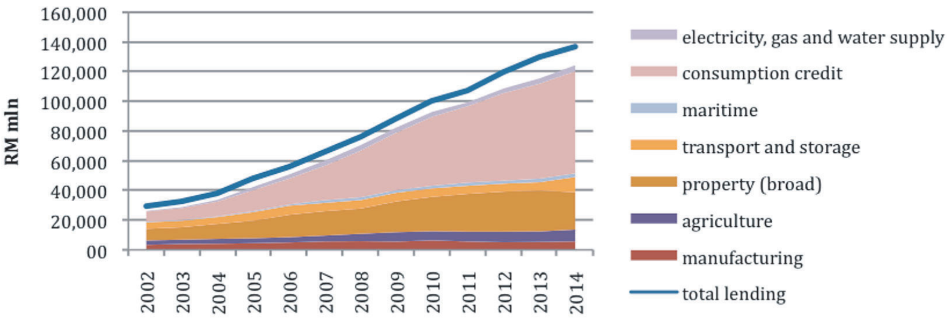

Figure 3. Lending of Malaysia's DFIs to selected sectors 2002-2014

Source: BNM annual reports, various years; author's calculations.

Notes: For 2002 - 2004 the list of DFIs includes Bank Rakyat, Bank Simpanan Nasional, Malaysia Export Credit Insurance, Bank Pertanian Malaysia (Agrobank), Credit Guarantee Corporation, Bank Industri & Teknologi, Sabah Credit Corporation, and Lembaga Tabung Haji. From 2005 the list of DFIs excludes Malaysia Export Credit Insurance and Bank Industri & Teknologi, and includes Bank Perusahaan Kecil & Sederhana (SME Bank). Data for MIDF is absent from 2002 onwards, although MIDF accounted for substantial amount of industrial lending.

4.1 Status, regulatory framework and supervision of DFIs

Before specific legislation was introduced in 2002 (DFI Act), the Central Bank ordered DFIs to establish own R&D departments, following a formulation of the Financial Sector Master Plan. (*Bank Industri* annual report, 2000) The main piece of legislation, the DFI Act, was promulgated in 2002 and represented an important landmark in supervision of DFIs by increasing the supervisory powers of Bank Negara. Before the DFI Act, supervision of development banks in Malaysia was more fragmented with various banks reporting to various Ministries (see Table 1). Moreover, classified as non-banking institutions, DFIs were not subject to respective banking regulations but were to provide annual reports to the Ministry of Finance.[14] (Development Bank of Japan and Japan Economic Research Institute, 1999, p. 105-106) Currently, all 13 institutions that are listed as DFIs by Bank Negara continue being classified as non-banking institu-

14 E.g. *Bank Pembangunan*, in charge of assisting *bumiputra* entrepreneurs, were supervised by the Ministry of Entrepreneurial Development; Agrobank was supervised by the Ministry of Agriculture. Under such arrangements, budgets of these DFIs were entirely dependant on state budget allocations.

tions (hence not subject to certain banking regulations such as Basel), although besides having a development finance division, many of them provide regular banking services in both consumer and investment banking (except for *Tabung Haji* and Government Guarantee Corporation) while three of them engage in deposit-taking from the general public (Agrobank, *Bank Rakyat, Bank Simpanan Nasional*). Separate guidelines for capital adequacy requirements, financial reporting, corporate governance, external audit, and for key responsible persons in DFIs are issued while regulations regarding new product development and risk governance are the same as for commercial banks. DFIs operating under the DFI Act report on developmental (non-financial) performance since 2014. Upon request from the Ministry of Finance, Bank Negara designed a unifying framework, which, however, targeted not all but six systemically important DFIs: *Bank Rakyat, Bank Simpanan Nasional, Bank Industri & Teknologi, Bank Pembangunan dan Infrastruktur*, Ex-Im Bank, Malaysia Export Credit Insurance.[15] The banks under the DFI Act's purview are to submit monthly management reports, which "contain[ed] quantitative and qualitative indicators on the economic and social contribution of the individual DFIs, including their financial performance." (BNM annual report, 2002, p. 195) In addition, banks are to submit two major documents on an annual basis: Statement of Corporate Intent (planned business activities, sources of funds, performance targets) and Annual Funding Requirement (projected funds including additional funding from the government for projected year). Both documents should be approved by the Central Bank, after which the second report is submitted to the Minister of Finance in order to subsequently become part of development expenditures in the federal annual budget.

Nominations for directors and CEOs in DFIs that are under the DFI Act are approved by Bank Negara. DFIs have also become subjects to certain restrictions for lending although the range of sectors remained broad.[16] Most recent amendments to the Act came into force in January 2016, aiming at strengthening corporate governance of DFIs, prudential requirements, supervisory intervention mechanisms, widening scope of investigation and examination. The amendments also introduced a number of new aspects: elements of Shariah governance in accordance with existing Islamic Financial Services Act 2013 (of relevance to Islamic-banking

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15 Following subsequent mergers and restructuring, from 2005, the list includes *Bank Rakyat, Bank Simpanan Nasional, Bank Pembangunan*, Ex-Im Bank, Agrobank, and SME Bank. MIDF has not been subject to the DFI Act although with 2016 amendments to the Financial Services Act, it would be more closely supervised by the Central Bank. (Interview 8)

16 The sectors include SMEs, *Bumiputra*-owned SMEs, infrastructure projects, capital-intensive and high-technology industries, exports, imports, personal and consumer financing, housing, and retail financing. (BNM annual report 2002)

types of DFIs such as Agrobank), consumer protection in line with the Financial Services Act 2013, and a comprehensive enforcement framework to enable proportionate treatment of non-compliance. (BNM annual report 2015)

4.2 Policy mandates

Despite the lack of *specific* strategic targets – both in terms of narrowly defined industries or amount of exports, for instance – the overall policy notion of operations of DFIs has been continuous, as follows from annual reports of Bank Negara, Ministry of Finance, and the Ministry of International Trade and Industry. The (large) number of currently existing DFIs reflects the tendency of Malaysian government to launch a specialized DFI following a new major policy initiative: promotion of heavy industries (*Bank Industri & Teknologi*), assistance to *bumiputra* entrepreneurs (*Bank Pembangunan*), promotion of SMEs (SME Bank), rural development (Agrobank), industrial diversification (MIDF). (Nik, 2000) Further, already existing savings banks operating purely on commercial basis (*Bank Rakyat, Bank Simpanan*) were given a status of a DFI in 2002 following a set of additional objectives: financial inclusion, and affordable housing loans. This can be contrasted with the experience of Northeast Asian countries (Korea, Taiwan, to some extent Japan), where development banks remained in niche, industry-related, sectors.

For instance, *Bank Pembangunan*, the smallest DFI in terms of funds, was tasked with investing into infrastructure projects starting from 1999 following an increase in the share of private ownership in the sector. This was an addition to initial scope of operations: to develop *bumiputra* entrepreneurs by training, provision of medium- and long-term loans, working capital loans, investment capital loans (for ethnic Malays to buy stocks), and leasing – all within the overall scope of SMEs. Similarly, Industry and Technology Bank (*Bank Industri & Teknologi*, in operation 1979-2005) reported on the following scopes of financing reflecting a broad range of sectors prioritized within short spans of time:

- 1979 Shipping and shipyards
- 1985 Engineering industries, including metal-based and electrical and electronic engineering
- 1986 Medium to long-term export financing for Malaysian manufacturers of capital goods
- 1988 Emerging sectors like boat building, pharmaceuticals, computer software development, and materials technology
- 1995 Food processing industry, plastic industry

- 1996 Indigenous technology development
- 2000 Institutions of higher learning, high technology sectors (Md. Noor 2001, 22)
- In addition, from 1990s SMEs and *bumiputra* entrepreneurship development. (*Bank Industri & Teknologi* annual report 1992)

Further, soft-loan schemes channeled through development banks are policy-specific and often involve multiple DFIs sub-lending resources from a single Fund, launched to target specific activities. For example, following MITI's report form 1993 (170–75):

- Industrial Adjustment Fund launched in 1991, was managed by Bank Negara but administered by three DFIs: MIDF, *Bank Pembangunan* and *Bank Industri & Teknologi*;
- Industrial Technical Assistance Fund was set up in 1990 to provide matching grants to SMEs in four areas: feasibility studies (administered by *Bank Pembangunan*), product development and design (by Standards and Industrial Research Institute of Malaysia), quality and productivity improvement (by same agency), market development (by Malaysian External Trade Development Corporation);
- New Entrepreneurs Fund was set up in 1989 to provide financing at concessionary rate to wholly-owned *Bumiputra* firms with funds channeled through 11 commercial banks and 2 DFIs;
- Small and Medium-scale Industry Promotion Programme was set up in 1992 to support Malaysian-controlled companies with funds administered by MIDF, *Bank Pembangunan* and BIMB;
- The Swedish Fund for Environmental Protection and Control with funds channeled through MIDF; and
- ASEAN-Japan Development Fund introduced in 1988 to promote Malaysian-controlled SMEs in manufacturing, agriculture and tourism with M$900 mln of funds channeled through MIDF, *Bank Pembangunan*, *Bank Industri & Teknologi*, and *Bank Pertanian* (Agrobank).

In 1983 the government adopted a privatisation programme and the DFIs were entrusted with the task to help identify projects for privatisation, seek out potential private investors, arrange financing and provide the necessary corporate advisory services. (Salim, 1986)

The issue of competition with commercial banks has been a recurrent theme for DFIs since early 1980s. Development bankers themselves referred to the dual mandate of following developmental goals and practical targets of profitability. (Saleh, 1985;[17] Darwis, 1985;[18] Salim, 1986[19]) Increasing competition with commercial banks became inevitable following "the growing sophistication and complexity of economy, the local financial market and the policy directions from the Central Bank, the banking system is now more developmental than it was before" (Salim, 1980,[20] p. 76); domestic private savings were recognized as a source of cheaper funds although DFIs were not allowed to receive deposits (with exception of Agrobank); to ensure sustainable operations, DFIs ought to become 'financial supermarkets' similar to the experience of MIDF; specialized DFIs at some point were faced with smallness of domestic market. Moreover, competition with commercial banks was at times perceived *desirable* as it would "benefit savers who would have more options for deposits" and other retail products (Lim, 1983, p. 5), and therefore was encouraged by the government and the Central Bank. (Salim, 1980) Moreover, the trend towards 'universal banking' was seen as inevitable but also an effective way of re-orienting DFIs if they were to remain: "the route taken by the Development Bank of Singapore, a DFI which has successfully turned into a universal bank." (Salim, 1986, p. 62)

4.3 Sources of funds

Owing to banks' specialized nature, sources of funds are stipulated in the founding statutes. Today banks usually raise most of the funds through domestic capital markets while funds for soft-loan schemes come from the government – either BNM, Ministry of Finance or other respective ministries (usually MITI) – in the form of either grants or loans. The former is preferred by banks since grants do not imply re-payment, although loans often get rolled-over. (Interviews 6, 8) In addition, Malaysia's Central Bank established a few specialized development Funds, which have been simultaneously administered by certain DFIs. Foreign loans were initially raised solely by MIDF through obtaining a few lines of credit from international investors such as KfW, ADB, and the World Bank. Such ability to obtain foreign funds was connected to recommendation of IBRD to keep the majority of shares in private hands (direct state ownership has never exceeded 40% for MIDF). Central Bank guaranteed 3% of currency-related risk, although MIDF has not been raising funds in foreign currencies since early 2000s following a rapid decline in government loans and the need to borrow from domestic capital market. (Interviews 1, 6, 8)

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17 The then acting General Manager of *Bank Kemajuan Perusahaan Malaysia Berhad* (Industrial Development Bank of Malaysia, est. 1979).
18 The then acting General Manager of MIDF.
19 The then acting Executive Director of *Bank Pembangunan*.
20 See ft 12.

The decline in government funding has been attributed to fiscal consolidation during recession of mid-1980s (Nik, 2000, p. 39) as well as the overall strengthening of industrial sector. Changes in economic structures affected the types of financial instruments development banks provided: Agrobank reported on the strategy to move towards agricultural entrepreneurship and industrial agricultural business units since lending “to small farmers, fishermen and livestock breeders [we]re coming to saturation point” (Ibrahim, 1995,[21] p. 46), which, in turn, demanded the bank to heavily invest in IT to upgrade operation processes and to develop new financial products and services, following demands from the urban market (as compared to its initial focus on mobilisation of savings among farmers in rural areas). With decline in government funding, development banks were to raise funds from domestic capital market thereby making development loans more expensive (Interviews 1, 2, 6, 8, 10). Only three DFIs could engage in deposit-taking – which is another source of cheaper funds – and given that despite a few mergers in 2000s, the number of DFIs remained large, diversification into commercial activities was inevitable. Another restriction stipulated in founding acts, prohibited most of DFIs from tapping into Employees’ Provident Fund (EPF) and other long-term funds (Lim, 1983;[22] Salim, 1986) although MIDF obtained the first loan from EPF in 1981, which was its largest creditor throughout 1980s. (MIDF annual reports, various years) Funds from foreign sources such as ADB, IBRD, Islamic Development Bank (Jeddah) gradually declined as well.[23]

DFIs that do not engage in deposit taking from the general public are exempt from a requirement to keep deposits at the Central Bank, which therefore does not serve as the ‘lender of last resort’ in case when a DFI gets into troubles. In case of substantial non-performing loans, a DFI would be seeking assistance either from respective Ministry or from the Ministry of Finance. Figure 6 reflects diversification of sources of funds (borrowings remain low as a proportion of total funds) and these aggregate data include DFIs, which are actively engaged in deposit-taking (*Bank Rakyat, Bank Simpanan Nasional*, Agrobank). Borrowings have been declining from 20% to 9%, although the share of borrowings from the government remained above 60% of total borrowings (Figure 4 presents absolute numbers). At the same time, above 50%[24] of funds have

21 The then acting CEO of *Bank Pertanian* (Agrobank).
22 TThe then acting Managing Director of Sabah Development Bank.
23 This has led the Association of Development Financing Institutions of Malaysia (ADFIM) to appeal to the Minister of Finance to assist the DFIs in alleviating their funding dilemma by allowing them greater access to alternative sources of funds by relaxation of legislative constraints and the adoption of new legislative measures. (Lim, 1983)
24 For 2002-2006 figures are lower than 50% but from 2002 statistics no longer includes MIDF thereby affecting consistency of data. MIDF no longer publishes reports since 2002 but its lending figures are available through BNM annual reports.

been used for extending loans while the share of investments (government securities and shares) increased from 11.1% in 1993 to 31.8% in 2014. (Figure 5) Yet, without differentiating between the types of loans and their maturity it is hardly possible to judge upon the nature of lending by DFIs.

