The Economic Geography of Development Banking for Sustainable Development

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Trinity Term 2019

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A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Abstract

The topic of this thesis is the economic geography of development banking for sustainable development. There are two primary research questions pursued in the thesis. The first question is: are development banks effective financial institutions for sustainable development? The second question is: what impact does the spatial scale of a development bank have on its possible effectiveness for sustainable development?

The conceptual framework is comprised of four inter-related concepts: theoretical space, contextual place, structure of channels and organizational flow. The research was undertaken with a mixed-methods approach. The research was pursued in a case study format, and consisted of a close examination of four development banks: the Asian Development Bank (ADB), the Uganda Development Bank Limited (UDBL), the New York Green Bank (NYGB) and the Connecticut Green Bank (CGB). The four development banks were chosen for a combination of reasons, including spatial scale, varied geographical contexts and accessibility.

The thesis resulted in three sets of conclusions, focusing on the effectiveness of development banks, the relevance of spatial scales for development banks and the conceptual foundations and methodology of assessing development banks. First, with regards to effectiveness, I conclude that development banks satisfice their mandates regarding the promotion of development, with the external context of a development bank significantly impacting its effectiveness. Second, with regards to spatial scales, I conclude that the optimal spatial scale of a development bank is related to the scale of the intervention that the development bank intends to make and what may be needed for development outcomes to be reached. Third, with regards to conceptual foundations and

methodology, I conclude that the conceptual foundations upon which development banks exist are partially supported by empirical observation, and that analyzing the effectiveness of a complex institution can be meaningfully simplified by limiting the analysis to a single factor of analysis. The conclusions of the research could have a significant impact on the collective understanding of the role development banks can play in global efforts towards sustainable development.

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List of Acronyms

AAAA	Addis Ababa Action Agenda
ABMI	Asian Bond Market Initiative
ADB	Asian Development Bank
AFC	Asian Financial Crisis
CAREC	Central Asia Regional Economic Cooperation
CGB	Connecticut Green Bank
CDFI	Community Development Finance Institutions
CEFIA	Clean Energy Finance and Investment Authority
CMI	Chiang Mai Initiative
DBJ	Development Bank of Japan
DBSA	Development Bank of Southern Africa
DoE	Department of Energy
GMS	Greater Mekong Subregion
IBRD	International Bank for Reconstruction and Development
IPC	Inclusive Prosperity Capital
ISI	Import Substitution Industrialization
ITC	Investment Tax Credit
KfW	Kreditanstalt fur Wideraufbau
MACRS	Modified Accelerated Cost Recovery System
MDG	Millennium Development Goals

NDP I	National Development Plan I
NDP II	National Development Plan II
NPA	National Planning Authority
NPL	Non Performing Loans
NYGB	New York Green Bank
NYSERDA	New York State Energy Research and Development Authority
OECD	Organization for Economic Cooperation and Development
PTC	Production Tax Credit
RCI	Regional Cooperation and Integration
SASEC	South Asia Subregional Economic Cooperation
SDG	Sustainable Development Goals
TDB	Trade and Development Bank
UDBL	Uganda Development Bank Limited
UDC	Uganda Development Corporation
UNDP	UN Development Programme
UNESCAP	UN Economic and Social Commission for Asia Pacific
UNFCCC	UN Framework Convention on Climate Change
UNECAFE	UN Economic Commission for Asia and the Far East
WFDFI	World Federation of Development Finance Institutions

Acknowledgements

I have engaged on the topic of development finance for over a decade. During this time, I have worked, and interacted, with hundreds of academics and practitioners in over sixty countries. Although many individuals have influenced me, there are four individuals that I would like to specifically acknowledge for having had a profound impact on my work for this thesis.

First, I would like to thank Professor Gordon L. Clark of the University of Oxford for his mentorship and guidance from the first day of my doctoral program. Gordon influenced every aspect of this thesis, from conceptualization to execution to analysis. He gave me confidence to tackle big questions with humility and focus. Gordon singularly shaped my experience at the University of Oxford, and I will be forever grateful for what I have learned from him. I look forward to continuing to learn from, and collaborate with, Gordon for many years to come.

Second, I would like to thank Professor Jeffrey D. Sachs of Columbia University for his mentorship since 2009. From Jeff I have learned the important relationship between empirical research and public policy formulation. Jeff's tireless efforts for sustainable development have inspired and influenced my work on the topic for many years, and for that I am very grateful.

Third, I would like to thank Mr. Hendrik du Toit of Investec for encouraging me to pursue a doctorate focusing on the topic of how to finance sustainable development. Hendrik is the rare financier who thinks critically about how financial institutions and

markets can support sustainable development. I am very grateful for his collegiality and encouragement, over many years, to complete this project.