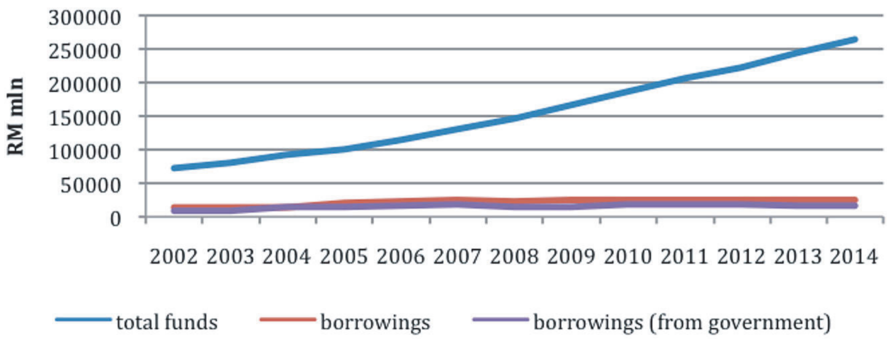

Figure 4. Selected sources of funds (borrowings) of DFIs in Malaysia 2002-2014

Source: BNM annual reports, various years; author's calculations.
Notes: see notes for Figure 3.

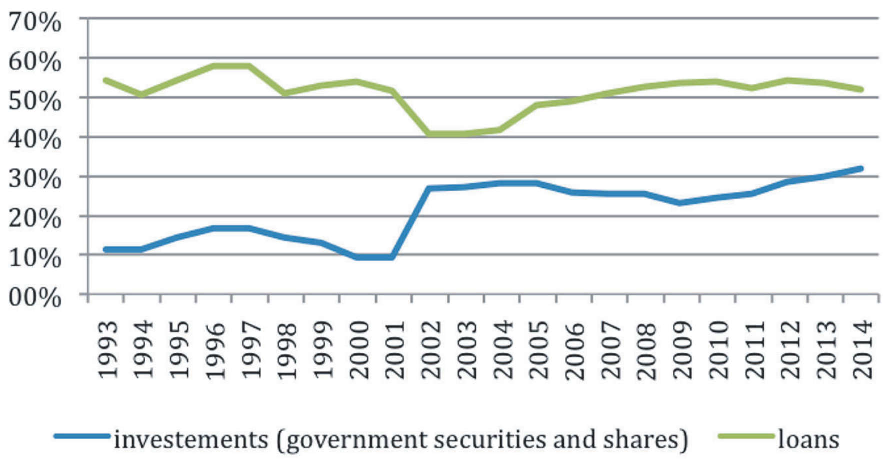

Figure 5. Selected uses of funds by DFIs in Malaysia 1993-2014 (as a share of total funds)

Source: BNM annual reports (prior 2002), BNM Financial Stability and Payment System reports (from 2002 onwards); author's calculations.
Notes: see notes for Figure 3 (the chart reflects changes in reporting following DFI Act 2002). MIDF is excluded: although BNM provides annual lending figures, the lack of methodological notes (e.g. loans approved vs loans outstanding) risks further affecting consistency of data.

4.4 Lending principles and project appraisal

At the turn of industrialisation, newly established development banks often assume the role of technical advisors as they gradually develop a consistent overview not only of technologies *per se* but of their market potential. MIDF performed such a role until Malaysian Industrial Development Authority (MIDA) was established in 1967 as the main national industrial planner and the licensing authority for manufacturing enterprises.[25] The library of MIDF still contains a considerable collection of old materials while nowadays its research department belongs to Investment Division and conducts financial market analysis. Although, in 1971 its research unit expanded towards MIDF Industrial Consultants subsidiary[26] in order to focus on SMEs and to provide services to commercial banks, government, and semi-government bodies. (MIDF annual report 1972) Other DFIs, for which annual reports are available, do not refer to internal research departments explicitly, i.e. do not emphasize specific research competences or services. Although SME Bank established a dedicated unit in 2013 – Center for Entrepreneur Development and Research (CEDAR) – which is mostly in charge of business coaching activities and involves external consultants for research activities. Agrobank revitalized an internal research unit in 2014 where around 10 people work on general industry assessments and outlooks. (Interview 11)

Development banks covered by the DFI Act 2002 are to follow lending guidelines stipulated by Bank Negara. Overall, the terms of lending and interest rates charged by all DFIs vary according to soft-loan scheme agreements (between a DFI and a government agency) although roughly until 1990s banks had a greater discretion in determining terms of lending, which varied across the projects to be financed. (Interview 8) At the same time, in some cases – most notably MIDF – project appraisal was rigorous and included such parameters as verification of sponsors, eagerness of commercial banks to provide supplementary working capital loans right at the start of investment project, a solid collateral, and other non-financial indicators such as market potential, management capacity, technical feasibility, and socio-economic aspects. Such conservatism has been justified by bankers due to volatile economic environment associated with Malaysia's dependency on resource-based exports. (Darwis, 1988) Agrobank exercised a similar policy by prioritising collateral financing. (Martini, 2008,[27] p. 41) At the same time, such extensive require-

25 Other central research agencies included Federal Industrial Development Authority (est. 1971), National Institute for Scientific and Industrial Research (est. 1971), Malaysian Agricultural Research and Development Institute (est. 1969). (BNM report 1971)
26 With the assistance from ILO and UNDP.
27 The then acting President of Agrobank.

ments go somewhat contrary to often-referenced principle of development project assessment based on project's potential and projected cash flow rather than collateral.[28]

Reporting on utilisation of government funds has mostly involved the types and the amount of borrowers while the most recent initiative (2016) to introduce non-financial KPIs by BNM and to include measurements of total factor productivity by MITI (Interviews 6, 8) might indicate intentions to move towards impact assessment of soft loan schemes.[29]

4.5 Internal organisation and competences (based on interviews 1-3 and 5-11)

Among development banks that do not engage in deposit taking, usually there are two major divisions – investment and development – reflecting the two major types of customers and two types of funds – concessionary and commercial. In banks where Development division only deals with government soft-loan schemes, interest rates charged for development loans are lower (around 4%) than for commercial lending (between 5.5% and 8%) as in MIDF. In banks where no such clear demarcation line exists and most of loanable funds are raised from capital markets, interest rates vary similarly: higher for development loans and lower for commercial customers. For example, in SME Bank around 40% of customers belonged to development finance division in 2015, although the bank reports on aggregate amount of loans made to various sectors without differentiating between the types of customers.

Personnel-wise, specific expertise in development finance is rarely required while for managerial positions solid experience in general finance is a must. Recruitment for development finance units is generally done by the central Human Resource office and so is with training and acquiring additional expertise outside the bank. Staff working in Development finance division of a bank would not be required to have any specialized licenses from the Securities Commission or other licensing authorities in relation to various trading or securities as these financing facilities are

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28 Meanwhile, given that lending to *bumiputra* community was a lending target in itself, combined with provision of entrepreneurship trainings, internships, and other non-financial supporting services, there are grounds to conclude that loans extended to emerging class of *bumiputra* entrepreneurs were subject to less scrutiny and to a greater extent were based on project's potential rather than collateral. This might be reflected in a few annual reports available from *Bank Pembangunan*, which was established (1973) precisely for the purpose of supporting *bumiputra* business projects and its two-digit NPL ratio, at least during 1980s.

29 At the same time, the emphasis on mechanisation through the launch of another soft-loan scheme for Automation and Mechanisation, was initiated by the government also to offset financial pressures on employers associated with the introduction of minimum wages in 2013 while increasing mechanisation was also thought as an attempt to decrease firms' reliance on cheap foreign labor. (Interview 5)

under Investment Division. The back office, which is in charge of supervision, is staffed by employees with formal training in finance. Staff recruited for the front office to conduct site visits often comes from various fields of expertise, including non-financial. In the back office, account managers have a portfolio of customers and might either rotate among industry-specific fields (as in Agrobank) to acquire a broader overview or rather not (SME Bank), which, in turn, can be also related to either good or lacking internal database of clients – in the latter case, a rotation of credit officers is avoided. Overall, despite state ownership of DFIs there is little rotation among the staff and no common 'development banking' ethos exists either. Although recently (2015) the potential of staff exchange between various DFIs and related government-linked companies was considered.

Applications for loans are often reviewed by committees, which are formed by representatives from DFIs, a respective Ministry to which a given DFI reports or listed as its agency, and might involve invited business actors or civil servants from respective ministerial departments (e.g. Sectoral Policy Division in MITI). For example, in MIDF a committee meets bi-monthly and includes representatives from MITI (Investment Division), MIDA, MATRADE (export promotions agency), and Ministry of Finance. Development bank is responsible for financial side of project appraisal and is tasked with making recommendations to the committee, which issues the final decision. The overall project appraisal procedure goes through similar steps in almost all DFIs: marketing department and sales conduct the first analysis, then disbursement and supervision units take charge[30]. Agrobank, tasked with financing of upstream borrowers (that is primary sectors: fisheries, plantations)[31] considers projected cash flow at first place while risk assessment is conducted on similar grounds as in other banks. DFIs report, sometimes on a monthly basis, to respective ministries on the amount of loans made to enterprises, in order to ensure that loans are distributed according to specific objectives stipulated by every Fund agreement or by five-year plans issued by Malaysia's Central Planning Unit.

30 At the same time, in the field of development banking in general, credit processing has become more standardised already in 1970s when account managers replaced multiple-member team in charge of project appraisal. In other words, instead of staff members with diverse expertise – from finance to technical skills – a single person would be in charge of a single project application. In some banks, however, research departments continue playing important role and industry consultation takes place. Although, the general trend towards standardisations and credit processing in line with more stream-lined organisation of commercial banking can be observed.

31 Downstream borrowers, such as commodity operators and agro-manufacturing are financed through commercial banks.

Introduction of productivity measurements in 2016 requires DFIs to ensure that borrowers (which have credit applications approved) allow a representative of the National Productivity Commission to access their production site, which often involves trust issues on the side of borrowers. Yet, the effectiveness of measure rests on the need to conduct such a visit twice: before purchase of machinery or equipment and some time after.

5. Institutional context: towards conceptual framework

As follows from the notion above and as the case of Malaysia clearly demonstrates, development banks evolve in a dynamic institutional environment. Industrial structures mature and new forms of business as well as new economic activities require different types of financing facilities and of various scales. Financial institutions respond to this as well as to competition within financial sector by readjusting their operation strategies, range of services, and subsequently internal competences. Simultaneously, policy trajectories, regulatory regimes and other institutional arrangements affect the way development banks fulfill their mandates. Therefore, the context in which development finance institutions operate includes a variety of actors, both from private and public sector, which, in turn, define as well as get reflected in banks' internal competences. Table 2 differentiates between external and internal contextual factors.

In addition, defined by the institutional context, there are various functions carried out by development banks. These functions can be mandated *a priori* by legislation, policy tasks, reporting requirements, but at the same time, they can be reflected in ways how banks operationalize and perform their mandates. For example, if a research unit previously conducting industrial and economic research was transferred to investment banking division and now publishes studies of capital markets, then the development research function of the bank became less relevant but more in line with practices of investment or commercial banks. Similarly, if project evaluation committee consists of representatives from agencies in charge of economic planning while bank's representatives perform the role of financial advisors, the bank is more likely to conform to guidelines from ministerial bureaucrats rather than act as a strategic investor, that is, its managerial function would over-write its investment function in terms of policy role[32]. The types of functions are not mutually exclusive

32 It can still be a strategic investor in generating income to remain a sustainable financial firm but that would be related to its operations and not policy role. The two are certainly interrelated but singling out policy functions helps to fill the persistent gap between normative assessment of policy finance and empirical study thereof.

and are dynamic. By identifying institutional context and differentiating between the types of functions, we can better understand the variety of policy roles development banks perform.

Table 2. Suggested framework for analysing institutional context of a national development finance institution.

Position within a wider national context and linkages with relevant public and private actors	Evolution of internal organisational structures and competences
Founding statute: type of legal act, ownership, relation with supervising agency, and formal policy mandate, which defines the place of DFI within national financial structure.	**HR policies and development of internal competences** according to the policy mandate.
Policy mandate and actual scope of operations including sources of funds, fulfilling profitability targets and prudential guidelines, lending and /or equity investments.	**Organisation and bureaucratic practices** reflecting existing (lacking) competences and their ultimate success (failure).
Relations with commercial banks (consortia lending, syndicated loans, both domestically and abroad)	**Specific competences vis-à-vis commercial banks** (how do financial and technical competences are positioned vis-à-vis private financial actors)
Relations with industrial / services sector (industrial research, economic forecasting, technological evaluation, feasibility studies)	**Specific competences vis-à-vis private sector** (how do financial and technical competences are positioned vis-à-vis private non-financial actors)
Relations with other public organisations, especially Central Bank (e.g. provision of guarantees), related Ministries, and relevant agencies (e.g. Productivity Commission, research centers, export agencies).	**Specific competences vis-à-vis public sector** (how do financial and technical competences are positioned vis-à-vis public actors)

Source: compiled by the author.

5.1 The typology of functions

Apart from retail banking and financing of consumption performed by certain DFIs in Malaysia, there are particular functions related to developmental policies, especially in regards to financing of industries that can be identified: *investment* function, *managerial* function, and *research* function. Investment function refers to lending activities (or equity participation) where a bank has a greater discretion in performing project appraisal and determining conditions of financing facilities provided, it usually implies higher risks and corresponding interest rates, and respective competences that a bank has or need to develop, usually both financial and non-financial. In Malaysia DFIs performed this role during the first decades of industrialisation, especially MIDF, arguably *Bank Teknologi & Industri*, and to some extent *Bank Pembangunan*. Managerial function refers to less strategic role whereby a bank channels government soft-loan schemes, allocated within the developmental part of budget, at more standardized interest rates and focuses on financial side of project appraisal, thereby acting as a financial *manager* of the fund. *Research* function implies specific industrial, economic and technological research and evaluation competences a bank can develop to provide industry-related policy input. MIDF performed a strong research function until 1990s while overall banking institutions did not significantly complement federal agencies in providing research input for policy formulation in Malaysia.

Managerial functions do not have to be strictly related to disbursement of government-backed loans. Other types of managerial functions, not discussed above but more prominent in other DFIs such as Korea Development Bank (KDB) or China Development Bank (CDB) include facilitating industrial restructuring by financing mergers and acquisitions; by assuming temporal managerial control over troubled firms, both financial and non-financial; or partaking in privatization programmes. Restructuring can take place either following a major economic downturn (e.g. Asian Financial Crisis) or maturity of a particular industry, which both imply industry consolidation. In either case, development banks are provided with additional government funds to assume this temporary mandate and rely on their knowledge of industries, financial and technical aspects thereof. Malaysian DFIs assumed managerial function while assisting in privatisation programmes as well as in supporting national government in redistribution of wealth following the New Economic Policy agenda: due to the absence of specific targets within *bumiputra* quotas, banks were less concerned about industrial and economic returns of investments made. There is also a countercyclical role state-backed development banks tend to play but since in this case banks channel additional government funds in order to prevent a credit crunch, that is, largely to multiply the total amount of credit extended, this can represent either investment or managerial function, depending on whether certain sectors are prioritized or to what extent lending guidelines are pre-defined. At the same time, financial inclusion, affordable housing and education, or other types of broader socio-economic goals can be classified as *socio-economic* function, which refer to the activities that commercial banks classify as non-bankable.

The functions differ not only across various DFIs but often change throughout the lifetime of a development bank. While looking at a single institution such as MIDF we may suggest that *research* function might appear more strategic during the first decades of industrialisation when domestic industrial sector is in the process of developing own standards, assessing market positions, importing technologies and acquiring skills in professional management, marketing, and other business-related spheres.[33] Similarly, while conducting a countrywide study we may observe that direct government funds for industrial lending tend to decrease along the course of economic and technological development, which may introduce or reinforce the *managerial* and *socio-economic* functions of a development bank, shall it remain on the national scene of development finance. Although DFIs in Malaysia did not have "to cope with unexpected reversals of policies" (Salim, 1986 p. 58) but rather had to follow shifts in priorities, the latter were changing fast enough and without strong enforcement of targets, therefore provision of funding was more supply-based and resembled a transfer of developmental funds rather than its strategically targeted (in industrial terms) utilization. Further, increase in managerial approach to development loans since 1990s and diversification of DFIs into commercial activities and consumer lending coincides with negative de-industrialization, stagnating incomes and lower productivity dynamics in Malaysia since 2000s outlined in Rasiah (2011).

6. Conclusion and suggestions for further research

The study attempted to give a nationwide overview of public development banks in Malaysia and trace its evolution in order to emphasize that despite policy mandates and formal policy roles, these institutions may or may not perform strategic policy functions, which are often attributed to DFIs in scholarly literature and policy studies. The study has suggested broadening empirical frameworks along two dimensions: to assess institutional contexts in which DFIs operate nationally and to inquire into internal competences, especially in regards to how financing decisions are made. The latter is related to the amount of discretion DFIs have in making such decisions and to the actual functions these banks perform. Assessing operations of development banks through the prism of institutional context, in which these banks operate, would inform the discussion and help make more nuanced inferences from the empirical studies. This, in turn, would enable more accurate comparative analysis: comparison of the investment function of German *Kreditanstalt für Wiederaufbau* (KfW) or Canadian Business Development Bank (BDC) with that of Brazilian National Bank for Economic and Social Development (BNDES) is more likely to produce viable results as well as more sensible policy recommendations when performed in conjunction with analysing developments in industrial sector, regulatory and supervisory framework, operational strategy and

33 At the same time, in cases of KDB and China Development Industrial Bank (CDIB; successor of China Development Corporation, Taiwan) the research function remains one of the defining features of development banks that help position themselves strategically vis-à-vis government agencies as well as commercial banks.

goals, as well as position within the national financial system. Otherwise, comparing policy roles and financing facilities of various DFIs would result in distorted conclusions and might facilitate the advocacy of so-called best practices, which, however, would remain outside real-life problems and viable policy solutions.[34] Further research should be done on both single-institution and nationwide scales in order to identify other functions of development banks and refine the suggested typology. Both institutional contextualisation and the typology of functions outlined in the current study, are not limited in its application to the analysis of state-owned development banks and can be equally applied to other types of financing agencies, including privately-owned (e.g. Development Bank of Turkey, Development Finance Corporation of Ceylon (aka DFCC Bank) in Sri Lanka) as well as other specialized financial agencies (e.g. FINNVERA in Finland).

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Interview 3 – December 21, 2015
Interview 4 – December 30, 2015
Interview 5 – January 3, 2016
Interview 6 – January 21, 2016
Interview 7 – January 26, 2016
Interview 8 – January 27, 2016
Interview 9 – February 10, 2016
Interview 10 – February 17, 2016
Interview 11 – October 7, 2016

Interviews (semi-structured) were conducted in Malaysia, and the Philippines between October 2015 and October 2016 and a number of personal communications took place during the same period. All respondents preferred to remain anonymous, including their formal affiliations. Respondents included senior officials from selected DFIs, both acting and retired, representatives from selected government agencies, and a regional association of development banks. Unfortunately, despite two formal interview requests sent to Bank Negara, the author was unable to meet with respective officials.

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34 For example: as policy notes from a number of bankers of Malaysia's DFIs from 1980s demonstrate, there existed a strong advocacy for universal banking through mergers of development banks with commercial banks, following the experience of Singapore where the development bank (Development Bank of Singapore, DBS) ventured into commercial finance almost at the start, thereby complementing lines of industrial finance. Such suggested emulation, however, did not account for differences in external finance (via foreign direct investment) and structures in domestic industrial sector with Singapore rapidly climbing a technological ladder as well as diversifying into services, including financial.

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The working paper series is edited by Rainer Kattel (rainer.kattel@taltech.ee), Wolfgang Drechsler (wolfgang.drechsler@taltech.ee), and Erik S. Reinert (erik.reinert@taltech.ee), who all of them will be happy to receive submissions, suggestions or referrals.

Publication VI

Raudla, R., Mjøset, L., Kattel, R., Cepilovs, A. & **Mikheeva, O.** (2018). Different Faces of Fiscal Bureaucracy. *Administrative Culture*, 19 (1), 5−36.

Ringa Raudla, Lars Mjøset, Rainer Kattel, Aleksandrs Cepilovs, Olga Mikheeva and Bent Sofus Tranøy. 2018. "Different Faces of Fiscal Bureaucracy." *Administrative Culture* 19 (1), 5-36.

Different Faces of Fiscal Bureaucracy

Ringa Raudla, Lars Mjøset, Rainer Kattel, Aleksandrs Cepilovs, Olga Mikheeva and Bent Sofus Tranøy

Abstract

In light of the growing importance of finance ministries and the financial dimension in policy-making, opening up the "black box" of fiscal bureaucracies is more warranted than ever. Our paper addresses the following research question: What kinds of roles can be assumed by fiscal bureaucrats in fiscal policy-making and budgeting? We propose four dichotomies that can be employed for examining the roles played by fiscal bureaucracies: 1) developers vs guardians; 2) initiators vs followers; 3) mediators vs insulators; 4) modellers vs estimators. In developing these dimensions, we juxtaposed the insights from various streams of institutionalist research and also literature on public budgeting and public policy with the themes that emerged from the interviews we conducted in four different countries: Estonia, Latvia, Sweden and Norway. We find that fiscal bureaucracies in Estonia and Latvia tend to be closer to the guardian-insulator-estimator ends of the continuums, whereas the officials in Sweden and especially Norway lean towards the developer-mediator-modeller end of the scale. The division between the initiator vs follower roles is less clear-cut.

Keywords: fiscal bureaucracy, fiscal policy, budgeting, comparative analysis

1. Introduction

A number of studies on fiscal governance have pointed to the increasing power of the finance ministries, following the recent financial, economic and fiscal crises (Allen et al. 2016; Di Mascio et al. 2013; Raudla et al. 2015). Finance ministries have already tended to be *primi inter pares* among the ministries since they are responsible for "formulating and implementing the core financial functions of government" and are "at the center of economic and fiscal policy-making" (Allen et al. 2016, 3). The growing importance of the financial dimension in governance gives the finance ministries – and especially the "fiscal bureaucracy" part – an even bigger role in the governmental ecosystem. By "fiscal bureaucracy" we mean the civil servants who are involved in and contribute to budgetary and fiscal policy; hence, it covers officials working for the departments of budgeting, fiscal policy and macroeconomic analysis in the finance ministries.

In light of their growing importance, it is somewhat curious that the finance ministries have received only limited attention in scholarly research so far. Indeed, as Allen et al. (2016, 4) put it, "the literature on the functions and organizational structure of finance ministries is relatively slim". However, anecdotally, the power and importance of fiscal bureaucrats is rarely doubted, often feared and vilified as in this following exchange from *Yes, Prime Minister* (1986):

James Hacker:	But that's an outrageous view.
Sir Humphrey Appleby:	Yes indeed, it's known as Treasury Policy.

Thus, it comes as a surprise that the role of bureaucracy in policy-making is an understudied question – or even a "missing variable" (Meier 2009, 7) – even though it is often admitted that bureaucrats can play a significant role in policy making (Baekgaard et al. 2015; Howlett 2011). If the volume of studies on finance ministries and the role of bureaucracies in policy-making is "slim", the literature on fiscal bureaucracies is even thinner. In Krause's (2012, 149) words: "Budget officials are bureaucrats but bureaucracy is mostly absent from literature on budgeting." Given their increased power and relevance, however, it would be useful to open up the "black box" of fiscal bureaucracies and take a closer look at the kinds of roles they play and the types of "faces" they can have. In doing that, we have followed the call of Yesilkagit (2012, 35), who, when elaborating the future research agenda in the field of executive politics, called for "recalibrating" the images we have of bureaucracies by undertaking more studies about the bureaucrats' roles, beliefs and perceptions.

Thus, the research question this paper addresses is: What kinds of roles can be assumed by fiscal bureaucrats in fiscal policy-making and budgeting? While Allen et al. (2016) analyze the functions and organization of finance ministries as a whole, in this paper, we zoom in closer on the fiscal bureaucracy part of finance ministries. We propose four dichotomies that can be employed for examining the roles played by fiscal bureaucracies: 1) developers vs guardians; 2) initiators vs followers; 3) mediators vs insulators; 4) modellers vs estimators. In developing these dimensions, we juxtaposed the insights from various streams of institutionalist research and also on literature on public budgeting and public policy with the themes that emerged from the interviews we conducted in four different countries: Estonia, Latvia, Sweden and Norway. In each country, 5-6 semi-structured interviews were conducted with fiscal bureaucrats during the period of 2014-2016. In choosing the interviewees we followed the logic of purposive sample and sought to cover officials who contribute to fiscal policy making and budgeting through different angles. The dichotomies we outline in this paper are, of course, continuums rather than binary in nature. For developing the first three dichotomies (developers vs guardians; initiators vs followers; mediators vs insulators) we were able to draw on the theoretical discussions in the existing literature. The last dichotomy (modeller vs estimator) emerged as an insight from our interviewees. It also points to a gap in the existing theoretical discussions on comparative public policy and bureaucracy – since we could not find any studies that would discuss the use of macroeconomic models by fiscal bureaucracies.

In choosing the countries, our goal was to cover a sufficient diversity of settings while keeping the cases comparable. All four countries are unitary states, parliamentary democracies with proportional electoral systems and coalition governments, and located in the same region. However, the two pairs – Estonia/Latvia and Sweden/ Norway – have very different characteristics in terms of prosperity, economic development, styles of policy-making and ideational heritage. Sweden and Norway are older democracies, Estonia and Latvia newer ones. Sweden and Norway are high-income countries, Estonia and Latvia on the medium level. Sweden and Norway have a long heritage of social democratic governments, while the Estonian and Latvian governments have, since the 1990s, been primarily driven by the neoliberal policy agenda. The countries also vary in terms of their integration with the European Union (EU). Estonia has been a Eurozone member since 2011, Latvia since 2014. Sweden is a full EU member but does not have the Euro. Norway is not a member, but it is closely integrated through the European Economic Area (EEA) agreement. By looking at the different settings, we can explore the variation in the perceived roles and faces of fiscal bureaucracies.

The main empirical goal of this paper is not to offer generalizations but to explore the nuances under the dichotomies we have proposed – to “fill them with life” and with the actual “voices” of the fiscal bureaucrats themselves. Thus, our aim is to provide a more nuanced discussion of fiscal bureaucracies than just focusing on the formal authority and institutional competencies would allow, and zoom in on the “subtler” roles they can play. We do point to some patterns where we observed them, but these should be viewed as tentative conjectures. In other words, the overall goal of our analysis was to explore the diversity of the attitudes rather than to converge on premature generalizations. The paper is structured as follows: sections 2-5 cover the four different dichotomies we have proposed, with each section first providing some theoretical considerations, followed by empirical analysis. Section 6 concludes with a discussion.

2. Guardians of the Purse or Developers of Economy?

In the literature on budgeting, finance ministries are usually expected to fulfil the role of the “guardian” of the purse (Heclo and Wildavsky 1974; Rubin 2016; Krause 2012; Wildavsky 1986; Wildavsky and Caiden 2004). As Krause (2009, 3) puts it, “Modern finance ministries should be lean and mean guardians of public money.” While the line ministries have incentives to expand spending, the finance ministries also look at the revenue side and evaluate the overall tax burden. Indeed, the “performance” of fiscal bureaucracies is usually evaluated by how well they manage to balance demands and available resources (Heclo and Wildavsky 1974; Krause 2012). They are expected to take the “Treasury view”, be the “responsible housekeeper” of the government (Wanna et al. 2003) and “discipline” the spending-prone line ministries.

The role of the “guardian” can be played out by adopting either a “macro” or a “micro” approach to budgeting (Krause 2009; Schick 1986, 1988). *Macro-budgeting* is aimed at controlling the budget totals, leaving more discretion over the details of the budget to the line ministries. *Micro-budgeting* focuses on controlling the more detailed line-items, influencing the daily operations of spending ministries and essentially acting as a "command and control post" (Schick 2001, 9). The general tendency in the Organisation for Economic Co-operation and Development (OECD) countries has been to move from micro-budgeting towards macro-budgeting, entailing a stricter control over the totals and relaxation of more detailed input controls (Schick 2001).

Alongside fulfilling the "guardian" role, fiscal bureaucrats can also be expected to consider the effects of the budget on economic development, i.e. to assume what we call a "developer" role. Given the increasing importance attributed to fiscal policy in the post-crisis period and extensive debates in the academic and policy communities that have unfolded since the Great Recession (see, e.g. Ban 2015; Blyth 2013; Dellepiane-Avellaneda 2015; Vail 2014) we would also expect that fiscal bureaucracies had to (re)-reflect on what role fiscal policy could or should play in the development of the economy. The "developer" role can entail various tasks, ranging from developing counter-cyclical fiscal policies and fine-tuning the economy to undertaking a more extensive role in using fiscal policy tools to promote favourable development of the economy.[1] While not contradictory to the "guardian" role per se, combining the "Treasury view" with the "economic development" view can impose contradictory demands on the fiscal bureaucrats. Thus, we were interested in how these potentially conflicting imperatives influence the predominant role perceptions of the fiscal bureaucrats and their attitudes towards fiscal and budgetary policymaking in the four countries covered in our study.

In all four countries, the overall approach to the budget process follows the top-down approach of macro-budgeting, with Sweden being the clearest example (with its fixed multi-year expenditure ceilings) (Anderson et al. 2006; Downes et al. 2017; Kraan et al. 2009; Raudla 2010; Wehner et al. 2008). In all four countries, the interviewed officials did indeed point to their "guardian" role in the budget process, sometimes even using the very same term. As the Latvian officials put it: "We play the role of defender and keep the spirit of fiscal discipline because currently there is a real desire to spend" (Interview L2). "We serve the role of a watchdog, who's barking all the time" (Interview L6). In Estonia, the interviewees repeatedly emphasized that their role is to "keep the house in order", very much echoing the "responsible housekeeper metaphor" described above. A Swedish official remarked, "Spending ministries tend to exaggerate their expenditure forecasts and we usually follow a rule of thumb to adjust them downwards" (Interview S6). The "guardian" orientation was particularly clear in the case of officials working for the *budgeting* departments, which are in charge of gathering the spending proposals and negotiating with the line ministries. Even in Norway, where the scarcity of resources is somewhat lower than in the other countries, the interviewee noted that, "We have the oil revenue, but still, the politicians need to prioritize. They need to stop doing things and propose cuts and savings in order to prosper" (Interview N4).

[1] This can take different forms from spending rules to managing public development banks or state-owned companies. We also have to remember that many central banks were governed by respective Treasuries up to the latter decades of the 20th century, i.e. they were not autonomous (O'Connell 2014).

The guardian role of the fiscal bureaucracy has become more complicated in recent years, given that the EU fiscal rules pertain to the *general* government sector, which, in addition to the central government also includes local governments and state-owned and municipal enterprises. That means that if the latter run higher deficits, the central government has to lower its deficit in order to make sure that the general government deficit meets the EU target(s). Thus, in Estonia and Latvia, for example, local governments have to obtain a permission from the Ministry of Finance (MoF) in order to incur a loan – which adds another dimension to the MoF's guardian role.

It emerged from the interviews that there are other, more subtle ways to exercise the guardian role than exercising a direct control of the expenditures in the annual state budget. Increasingly, the fiscal bureaucrats in the four countries have been in charge of designing *fiscal rules* – either as a result of the EU mandates (in Estonia and Latvia) or on their own initiative (in Sweden and Norway).

This more nuanced "guardian" role can be observed particularly clearly in the case of Estonia, where the interviewed officials admitted that when writing the new fiscal rule – the structural balance requirement – into the new organic budget law in 2013, it was the initiative of the fiscal policy department's officials to establish a *stricter* target than was foreseen by the European mandate. While the Fiscal Compact required the member states to establish a structural *deficit* target of 0.5% of GDP, the Estonian fiscal bureaucracy proposed (and succeeded in) establishing a structural *balance* target (see also Raudla et al. 2016a). The fiscal bureaucrats also designed an automatic compensation mechanism (in the form of having to run budget surpluses), should it turn out, *ex post*, that a government has violated the structural balance rule. This was another requirement, which was not, in fact, covered by the European mandate. The fiscal bureaucrats hoped that these provisions would serve as additional checks on fiscal discipline. As one of the interviewed officials explained: "The current government is fiscally responsible but future governments may not be. Thus, we have been more conservative [in designing the fiscal rules in the new organic budget law] in order to avoid getting immediately into a big mess, should a more profligate government get into office. The stricter provisions in the organic budget law will hopefully keep the future governments in check" (Interview E2).

The *fiscal rules*, in turn, provide the MoF officials with a focal point in their "guardian" role: the rules allow them to take a firmer stance towards the line ministries. In Estonia and Latvia, it is the structural deficit (or balance) rule and multi-annual expenditure ceilings, adopted as a result of the requirements of the Fiscal Compact; in Sweden, it is the surplus target and multi-year expenditure ceilings; in Norway, the fiscal rule stipulating how much of the oil (or pension) fund can be utilized annually.[2] We also observed, however, that while the fiscal rules can strengthen the position of the fiscal bureaucracy in the budget process, vis-à-vis other actors, such rules can also impose contradictory demands on them. In the case of Norway, for example, the idea of the fiscal rule is to restrict spending of oil revenues to the return on the oil fund, but since the rule applies to a whole business cycle, it

[2] The Norwegian rule established a reference level for the budget deficit: over the business cycle, the deficit should equal the expected real return (4 per cent) of the petroleum fund (Mjøset and Cappelen 2011).

does not entirely rule out the kind of political business cycle behaviour (government spending timed to elections) that fiscal bureaucrats want to avoid. Furthermore, such rules can force the "guardians" to adopt "creative" approaches in order to comply with the rules. A Swedish official explained that in order to adhere to the expenditure ceilings, the MoF has used some "canny" solutions (e.g. postponing payments) to make sure that formally the rules are followed (Interview S6). As he emphasized, such an approach is necessary for avoiding a slippery slope: "Once the expenditure ceiling is exceeded, it is much easier to exceed it also next year. … So we have a dual role of defending the system as a whole but in order to provide the needed flexibility, especially in more urgent situations where expenditure cuts cannot be undertaken, we have to introduce measures that more or less circumvent the rules" (Interview S6). Thus, in a paradoxical way, strict fiscal rules can force the guardians to "circumnavigate" the rules in order to "keep" the rules.

As mentioned above, the identification with the "guardian" role is particularly evident in the case of the officials working for the *budget departments*. When looking at the fiscal bureaucracies as a broader group of officials (including also those from departments dealing with fiscal policy, economic policy, and/or macro-economic analysis), the diversity of views with regard to the position in the "guardian vs developers" continuum is more pronounced, both between countries and within them. We explored these themes with the help of more general questions (e.g. asking the civil servants to outline the goals of fiscal policy) but also with more specific questions (e.g. how would they react in the case of recession, what is their evaluation of recent fiscal policy actions). Finally, in order to locate their answers in a broader ideational context, we posed questions with an explicit reference to Keynesian ideas and whether such ideas are or could be applied in their country.

In all four countries, the interviewees' views were similar with regard to what the *general goals* of fiscal policy should be. They all agreed that fiscal policy should be counter-cyclical, play a role in economic stabilization and foster economic development. We could, however, observe differences among the interviewees with regard to what it would mean in terms of specific policy actions. In Sweden and Norway – when asked the question, "if a recession were to hit your country next year, what would the response be?" – *all* the officials answered that the government would respond with a fiscal stimulus. One of the Norwegian officials noted that in 2016 and 2017 they would, in fact, have "expansionary fiscal policy to counteract the downturn in the economy" (Interview N2). One of the Swedish officials explained that in order to stimulate the demand, the government could increase the child allowance, spend more money on the municipalities, and increase the infrastructure and housing investments (Interview S4). Another noted, "It is important to get people back to work" (Interview S3). In Estonia and Latvia, the answers to the same question ("how would you react to a recession?") were more divided: some officials argued for consolidation measures, others for stimulus measures.[3]

Also, when evaluating the actions taken during *the most recent recession*, we can observe considerable differences between the assessments of the interviewees. The

[3] At the same time, most of the officials in all four countries noted that in order to be ready for the next crisis, it is important to build reserves – so that there would be fiscal space for taking actions.

Swedish and Norwegian officials all pointed to fiscal stimulus measures that were undertaken in 2008-2010 and found them justified, although there were diverging views between the officials with regard to whether the measures were too small or too large, in hindsight. Some of the Swedish interviewees noted, however, with a view to the 1990s crisis, that in some cases, *fiscal consolidation* may improve the economic situation. As one of the officials explained, "In the 1990s we had this big fiscal crisis and there was a lot of discussion of non-Keynesian effects – that budget cuts could actually stimulate the economy. The evaluations afterwards of whether that was true or not have shown mixed results. Some findings indicate that when you have such a big fiscal crisis – we had a deficit of more than 10 per cent of GDP and exploding central government debt – it is possible that budgetary retrenchments could actually be expansionary because you increase the trust" (Interview S6).[4] The interviewee added, however, "In a normal situation, when you have sustainable public finances – at least relatively sustainable – as in Sweden today, then an expansionary fiscal stance has a positive demand effect on the economy and budgetary cuts would have the opposite effects" (Interview S6). In Latvia, all the interviewed officials found the consolidation measures in response to the recent crisis justified – with the arguments echoing the same aspects as those mentioned by the Swedish official. In Estonia, some of the officials saw the consolidation measures as fully justified, whereas others suggested that perhaps they went too far and were contractionary.[5]

When asked to evaluate the current state of fiscal policy, both in Sweden and Norway, however, the officials expressed concerns over excessively expansionary fiscal policy. The interviews with the Swedish officials also indicated concerns over the potentially overly expansionary fiscal policy: "We are not being as careful with the money as we should be in fiscal policy, given that we are going through good times, labour market and production-wise. The government is over-expanding the economy now" (Interview S3). "Our GDP gap now is close to zero or even positive. We are now close to full utilization of resources and to avoid expansionary fiscal policy we should go back to surplus" (Interview S6). In the Norwegian context, parties represented in the parliament can demand that the party's budget proposal is checked on the macroeconomic models maintained by Statistics Norway. Commenting on one of these exercises, a Norwegian official complained, "On fiscal policy they are a bit soft. They had some analysis a few years ago when they saw additional spending of 40-45 bn NOK on infrastructure every year. I found it to be too stupid in a way. … It was then used in parliament for arguing for more spending in a situation where we didn't really need it" (Interview N3). Referring to discussions on whether the Norwegian fiscal rule should be tightened by lowering the 4 per cent estimated return to 3 per cent, another official noted that the 4 per cent estimate "could give too high impulses to the Norwegian economy in a situation where we actually need to transform, and if you push too much money into the economy, that could stop the transformation you need rather than helping it" (Interview N1). In the Estonian case, we could observe a noteworthy diversity – even contradictions –

[4] For academic discussions on the issue, see, e.g., Erixon (2015), Flodén (2013).

[5] For an overview of the consolidation measures undertaken in Estonia and Latvia, see Raudla and Kattel (2013) and Kattel and Raudla (2013).

among the attitudes of fiscal bureaucrats with regard to the "development" dimensions of fiscal policy. On the one hand, all the interviewees repeatedly noted that, indeed, an important function of the fiscal policy is to be counter-cyclical, to smooth the economic cycle and to stabilize the economy. On the other hand, the perception of the political reality is different. As one of the officials noted, "The idea that we should stimulate the economy in order to close the GDP gap is still somewhat alien here" (Interview E3). Also, while some of the officials support counter-cyclical economic policy, *in principle*, they appear to be reluctant to actually implement it by incurring loans. As one of the officials argued, "I do not support the idea of incurring loans … The ideas that politicians are proposing for incurring loans are idiotic" (Interview E2).

In a similar vein, in Latvia, the overall attitude of fiscal bureaucracy appears to be that fiscal policy has a significant role to play in economic development and stabilization. However, as in Estonia, there is a reluctance to implement such a policy in reality – due to distrust towards the politicians. A Latvian official explained that in light of the low public debt level and low interest rates, running small deficits would be justified, and the loans could be used for financing infrastructure spending. The interviewee added, however, that "We don't really trust our decision-makers: if we allow them to have a greater deficit, we cannot be sure that they would use it for investment. Instead they might spend it on consumption or pensions or something else that is politically profitable. Thus, our attitude is that we would be better off by not borrowing: that enables us to have lower debt maintenance expenses" (Interview L4).

When asked explicitly about their attitudes towards *Keynesian*-style fiscal policy-making and the applicability of Keynesian ideas in their country, the Norwegian fiscal bureaucracy appears to be most comfortable with it and they all agreed that Norwegian fiscal policy follows Keynesian principles. As one of the interviewees put it, "I think that Keynesian ideas are basically there in all institutions in Norway that are discussing economic policy" (Interview N1). According to another, "We have a very long tradition in Norway for using fiscal policy actively in stabilizing the economy, and that goes back several decades" (Interview N3). Another official noted that although since 2001, when the fiscal rule and the inflation target were introduced, monetary policy in Norway has been given the main role in stabilizing the economy, fiscal policy still plays a role during large fluctuations (as was the case in 2008-2009) (Interview N2). In Sweden, the interviewees also supported a counter-cyclical role for fiscal policy and noted that there is more widespread agreement about the importance of Keynesian-style activist fiscal policy after the crisis. They also interpreted the existing fiscal framework in Keynesian terms. As one of the interviewees explained, the expenditure ceilings still allowed for counter-cyclical action: "Those who criticized our actions during the recession, neglected the fact that the expenditure ceiling is expressed in nominal terms and at the same time we had a drop in inflation, in prices, in wages, and that counteracted the effect on nominal expenditures" (Interview S6).

In Estonia and Latvia, the attitudes towards Keynesian fiscal policy are more ambivalent. In Estonia, on the one hand, the interviews indicate that the officials tend to re-interpret the austerity measures in 2009-2010 as having been at least partially

"Keynesian" in nature and having provided a boost for the economy (see also Raudla et al. 2016b). Thus, while during the austerity period itself (2008-2010), Keynesian ideas were criticized in Estonia (see Raudla and Kattel 2011), in light of increasing acceptance of the Keynesian ideas following the crisis period in the international arena, the officials have felt the need to justify their policies also in those terms (see Raudla et al. 2016a, b). On the other hand, as discussed above, the interviews also indicate that there is clear reluctance by the fiscal bureaucracy to engage in borrowing, which would constrain implementing Keynesian policy actions in reality. In Latvia, on the one hand, the interviewees acknowledge that the Keynesian ideas of stabilizing the economy with fiscal measures are important, but, on the other hand, they are still convinced of the non-Keynesian effects of fiscal consolidation and are also sceptical of engaging in borrowing. As one of the officials explained, "If we compare the Keynesian theory that is taught in the university with what is going on in real life, we can see that the case of Latvia proves that in general we could restore growth by taking the path of expenditure cuts" (Interview L3).

As the discussion above shows, fiscal bureaucracies have more varied "faces" than just the "lean mean guardian". The interviews indicate that the "guardian vs developer" continuum we proposed can indeed be a useful heuristic for exploring the role(s) of fiscal bureaucracy in a comparative setting. Overall, most of the fiscal bureaucrats especially in Norway but also in Sweden are closer to the "developer" role than the officials in Estonia and Latvia. At the same time, however, the interviews indicate that there can be considerable diversity in the role orientations also among the fiscal bureaucrats within the same country. Especially with the officials working for the budget departments – responsible for compiling the annual budget – the "guardian" orientation is dominant, whereas the civil servants from other parts of the fiscal bureaucracy tend to have more "developer" orientations. We can also see from the interviews that working in fiscal bureaucracy can often entail oscillation between the guardian and the developer role, with the civil servants trying to find a complicated balance between the contradictory demands placed on them. With the paradigm fights about the role of fiscal policy unfolding on the international arena, the fiscal bureaucracies are also likely to find themselves in the crossfire of incongruous ideas, which may make it difficult to devise a more coherent policy agenda.

3. Initiators vs Followers

The second dichotomy for examining the roles of fiscal bureaucracy entails looking at whether the civil servants initiate policy changes or view themselves in the role of a "follower" who implements the decisions coming from "above". As emerged from the interviews, it would be fruitful, however, to explore the "initiator vs follower" continuum at two levels: first, with regard to the politicians within the country and second, with a view to the supra-national context of policy-making and especially with reference to the European Union.

3.1 Bureaucrats vis-à-vis Politicians

The classical Weberian dichotomy of politicians setting goals and drawing up laws and policies, and administrators implementing them has long been questioned (Baekgaard et al. 2015; Hansen and Ejersbo 2002; Page and Jenkins 2005; Svara 1998). The division of labour between politicians and administrators is more complex – and their interactions and roles more diverse – than this dichotomy conveys. Administrators can be closely involved in formulating policy objectives, and politicians may be involved in specific constituency cases (Hansen and Ejersbo 2002; Page and Jenkins 2005).

Although the conventional vision often tends to cloak the role of the bureaucrats in "gray robes of anonymous neutrality" (Aberbach et al. 1981, 5), the civil servants working for the fiscal bureaucracy can influence policy-making in various ways. Importantly, they can structure the flow of advice politicians receive (Hall 1989; Page and Jenkins 2005). As Baekgaard et al. (2015) explain, elected officials are likely to consider only "few facets of a multifaceted matter" when paying attention; thus, what "passes through their bottleneck of attention" can be significantly influenced by bureaucracy (Baekgaard et al. 2015, 460) and hence influence the strategic calculations of the elected officials (Oliver and Pemberton 2004). Thus, bureaucrats can play a major role in policy-making by diagnosing problems[6], outlining alternatives to deal with them, formulating policy proposals, and assessing the feasibility of policy alternatives (Baekgaard et al. 2015; Heclo 1974; Page and Jenkins 2005; Skocpol 1985). In addition to these straightforward avenues for influencing policy-making, the bureaucrats can shape policies by articulating the language of a specific policy, deliberately "framing" and "packaging" certain policy ideas to convince the elected officials (Campbell 1998).

In the field of fiscal policy – with its increasing technicality and need for expert input into devising policies – we can expect the civil servants to play a growing role in policy-making (Peters 2002). As Christensen (2013, 569) has pointed out, "technical expertise can augment the policy influence of officials by increasing their *ability* to set the policy agenda (active role), to evaluate and counter the policy proposals of politicians (reactive role), and to warn politicians about deficiencies of existing policies (proactive role)." On the other hand, it could be argued that the "fiscal" domain is still inherently political (Wildavsky and Caiden 2004), which would make it highly salient to elected officials and hence potentially less permeable to bureaucratic influences (Baekgaard et al. 2015). Indeed, politicians may have less information about technical matters in less salient areas but might be more informed on politically more salient sectors (Baekgaard et al. 2015). Furthermore, as Peters (2002) has posited, civil servants who work for "super-bureaucracies" or coordinating organizations within government, like the finance ministries, are likely to have more "subservient" attitudes vis-à-vis their political masters: "if a civil servant is willing to accept a position in one of these organizations, this implies a willingness to accept the wishes of his political executives" (276). Thus, we might expect the

[6] Indeed, in addition to proposing policy solutions, they can influence policy through "problem definitions", and the way problems become framed influences the policy solutions (Mehta 2010).

fiscal bureaucracies to "have a special relationship to politics" and be "charged with implementing the wishes of a government to perhaps a greater extent than civil servants in operating departments" (ibid.).

In order to capture their role in policy-making – and to explore whether they are closer to being active initiators of policies or just neutral followers of political instructions[7] – we delved into various themes in our interviews, including open questions about how the officials view the existing division of labour between civil servants and elected officials in fiscal policy-making, where new initiatives tend to come from, and what the officials view as the main contribution to fiscal policy-making.

Overall attitudes towards politicians' role in fiscal policy-making

While all the interviewees in all four countries emphasized that in a democracy, final policy decisions should be taken by politicians, we could also observe considerable variations among the interviewed officials in their assessments of politicians' role in fiscal policy-making.

There were significant differences between the countries with regard to how much the civil servants *trust* the politicians. As was already pointed out in section 2, in Estonia and Latvia, the civil servants display considerable degrees of distrust towards the elected officials. In Estonia, the mistrust concerns primarily how the politicians spend the borrowed money, whereas in Latvia it pertains to "excessive" fiscal profligacy of the politicians overall, alongside with the misgivings about their spending priorities. In the words of the officials: "This idea about fiscal discipline, is the idea that we are nursing [within the bureaucracy], and not really an idea that comes from politicians" (Interview L2). "In the heads of politicians, it seems that the idea of a strict framework for fiscal policy, that you have to save in the good years in order to spend in the bad ones, is still not acceptable" (Interview L2). "The political parties are too populist in their approach to fiscal policy. We still have a long way to go to political maturity" (Interview L3). In contrast, in the Swedish and Norwegian context, the trust towards politicians seems to be considerably higher than in Estonia or Latvia. As one of the Norwegian officials explained, "We may rely more on political decisions than some other countries, for instance Sweden. But I think that it is closer to the democratic ideal. From my point of view, I cannot really see any huge costs in involving politicians – Norwegian politicians at least – in quite a lot of issues, because I don't really feel that they have a polluted agenda or agenda that somehow makes decisions less effective to a great extent" (Interview N1). Another interviewee explained, "In the academic world, many researchers take the opposite view, that you need fiscal councils, you need fiscal rules to prevent the politicians from doing something irresponsible, which they would always do. And that is taken

7 According to the existing literature (e.g. Heclo 1975), we could, in principle, label the "followers" as "neutral competents". However, since the initiators are also likely to be highly competent, the initiators vs neutral competents dichotomy might be somewhat misleading. The "follower vs initiator" dichotomy helps us more accurately to capture the differences in the overall stance that the bureaucrats may have towards policy-making.

as given. The starting point in Norway is completely different. There are not that many people involved in fiscal policy: it is the minister of finance, it is the prime minister, a few people in the parliament. And they take the responsibility, and they should take the responsibility, and we should not weaken them in any way. It has worked well so far" (Interview N3).

It is also noteworthy that despite the frustrations that fiscal bureaucrats may have vis-à-vis their political masters, especially in Estonia and Latvia, they do appear to appreciate "clarity" and "decisiveness" from their principals. One of the Latvian officials explained it as follows, "It is very difficult for bureaucrats to suggest and to develop policy, if the position from the political side isn't really clear" (Interview L2). Another noted, "Since the budget is the main instrument for governing the country, it is the task of politicians. There should be a clear position in their political programmes whether they see the country as more social democratic or more liberal" (Interview L3). One of the Estonian interviewees complained that "If policy initiatives come from the politicians, these are often populist slogans" (Interview E3). Another official argued that "Politicians should be more decisive, in the sense that painful decisions should be made earlier in the budgetary cycle (e.g. in spring) and not in the fall. They keep on hoping that if they postpone a painful decision, maybe things improve and they don't have to adopt it" (Interview E1).

With regard to the advice fiscal bureaucracies give to politicians, we could observe varying perceptions of how it plays out. On the one hand, there were officials – especially in Norway – who appreciated the political need for *advice*. "What is nice about how things function in this house [the Ministry of Finance] is that politicians want our advice. That's without exception really. We change governments but they want to have advice" (Interview N1). "It is fair to say that politicians listen to us to a large extent. Compared to other countries, I think we have influence on fiscal policy" (Interview N2). On the other hand, several interviewees in Estonia and Latvia complained that the politicians do not ask or listen to the bureaucracy's advice sufficiently. One of the Latvian officials noted, "Unfortunately, when politicians make decisions, they don't often consult with bureaucrats or listen to them before making that decision" (Interview L3). An Estonian official quipped, "Ideally, politicians should say what the problem is and civil servants could then outline alternative solutions to the problem. However, politicians don't usually start with formulating a problem that needs to be solved but already come with a solution" (Interview E3).

Where do policy initiatives come from? How much freedom do the officials have in making the proposals?

In all four countries, according to our interviews, fiscal bureaucrats play an active role in identifying policy problems, initiating policies, formulating policy proposals, communicating them to the elected officials, and persuading them. Thus, they do not just wait for signals from their political principals but also act on their own initiative. Overall, our interviews indicate that policy proposals tend to originate *more* from the civil servants than from the politicians. As an Estonian official stated, "We have taken the role of policy designers and don't expect guidelines from the government" (interview E4). In the words of a Norwegian official, "We are not just sitting and waiting. We are worried all the time" (Interview N2). In all countries, the officials pointed to varying success in persuading the elected officials of their proposals – sometimes they succeed, sometimes they did not.

Also, in all countries, the interviewees noted that the civil servants usually make a proposal with regard to what the *budget position* should be (e.g. how large the deficit or surplus should be) whereas the politicians are responsible for the *expenditure and revenue* decisions. Even here, however, the civil servants sometimes have to venture into more political domains: "If politicians want to spend more, we may get a task to find revenues for covering those – and finding new revenues entails making political proposals" (Interview E2).

In the Norwegian context, the important role of *committees* in generating policy proposals was noted as well, "It is often so that if the politicians want something to be done in an area, they set up a commission that figures out how to do it" (Interview N2). The interviewees also explained that while in many other countries such commissions are totally independent from the ministries, in Norway, the civil servants usually form the secretariat for these commissions. Thus, the close connection to these committees gives the Norwegian fiscal bureaucracy additional clout in making policy proposals.

The fiscal bureaucrats in all four countries noted that in the power balance between the civil servants and the elected officials, *information* plays a major role. As one of the Estonian officials put it, "Politicians don't often understand many topics in fiscal policy. Thus, our role is to help them decide. … They could have a bigger role in fiscal policy-making if they were more informed" (Interview E2). Another noted, "Cabinet meetings are short; so we [the finance ministry] are the competence centre that has all the necessary information" (Interview E4). A Latvian civil servant explained it as follows: "In reality, the Ministry of Finance has relatively few constraints, because a significant amount of the proposals come from bureaucracy. Elected officials have very few things to offer because they don't have access to information and the analytical capacity. Macro-level objectives are set by politicians but when it comes to the mechanisms and means to reach these objectives, the bureaucracy plays a great role and has substantial freedom. Often there isn't really a high quality alternative solution to what bureaucracy offers" (Interview L4). A Swedish official also noted, "When you are dealing with the technical details, then of course civil servants can influence decisions. … But we try to influence the bigger decisions as well … with the help of models and calculations" (Interview S5). At the same time, in the Swedish case, it was emphasized several times that Andres Borg, for example, was technically very competent as a finance minister, and that gave him significant power vis-à-vis the bureaucracy in the finance ministry. In Latvia, too, it was noted that when Valdis Dombrovskis (a former chief economist at the Bank of Latvia) was prime minister and Andris Vilks (a former chief economist of the SEB Latvian branch) was the finance minister, both considered to be very competent economists, the politicians' power vis-à-vis the civil servants was considerably enhanced.

With regard to how *free* the civil servants feel in making policy proposals, most of the interviewees in all four countries perceive that they have considerable freedom. In the Estonian context, however, we could observe diverging assessments about that. While some of the interviewed Estonian officials feel that they are free to propose any ideas and policy alternatives to the politicians, others (especially from the lower ranks of the hierarchy) believe that they have to exercise some "self-restraint". As one of the officials put it, "We are free to make proposals but everybody knows which proposals are worth making. … Certain fundamentals are fixed and cannot be challenged and there is not much to discuss" (Interview E1). Another admitted, "There is a lot of self-censorship among civil servants with regard to fiscal policy ideas. Everybody knows which ideas are welcome and which not. The survival instinct is strong and nobody wants to have a conflict with a superior during uncertain economic times" (Interview E3). He added that "Together with some colleagues we have tried to expand the range of topics to discuss but without any real outlet. For most other officials the parameters of fiscal policy are so fixed that they don't even attempt to think outside it" (Interview E3).

In sum, although according to the predictions of Peters (2000), fiscal bureaucrats should have relatively "harmonious" relationships with their political masters – approximating what he calls the "Village Life" model of political-administrative relations, with the elected officials and the civil servants sharing common values and policy goals – our interviews indicate that this is not necessarily the case. While in Sweden and especially Norway, the interactions between politicians and civil servants in fiscal bureaucracy come pretty close to the depiction of the "Village Life", the relationships between the fiscal bureaucrats and politicians are considerably more adversarial in Estonia and especially Latvia, where we can observe considerable degrees of distrust towards the political masters.

3.2 Fiscal Bureaucracy vis-à-vis the European Union

On the one hand, fiscal bureaucracies can choose where they fall on the "initiator vs follower" role vis-à-vis the political "masters" in their own country. On the other hand, the civil servants can also play the follower vs initiator role in the supranational context. This dimension is particularly relevant for Estonia and Latvia, which are both members of the EU and the Eurozone but also for Sweden, which is a member of the EU. Given the increasing role of the financial dimension in the EU, we can expect there to be close interactions between the fiscal bureaucrats and the EU in those three countries. Yesilkagit (2012, 28) even goes as far as to conjecture that finance ministries "have essentially become the national branches of the European Commission rather than ministries of the national state."

In the EU context, the civil servants of the member states play an important part by negotiating and bargaining with other countries' civil servants in Brussels (Börzel and Risse 2003; Radaelli 2003, 2008; Weiler 1999; Yesilkagit 2012). Also, bureaucratic responses to EU mandates influence significantly whether and how EU policies get implemented at the national level (Knill and Lenschow 2005). Thus, in communicating between the national and the European levels they can help to mediate "the forces of integration and Europeanization" (Jordan 2003, 268). On the continuum of initiator vs follower, the fiscal bureaucrats can occupy different positions in the supranational context. First, domestic civil servants can take an active initiator role and attempt to upload "national models by defining the scope of issues before they become solidified in Commission proposals" and to work "in EU committees to mitigate the potential impact of new legislation before it is 'downloaded' from the EU" (Jordan 2003, 268). Or, they can assume the role of a "reluctant follower" or even "saboteur": if the national preferences are not reflected in the EU decisions, they can seek to minimize adjustment costs by engaging in partial (rather than full) implementation (Jordan 2003; Knill and Lenschow 2005). They can also play a significant role by "translating" a new rule into the local context and offering localized re-(interpretations) of the rules (Campbell 2004; Gutierrez 2010; Irvine 2011). Or, they can adopt a predominantly "follower" role by just transposing the EU mandates.

It is also likely that the increasing involvement of the fiscal bureaucracies in the supra-national policy-making venues of the European Union is likely to affect the bureaucrats' interactions with elected officials in their own countries. Yesilkagit (2012, 20) has noted that despite the growing role of the EU in the political lives of its member states, very little is known about the possible effects of Europeanization on the relationships between politicians and bureaucrats.

Our interviews indicate that while the fiscal bureaucracies in Estonia and Latvia tend to be "initiators" vis-à-vis the politicians in their own countries, they are very much in the "follower" role in the multi-level governance context of the EU. All the interviewed officials in both Estonia and Latvia repeatedly emphasized that the main directions of fiscal policy in their country is shaped by the European Union. As one of the Latvian officials put it, "It wouldn't be correct to state that we develop our own fiscal policy in Latvia. I would even go as far as to say that fiscal policy here is the EU fiscal policy" (Interview L3). Participation in EU policy-making does empower the bureaucrats vis-à-vis their political masters, by increasing their technical knowledge and also by giving them a clear starting point in proposing and drafting legislation. However, at least in the small-country contexts of Estonia and Latvia, the bureaucrats tend to be predominantly in a "follower" position vis-à-vis the supranational authorities.

In Sweden, the officials have adopted much less of a "follower" approach in relation to the European Union. One of the interviewed officials stated that the EU does not affect fiscal policy debates in Sweden significantly. He added, "I think we have finally signed the fiscal pact, or whatever it is called, but we said that we won't apply it. So we are in it with the typical Swedish EU attitude – we are in but not really" (Interview S1). Another official emphasized that Sweden created its fiscal framework with the expenditure ceilings, surplus target and the fiscal council on its own initiative; thus, "other countries have learnt from us" (Interview S6). Another interviewee noted that Sweden has designed "a pretty good system for fiscal policy", and the officials like the approach; hence, "the EU coming, saying 'you should do this now' can irritate a lot of people here" (Interview S3). He added that the approach to policy-making in Sweden is very much consensus-based and the EU saying "this is how you should do that …" is just not the right way to approach Sweden, if they want it to be on board.

The Norwegian officials noted that the EU does not play an important role in fiscal policy-making in Norway. Out of the external actors, the OECD appears to have a more significant influence than the EU on the adopted reforms. For example, the OECD report recommended a productivity reform, which was adopted (Interview N4).

In sum, it appears that using the "initiator vs follower" continuum for comparatively exploring fiscal bureaucracies in different countries can provide useful insights about the varying roles civil servants can play in fiscal policy-making. We can also see that being an "initiator" in the national arena does not automatically translate into being an "initiator" in the supra-national setting. While in Estonia and Latvia, the fiscal bureaucracies assume very much an initiator role vis-à-vis the politicians in their own countries, they play a predominantly follower role in the EU context. We can also see that although Sweden, like Estonia and Latvia, is a member of the EU, the fiscal bureaucrats there have less of a "follower" attitude and more of a "bargainer" attitude in relation to the EU. In Norway, in contrast, the civil servants view themselves to be in more of a "follower" position vis-à-vis elected officials but not internationally speaking.

We can also see that – as was the case with the "guardian vs developer" continuum – the role space of "initiator vs follower" can be characterized by contradictory attitudes and demands, especially in the Estonian and Latvian context. The fiscal bureaucrats in those countries complain that the politicians do not listen to their advice but at the same time, they would like elected officials to be clearer in their directions and more decisive. In those two countries, the civil servants feel that in a democracy, the politicians should play a major role in fiscal policy but, at the same time, believe that the civil servants should play a dominant role in fiscal policy because the politicians cannot always be trusted to act responsibly. Indeed, the glaring contrast between how much the Baltic (especially Latvian) officials distrust the politicians and how much more positively the Norwegian bureaucrats view the elected officials is one of the starkest differences we found from a comparative perspective. Another important observation that emerged from the interviews is that when we ask fiscal bureaucracies whether they feel free to propose policies and give advice, the reported "freedom" can also be constrained by self-censorship.

4. Insulators vs Mediators

In addition to the "faces" of fiscal bureaucracy in their relations with the political principals, the line ministries and the EU, the civil servants can also assume different roles in how they interact with independent actors outside the government. Given the potential contributions academics and social partners (i.e. the employees' and employers' associations) can make to fiscal policy-making, we zoom in on whether the fiscal bureaucracies view themselves as "mediating" these inputs or, in contrast, attempt to "insulate" fiscal policy-making from these influences.

4.1 Academia

The fiscal bureaucracy can serve the role of "mediators" between knowledge suppliers in academia and the government (Howlett 2011) or, in contrast, attempt to "insulate" fiscal policy-making from ongoing academic debates and analyses. Academic studies can be used for raising issues, formulating new policies, evaluating existing programmes, changing ways of thinking, and mobilizing support (Weiss and Bucuvalas 1980). Scholarly research can be utilized before a policy-related decision is taken or used afterwards for confirming or legitimizing a decision already taken (Rich 1997; Schrefler 2010). In Weiss's (1980) terminology, by bringing in academic research to the policy-making process, civil servants can also trigger "knowledge creep" throughout the organization. Thus, the permeability of the fiscal bureaucracies to academia can potentially play a relevant role in policy-making (Campbell and Pedersen 2011; Hall 1989; Pekkarinen 1989; Weir 1989; Weir and Skocpol 1985). The more open the civil servants are to advice from outside economists, the faster the developments in economic theory can be incorporated into policy; conversely, the more insulated the bureaucracy is from academic advice, the more slowly the policy shifts are likely to unfold (Hall 1989; Weir 1989).

According to "rationalistic" approaches to policy-making, civil servants systematically seek out and use policy-relevant *research* in their policy field in order to enhance policy outcomes (Bennett and Howlett 1992; Howlett 2009; 2011; Schrefler 2010). Also, Hansen and Ejersbo (2002) argue that administrators are more likely to be driven by "deductive" logic of action, whereas politicians follow a more "inductive" logic. Given the "deductive" logic followed by academia, civil servants can hence play an important role since it follows their "deductive" orientation as well.

Many studies, however, have pointed to rather limited use of scholarly research in policy learning (Caplan 1979; Howlett 2011; Landry et al. 2003; Oh 1996; Rich and Oh 2000), resulting from problems in both the supply and demand of scholarly research. First, in order to be utilized for policy learning, pertinent research on the policy issues has to be produced by the academics in the first place (Weiss and Bucuvalas 1980). Second, civil servants may face time and resource constraints in collecting, analyzing and interpreting the research findings from the academic community (Howlett 2009; Wildavsky 1969), especially if the interactions between the two communities are limited (Landry et al. 2003). Also, the language of scholarly research may not be easily accessible to civil servants, and the focus of the studies may not correspond to their informational needs (Caplan 1979; Landry et al. 2003). Third, the civil servants belonging to the fiscal bureaucracy – in light of the ideological aspects of fiscal policy – may face pressures to follow the ideological line of the elected officials in power and hence discount scholarly evidence that goes against the prevailing ideological position (Hird 2005).

On the scale of "mediators vs insulators", the fiscal bureaucracies in Estonia and Latvia appear to be closer to the insulator end. All interviewees noted that there are no formal routines for interacting with the academics, and if there are contacts, these are based on informal personal networks. Most of the interviewees in both countries noted that they do not have the time to read academic works, and if they do read anything "academic", it usually comes from the EU, the OECD or the International Monetary Fund (IMF). As one of the Estonian officials explained it, "In the European Union, there is a big machinery that digests the academic studies and we can get an overview from them. I don't keep a close eye on academic discussions but I do pay attention when these discussions reach to the level of the EU or IMF" (Interview E2). Thus, it appears that the "follower" role vis-à-vis international organizations – discussed in the previous section – can spill over to absorbing academic studies as well.

The Estonian officials complained that the research conducted in Estonia on fiscal policy issues often lags behind policy needs or is driven by specific ideological positions. In the words of an interviewee, "In many cases, the academics don't have the most recent information and it takes time until they figure things out" (Interview E2). In Latvia, several interviewees noted that there is almost no research or academic debate conducted in Latvia about fiscal and/or budgetary policy.

In Sweden and Norway, in contrast, our interviews indicate that the fiscal bureaucracies appear to be closer to the "mediator" than the "insulator" part of the scale: they have more systematic and open interactions with the academics in their countries.

The interviewees in Sweden noted that several aspects of the Swedish fiscal framework (e.g. the fiscal council, the expenditure ceilings) were inspired by academic research. One of the Swedish officials explained that when Andres Borg came to office, he wanted to have more PhD level economists in the MoF and also "more academic research to back up their claims on what they wanted to do". Borg "thought of himself as being very academic and wanted to use modern research to find the best way forward" (Interview S3).

In Norway, most of the interviewees noted that they are not able to follow academic debates and read scholarly works as much as they would like to, due to time constraints, but academic research does play a role in the decision-making on fiscal policy. As one of the interviewees explained, "Before we introduced the fiscal rule, we scanned the economic literature on those kind of topics to see what's done in other countries and what is written in academic journals" (Interview N2). Another official noted, "The question the ministry faces at the moment is: what should be the equity share of the pension fund. Should we increase it to 70 or 80 per cent or should it be reduced to 50? In that discussion, they of course draw on the research front internationally. When we have that kind of questions, then we are, of course, reading a lot" (Interview N2). At the same time, the interviewee added, "But we are a ministry and not a research institution, so most of our work is in between academics and politicians" (Interview N2).

Importantly, regular contacts between academics and the fiscal bureaucracy in Norway take place via committees, established for various topics. One of the interviewees noted that these committees also summarize current academic knowledge on the topic (Interview N2). Another interviewee remarked, "A few years ago we established a modelling committee, where academics from the outside take part. Mainly professors, alongside in-house experts, as participants" (Interview N1). As mentioned in section 3, the MoF officials are actively involved in such committees themselves, which provides them with regular exposure to the academics. Such an attitude towards committees contrasts clearly with what was observed in the Estonian case, where all of the interviews were sceptical of using the committee format. One of the interviewed officials even quipped, "If we don't want to solve a problem, we set up a committee" (Interview E2). With regard to involving outsiders in discussing models, another Estonian interviewee noted, "There are no open discussions about models: it is technical work and there is not much to discuss" (Interview E1).

In addition to the topical committees, the MoF officials in Norway took the initiative in setting up an academic advisory panel to the ministry: "We felt we needed to have a more regular contact with the academic world" (Interview N3). This panel is a forum for discussion of state-of-the-art research (models and methods), not for policy advice. The interviewee noted that the advisory panel has been very useful for the ministry but also for the academics who have participated: "Fiscal policy is really very interesting, but no ministries of finance have research departments. And the universities and academics find it more difficult to analyze fiscal policy because it is so complex and so difficult to understand. By having an advisory panel and more regular contacts, it is easier for them to read budget documents. And it may open up more research on fiscal policy, which would be good, I think" (Interview N3).

4.2 The social partners

In addition to acting as mediators between academia and policy-making, bureaucrats can influence which interest groups would be included in policy-making and which not (Rose 1987; Page 1987). Interest groups could be the source of expertise that can be used by officials to enhance their position, and civil servants could also be involved in mobilizing consent from the interest groups (Rose 1987). We were specifically interested in whether the fiscal bureaucracies play a role in mediating the positions of the *social partners* (i.e. employers' unions and trade unions) in fiscal policy-making. Varieties of capitalism research have long argued that different institutional frameworks provide different kinds of engagement opportunities for interest groups. Coordinated market economies rely on a complex web of socio-political and administrative relations with institutional pathways to engage social partners while liberal market economies rely on fluid competitive institutions, where access and engagement patterns can shift quickly (Hall and Soskice 2001). While Norway and Sweden represent coordinated market economies, the neoliberal Estonia and Latvia are closer to the liberal model (Bohle and Greskovits 2012). In our context, the exact features of different types of capitalism matter less than an overall expectation that the economic and institutional context would predict a different role for fiscal bureaucracies, as well, vis-à-vis social partners.

In Estonia, Latvia and Sweden, the fiscal bureaucrats themselves appear to have no regular or formal contacts with the representatives of social partners. The interviewees remarked that while the social partners may have more direct contacts with elected officials, the bureaucracy does not play a mediating role here. As for Sweden, that country had fairly extensive corporatist consultation through the early post-war period, but there was a striking reversal since the early 1990s. Employers exited from all such cooperative boards, and the union confederation (LO) has been significantly weakened. One of the Swedish interviewees noted that while labour party politicians of course have ties with the unions, "there are no organized meetings with the social partners in the finance ministry where we would discuss the budget for the next years" (Interview S6). In Estonia, the officials noted that it would not even be meaningful to directly involve the social partners in fiscal policy discussions. One of the interviewees put it as follows, "It is already known what the position is – so there is no point in asking" (Interview E3). Another noted, "It would only make sense to involve them if they [the social partners] were a lot smarter and understood the economic cycle and other budgetary issues" (Interview E2).

In Norway, the fiscal bureaucrats have more direct contacts with the social partners through the above-mentioned committees. As one of the interviewees explained it, if the finance ministry is faced with a problem, it creates a committee and invites external actors to participate in it, and depending on the topic of the commission, social partners can also be included (Interview N1). Another added that the social partners "influence [fiscal policy-making] through their participation in commissions – that is an important channel for them" (Interview N4).

In sum, the fiscal bureaucracies in Estonia and Latvia fall closer to the "insulator" end of the continuum both with regard to academics and social partners. In Sweden, they play a more extensive mediator role with academics but less so with social partners, whereas in Norway the fiscal bureaucrats are close to the mediator end of the spectrum vis-à-vis both sets of actors. In the Estonian and Latvian cases, it is interesting to observe that alongside politicians, the fiscal bureaucrats also distrust other local societal actors – like academics and social partners – whereas they have extensive trust in the machinery of the EU "digesting" worthwhile academic materials for them. In the Norwegian case, it appears that the regular interactions fiscal bureaucracies have with the academics and social partners via committees help to build a more trustful stance of the civil servants towards those actors, which, conversely, addresses and alleviates some of the supply problems that can often undermine the utilization of academic research in policy-making.

5. Modellers vs Estimators

In their role as analysts, fiscal bureaucracies can vary with regard to how extensively they use sophisticated (macroeconomic) models for their work. This was a clear difference that emerged from comparing the cases covered in our study: the fiscal bureaucrats in Estonia and Latvia use relatively simple models, whereas their Swedish and especially Norwegian counterparts use elaborate and complicated models.[8] Although there have been studies that have spelled out the implications of macroeconomic models for policy-making (e.g. Chari and Kehoe 2006) and make normative recommendations about how such models could be used in fiscal policy (e.g. Kremer et al. 2006), the literature on how models are actually used in policy work is considerably "thinner" (den Butter and Morgan 1998, 445). Indeed, we could not find any "positively oriented" *theoretical* works that systematically discussed the use of models by fiscal bureaucracies and could serve as a foundation for comparative analyses. Thus, the discussion on the "modeller vs estimator" continuum we are proposing here is very much exploratory in nature and could be used as a starting point for more systematic analyses in the future.

As our interviews indicate, in Estonia and Latvia, the fiscal bureaucracies use smaller models for estimating tax revenues and expenditures but do not utilize a general macroeconomic model. On the one hand, the Estonian officials noted that they do not have capacities for developing and using such a model. As one of the interviewees remarked, "The central bank has a macroeconomic equilibrium model but they also have ten analysts with PhDs working on it; we [in MoF] have altogether three analysts working with economic analysis" (Interview E3). Another noted, "In Sweden and Denmark, for example, they have long time frames on the

[8] A comparison of macroeconomic expertise and use of models in all five Nordic countries is available in Mjøset (2011, 399-408).

individual level: consumption, wage changes, etc. They have more capacity to build models. We don't have statistical capacities to collect such data" (Interview E1). On the other hand, the Estonian officials expressed scepticism whether using a macro-economic model would make sense in the Estonian context, given the short period for which data is available, the volatility of the economy and ongoing structural changes (Interviews E1, E2). Similarly, in the Latvian context, the fiscal bureaucrats expressed scepticism with regard to how useful a general equilibrium model (e.g. Dynamic Stochastic General Equilibrium (DSGE) model) would be for fiscal policy-making. As in Estonia, they referred to the lack of data and short time frames, "For structural models you need input-output tables, which, for the period of the last 20 years we probably have for three years" (Interview L4). The interviewee added, "I know that the Bank of Latvia has developed a general equilibrium (DSGE) model, but the reliability of this model in the Latvian conditions is … let's say expert evaluation at times is more reliable and better" (Interview L4).

Increasingly, however, in both countries there are more extensive debates on which models to use in estimating the cyclical position of the economy and its impact on budgetary fiscal policy due to the fiscal rules of the Fiscal Compact. As shown by Raudla et al. (2016a, b), the diverging assessments of the cyclical position of the economy by the EU and the MoFs have triggered discussions on the models used in fiscal policy-making in both countries.

In Norway, there is already a long tradition of using extensive macro-economic models in budgetary and fiscal policy-making (Bjerkholt 1998). Currently, the main model used is called Modag – a big and detailed input-output-based model in the Cowles commission tradition, maintained by Statistics Norway for the government – in the fiscal policy-making process, inter alia, for assessing the effects of fiscal policy on the economy (Interviews N2, N3, N5).[9] One of the Norwegian interviewees emphasized that for the purposes of fiscal policy, the MoF needed a lot more detailed input on the public sector than a typical DSGE model had (Interview N1), as the latter relied on national accounts data only, not on input-output tables.[10] Indeed, while in other countries, the input-output analyses have been used for long-term planning, in Norway, they are also used for short-term planning in fiscal policy. Also, in other countries, the macroeconomic models used are much more aggregated, whereas in Norway, the models are highly detailed, comprising thousands of entries (Bjerkholt 1998). Another official noted, however, that over time, the role of the Modag model has diminished and the analyses are complemented with input from other smaller models and also expert analysis. As he explained: "So it helps us, but it does not have the same prominent role as it may have had before, going back 15-20 years. … We don't think that the model has all the mechanisms that are in operation in the economy. Often you need to think outside the model. … So very often the results that we present in our analysis and in the budget paper are partly based on Modag, partly our own judgement, and partly also other models." (Interview N3) Since 2017, a new, quarterly version of Modag, now called Kvarts, will be supplied

9 The interviewees also noted that it is a very Keynesian model (Interview N2).

10 For overviews of the development of different economic models used in Norway, see Bjerkholt (1998).

by Statistics Norway to MoF. The change from a yearly to a quarterly version will improve on some of the challenges mentioned.

In using the models like Kvarts, the MoF relies significantly on Statistics Norway (SN), which has the right to collect detailed data from firms and households. SN is exceptional when compared to other statistical bureaus in the world for it not only collects data but also has a large economic research department – in fact one of the largest research institutions in Norway – that builds and runs macro, micro and tax models (Anderson et al. 2006; Bjerkholt 1998). In developing the models the SN takes into account the specific needs MoF has for fiscal and budgetary policy-making. Indeed, the development of the different models has emerged from close interactions between the officials in the MoF and SN – and the models serve the specific needs of using the national budget as a planning tool (Bjerkholt 1998). Historically, Norway developed a specific constellation – called the "iron triangle" – between the national economics profession, the MoF and the applied research unit at SN (Mjøset 2011). However, since the 1990s, views within the economics profession have become more diverse, the central bank has its own research units based on DSGE models (although much smaller than in Sweden), and lately, some political networks have also become more sceptical about the key role of SN's macroeconomic researchers. Our Norwegian interviews indicated that some of the MoF's fiscal policy bureaucrats want to work with a broader selection of models. As already noted, MoF now also has a panel where professors together with in-house experts meet and discuss regularly (Interview N1).

In Sweden, as well, the fiscal bureaucracy is using several macroeconomic models. The interviewees had a critical stance towards the "mainstream" DSGE model used by the central bank, since it did not include a financial sector or unemployment. Hence, in the models they use themselves, they also include "the stock market, the housing market, how it affects wealth, and wealth affects consumption, for instance. So there is a link between the financial sector and the real sector in the economy" (Interview S5). However, the main centre for macroeconomic theory in Sweden is the central bank, and it works exclusively with DSGE-models. The macroeconomic modelling pursued in other units is empiricist exercises with econometrics. The difference to Norway in this respect is considerable.

In sum, the fiscal bureaucrats in Sweden and Norway are closer to the "modeller" end of the continuum than the Estonian and Latvian officials. Still, it is worth noting that even in the case of Norway, the fiscal bureaucrats do not just blindly trust their sophisticated models but use them cautiously.

It is likely that the location on this continuum can intersect in important ways with the other abovementioned roles. Indeed, it can be conjectured that the more elaborate and sophisticated models available to the fiscal bureaucrats in Sweden and Norway also enable them to play a more confident role as a "developer". On the other hand, a more active mediator role vis-à-vis the academics can also allow the fiscal bureaucracies in those countries to improve their models. Also, as our exploratory analysis indicates, the resources available for the fiscal bureaucrats to develop and use macroeconomic models is an important dimension: the use and maintenance of sophisticated models is more feasible in more prosperous countries and more challenging in the less wealthy ones.

6. Discussion and Conclusion

In light of the growing importance of finance ministries and the "financial" dimension in policy-making, opening up the "black box" of fiscal bureaucracies is more warranted than ever. The goal of our paper was to put forth a set of dichotomies – or, continuums, to be more precise – for analyzing, in a more nuanced way than has been done in the academic literature so far, the different roles of fiscal bureaucracies. We used the proposed dichotomies – developers vs guardians, initiators vs followers, mediators vs insulators and modellers vs estimators – to explore the fiscal bureaucracies in Estonia, Latvia, Sweden and Norway. Figure 1 depicts the different roles of fiscal bureaucracies we have discussed in this paper and the main interactions with other actors these roles entail.

The taxonomy we proposed served as a useful heuristic for exploring the similarities and differences between the countries but also within them. Overall, we can see that fiscal bureaucracies in Estonia and Latvia tend to be closer to the guardian-insulator-estimator ends of the continuums, whereas the officials in Sweden and especially Norway lean towards the developer-mediator-modeller end of the scale. This can be related to the basic contrasts that we mentioned at the outset. As young democracies, relatively recent additions to a Western European world marked by tense interplay between financialization and European integration since 2008, the fiscal policy bureaucracies of Estonia and Latvia cannot draw on much national capacity in their fields. They thus emphasize the traditional treasury, "guardian" role, they strive to insulate economic policy decisions from both politicians, academics and social partners. In terms of macroeconomic assessment, they also show more dependence on the EU than what Sweden does. Our two Nordic cases, in contrast, are richer countries with institutions that link expert knowledge (data and models) to economic policy-making. They have more capacity both for fine-tuning and structural policies that develop the economy. Still, the differences are considerable between Sweden and Norway, with the latter displaying stronger institutional continuities with the early post-war period. In Sweden, patterns of mediation are not as strong as they used to be, and the models are general ones based on aggregate national accounts data. These contrasts have grown since the 1970s, as Norway embarked on its development as an oil-exporting economy, while in Sweden, manufacturing firms became highly internationalized, making industrial interests less reliant on the state.

The division between the initiator vs follower roles is less clear-cut. In Estonia and Latvia, the fiscal bureaucrats tend to serve the initiator role domestically but are clearly in the follower position in the context of the supra-national decision-making of the EU. In Norway, the fiscal bureaucrats are freer vis-à-vis the international dimension but tend to give the politicians a more prominent role than in the other countries. Even Sweden is closer to this "village life" pattern.

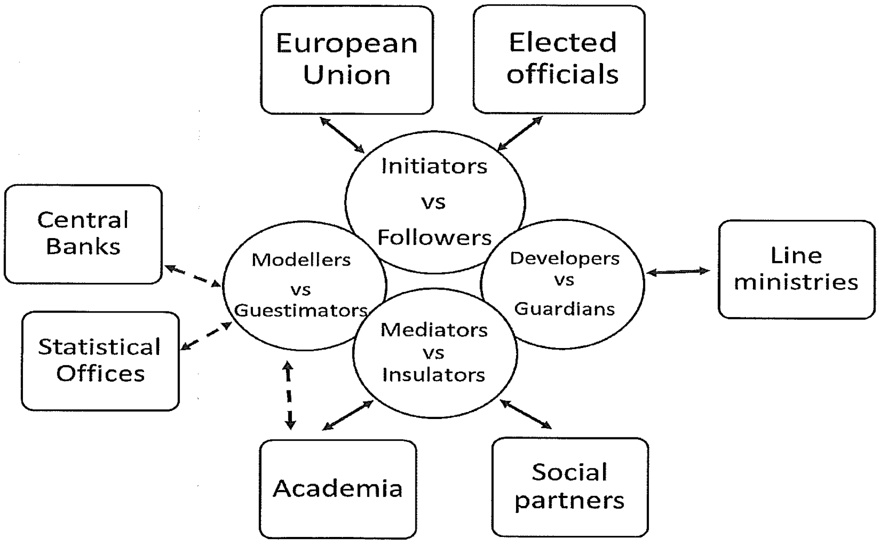

Figure 1: **Different roles of Fiscal Bureaucracy**

Our interviews also indicate that fiscal bureaucrats often have to balance contradictory demands placed on them and, indeed, their "faces" appear paradoxical at times. For example, the officials feel that politicians should listen to their advice but they also expect the elected officials to be more decisive and know what they want (e.g. in Latvia). Or, they claim that fiscal policy should be used counter-cyclically but are reluctant to incur loans (as in Estonia and Latvia). Or, they claim that they are "free" to make policy proposals but at the same time, exercise self-censorship, since "everybody knows which proposals are welcome and which not" (e.g. in Estonia).

Delineating the taxonomy for exploring the different roles of fiscal bureaucracies is, obviously, only the very first step in shedding more academically driven light on those policy actors. It can be used as a starting point for both further theorizing and empirical studies in the following ways.

First, further research could extend the number of countries covered and explore closer the possible configurations of roles. For example, are developers usually also modellers? If we assume that using fiscal policy for economic development policies needs sophisticated models, this is likely to be the case. Are the insulators more likely to be guardians than developers? If there are fewer interactions with societal interest groups, it might be "easier" to retain the role of the guardian given that the demands for development have fewer opportunities for entering the agenda. Are guardians usually followers or initiators? As emerged from our interviews, the Estonian and Latvian fiscal bureaucrats' follower role vis-à-vis the EU has strengthened their guardian role vis-à-vis line ministries due to stricter fiscal rules imposed by the EU. Are modellers usually also mediators? As we could see, especially from the Norwegian case, the use of sophisticated models in fiscal policy-making benefit greatly from extensive interactions with academia and other knowledge producers (e.g. statistical offices).

Second, different subtypes under each category we have proposed can be developed. For example, the "developer" category can be divided further into "visionaries" vs "fine-tuners", "infrastructure promoters vs promoters of broader societal investments", "conveyers of international funds vs domestic fund-raisers" etc. The "guardian" category could be subdivided into "rule imposers" vs "negotiators". Under the "mediator" role, we have only discussed interactions with the social partners and the academics, but the list of actors could be expanded to include other types of interest groups.

Third, the interactions between the dichotomies are worth exploring further. For example, in their follower-role vis-à-vis the EU, the Estonian and Latvian fiscal bureaucrats have used the structural funds for "development" purposes and hence have had to assume increasing "developer" roles. Also, in the Baltic countries, especially in Latvia, the follower role vis-à-vis the EU means that the "guardian" role has become re-emphasized due to the stricter fiscal rules imposed by the EU.

Fourth, Figure 1 depicts only the most basic (and predominant) interactions. In reality, the number of external actors involved in the "picture" is considerably larger and the interactions are likely to be overlapping as well. The "guardian vs developer" role could also entail interactions with the elected officials, statistical offices, central banks, the social partners, and the EU. For example, in Norway, the "developer" role of the fiscal bureaucrats is influenced by academia, the statistical office and the social partners. The modeller vs estimator role can also include interrelations with the EU (as it is in Estonia and Latvia) and with the social partners (as is the case in Norway). The societal interest groups can also influence the line ministries and elected officials directly, which would then influence the dynamics that the fiscal bureaucracies have with them. The figure and our discussion focuses on the EU as the main "external actor", but further studies could expand the list of international organizations (encompass, inter alia, the OECD, the IMF, and the WB). All these more complex interactions could be explored closer in future studies.

Finally, the next steps would involve using this taxonomy (and the configurations of different roles) both as *explanans* and *explanandum*.

On the one hand, scholars could be interested in explaining how fiscal bureaucracies in different countries end up in specific role configurations and uncovering what kind of factors influence that. The configurations of the roles fiscal bureaucracies play are likely to be influenced by overall political and administrative culture, political institutions, recruitment patterns, civil service systems, civil service training, and resource constraints (Christensen 2013; Chwieroth 2009; Fourcade 2009; Heclo 1974; Krause 2009; Marier 2005; Peters 2001, 2002). For example, specialized bureaucracies may identify more strongly with professional norms and be more open to new economic ideas – encouraging them to take a more activist approach in policy advice, whereas generalist bureaucracies might identify more closely with the norms of civil service as such, including the boundaries between the role of bureaucrats and elected officials, and hence adopt a more constrained stance towards policy advice (Christensen 2013). Also, open recruitment systems are likely to draw on more extensive expertise and allow easier inflow of new economic ideas (Christensen 2013). In addition, the institutional landscape outside the MoF is likely to influence the roles of fiscal bureaucrats. For example, having a Statistical Office which collects statistics but also has a large research department with extensive capacities in macroeconomic modelling provides useful inputs for the "modeller" role of the MoF in Norway. The level of affluence is also likely to influence the configurations of roles that fiscal bureaucracies in different countries assume. According to our case studies, the developer-mediator-modeller configuration is more characteristic to affluent countries (Sweden and Norway), while the guardian-insulator-estimator configuration can be observed in the less affluent countries of Estonia and Latvia. Further studies could explore that link systematically and examine the potential mechanisms that link the level of prosperity to the roles fiscal bureaucracies assume.

On the other hand, it would be fruitful to examine the impacts of the different role configurations on policy outcomes, e.g. in terms of economic development, fiscal indicators, and societal indicators.

Acknowledgements

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Appendix 1: Interviews with fiscal bureaucrats

Estonia:

E1: 18 August 2014
E2: 9 September 2014
E3: 9 September 2014
E4: 10 September 2014
E5: 18 August 2014

Latvia:

L1: 16 September 2014
L2: 17 September 2014
L3: 17 September 2014
L4: 13 October 2014
L5: 20 October 2014
L6: 5 June 2015

Norway:

N1: 8 June 2016
N2: 8 June 2016
N3: 16 June 2016
N4: 16 June 2016
N5: 17 June 2016

Sweden:

S1: 21 October 2015
S2: 21 October 2015
S3: 10 March 2016
S4: 10 March 2016
S5: 10 March 2016
S6: 14 March 2016

Ringa Raudla is Professor of Public Finance and Governance at Ragnar Nurkse School of Innovation and Governance, Tallinn University of Technology, Estonia. Her research interests include fiscal governance, public budgeting, institutional economics, and public management reforms. Her recent articles have been published in the leading journals like *Public Administration Review, Governance, Journal of Public Policy, Public Administration, Public Choice, American Review of Public Administration, Policy Studies Journal, Journal of Comparative Policy Analysis, Urban Affairs Review, Administration & Society, and Europe-Asia Studies.* Ringa Raudla received the Estonian national research award in social sciences in 2018. She is also a founding member of the Young Academy of Sciences in Estonia. She is an editorial board member of six different journals in the fields of public administration, public management, governance and economics. Email: ringa.raudla@taltech.ee

Lars Mjøset is Professor of Sociology and Director of the Oslo Summer School for Comparative Social Science Studies at the Social Science Faculty, University of Oslo, Norway. He does comparative research in political economy and historical sociology, and also publishes on topics in the philosophy and history of social science. Email: lars.mjoset@sosgeo.uio.no

Rainer Kattel is professor of innovation and public governance at the Institute for Innovation and Public Purpose, University College London, and research professor at Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology, Estonia. He has studied at the University of Tartu, Estonia, and University of Marburg, Germany, in philosophy, political philosophy, classics and public administration. He has published extensively on innovation policy, its governance and specific management issues. Email: r.kattel@ucl.ac.uk

Aleksandrs Cepilovs is project manager at the Ragnar Nurkse Department of Innovation and Governance, Tallinn University of Technology, Estonia. He has studied economics and technology governance and has received his PhD from the Ragnar Nurkse Department. His research interests are in innovation policy, public sector innovation and policy transfer, with a specific focus on Central and Eastern Europe. Email: aleksandrs.cepilovs@taltech.ee

Olga Mikheeva is a PhD candidate at Tallinn University of Technology and her research is focused on financing of innovation, development banks and financial bureaucracy. Currently she is working on development finance institutions in Central and Eastern Europe while her articles were published by the Journal of Post-Keynesian Economics and Journal of Baltic Studies. Email: olga.mikheeva@taltech.ee

Bent Sofus Tranøy is a professor of political economy in the Department of Organization, Leadership and Management at Inland Norway University of Applied Sciences. He has published on topics such as comparative political economy, financial stability and organizational theory. Email: bent.tranoy@hihm.no

Curriculum vitae

Personal data

Name: Olga Mikheeva
Date of birth: 15 July 1986
Place of birth: Pskov, Russia
Citizenship: Russian

Contact data

E-mail: olga.a.mikheeva@gmail.com

Education

2013–2020 Tallinn University of Technology – PhD (Technology Governance)
2011–2013 Tallinn University of Technology – MA (Technology Governance)
2007–2011 Tallinn University of Technology – BA (International Business Administration), *cum laude*

Additional study modules

2012 National University of Singapore – graduate module in Public Policy (6 months)
2011–2012 University of Tartu - graduate module in Business and Society in Russia and Eastern Partnership countries (TRADERUN programme, 1 year)

Language competence

Russian – native
English – fluent (C1)
Estonian – intermediate (B2)
French – beginner (B1)
Norwegian – basic (A1)

Professional employment

2019– … Technopolis Group, senior expert
2013–2018 Tallinn University of Technology, Ragnar Nurkse Department of Innovation and Governance, junior research fellow
2007–2011 Tallinn University of Technology, International Relations Office, intern

Elulookirjeldus

Isikuandmed

Nimi: Olga Mikheeva
Sünniaeg: 15 juuli 1986
Sünnikoht: Pihkva, Venemaa
Kodakondsus: vene

Kontaktandmed

E-post: olga.a.mikheeva@gmail.com

Hariduskäik

2013–2020 Tallinna Tehnikaülikool – PhD (Tehnoloogia Valitsemine)
2011–2013 Tallinna Tehnikaülikool – MA (Tehnoloogia Valitsemine)
2007–2011 Tallinna Tehnikaülikool – BA (Rahvusvaheline Ärikorraldus), *cum laude*

Lisaharidus

2012 Singapuri Ülikool – magistri programmi modul Avalik Poliitika (6 kuud)
2011–2012 Tartu Ülikool – TRADERUN täiendusõppeprogramm (Business and Society in Russia and Eastern Partnership countries) (9 kuud)

Keelteoskus

Vene keel – emakeel
Inglise keel – kõrgtase (C1)
Eesti keel – kesktase (B2)
Prantsuse keel – algtase (B1)
Norra keel – algtase (A1)

Teenistuskäik

2019– ... Technopolis Group, vanem ekspert
2013–2018 Tallinna Tehnikaülikool, Ragnar Nurkse innovatsiooni- ja valitsemise instituut, noorem teadur
2007–2011 Tallinn Tehnikaülikool, Rahvusvaheliste suhete osakond, praktikant