Fourth, I would like to thank President Ernesto Zedillo of Yale University for giving me the opportunity to be his research assistant while I was a student at Yale many years ago. President Zedillo was singularly instrumental in cultivating and encouraging my interests in globalization and development issues from the beginning of my academic life.

In addition, I would like to thank Ms. Sharon French of AIG for her encouragement and support during the final stages of writing this thesis. Her support was essential for me to finish the thesis on time.

The academic community at the University of Oxford has been a tremendous source of support and inspiration. I would like to thank Professor Dariusz Wójcik and Dr. Alex Money for their guidance, input and feedback on my research during both the Transfer of Status and Confirmation of Status processes. I was especially honored to have President Meric Gertler, President of the University of Toronto, to serve as my external examiner for the thesis and for that I am very grateful. Dr. Chris Kaminker has been a wonderful friend, whose endless guidance helped paved the way for the completion of this project. I would also like to thank Ms. Ruth Saxton, Ms. Jennifer Sabourin and Ms. Angelika Kaiser for their support throughout the process.

I had the privilege of conducting the research for the thesis while serving as a Senior Advisor to the UN Sustainable Development Solutions Network and to the SDG Center for Africa, and as a Senior Fellow at the Columbia University Center for Sustainable Investment. I would like to thank Professor Glenn Denning and Professor Shiv

Someshwar of Columbia University for their partnership on many research questions related to financing and sustainable development. I would also like to thank Dr. Belay Begashaw, Director General of the SDG Center for Africa, for his guidance throughout the research and drafting of the thesis. I would also like to thank Lisa Sachs for her collegiality over many years.

Finally, I would like to thank my family for their endless support. My father, Dr. Akshay Shah, my mother, Mrs. Anar Shah, and my brother, Akash Shah, gave me the constant support that was needed to persist. Finally, I simply would not have been able to undertake this project without my life partner, Becky Charney, to whom I owe much gratitude.

Chapter One: Introduction

I. TOPIC, TERMS AND DEFINITIONS

The topic of this thesis is the economic geography of development banking for sustainable development. The two primary research questions of the thesis are:

a) Are development banks effective financial institutions for sustainable development?

b) What impact does the spatial scale of a development bank have on the possible effectiveness for sustainable development?

In the following sections, I provide a detailed overview and definitions of the three components of the research topic - economic geography, development banking and sustainable development – and further detail into the research questions that I pursue in the thesis.

a. Economic Geography

Economic geography is the academic lens through which I approach the thesis. For a definition of economic geography, I use the following:

"an academic enquiry preoccupied with the geographical scope and scale of economies in the context of economic change, the driving forces behind those changes, and the role of localities in global economic transformation. It is a field that encompasses international economics, industry organization, business strategy and innovation (on one side), while being sensitive to the ways in which theoretical traditions are affected and

shaped by an appreciation of the persistence of geography (on the other side)" (Clark, Feldman, & Gertler, 2000).

The definition highlighted above delineates three salient aspects of the discipline of economic geography for this thesis. First, there is a focus on the concept of "economic change" and "global economic transformation." Economic geography is a discipline that focuses on how economies evolve and transition over time, and does not simply attempt to provide an explanation of an economic situation at a single point-in-time. Second, there is a clear progression from macro factors – "international economics, industry organization" – to micro, firm-level factors, such as "business strategy." This demonstrates to me that economic geography is focused on understanding the linkages between macro changes in the economy micro responses at the institutional level. Third, the definition clearly balances the focus on economic factors and the "persistence of geography" – a nod to the importance of place and context while understanding economic affairs.

The discipline of economic geography lies at the intersection of economics and geography. The term "economics" is derived from the Ancient Greek term, "okionoma," which means "household management" or the "administration of household affairs" ("Economy," n.d.). Economists have various definitions of what their field encapsulates, but one definition is, "a study of mankind in the ordinary business of life; it examines that part of individual and social action which is most closely connected with the attainment and with the use of material requisites of wellbeing" (Marshall, 2010). The term "geography" is derived from the terms "geo," which means "earth," and "graph" which means, "description" (Dictionary, n.d.). Geography, like economics, has many modern definitions, and one useful definition is, "the study of places and the relationships between people and their environments" ("What Is Geography?," n.d.). In

addition the etymological review of the term "geography" provided here, it is important to note that geography alludes to a certain fundamental aspect of "place" in human (i.e. economic, social, political and cultural) and physical (i.e. the natural world) activity. Economic geography, therefore, is focused on the study of the spatial dimensions of economic activity. There have been significant contributions to economic geography by economists, who have studied the impact of location on trade, investment and development patters (Bloom, Sachs, Collier, & Udry, 1998; Krugman, 1980, 1991), and by geographers who have studied the spatial dynamics of labor, institutions, industrial and financial production (Berry, 1967; Clark, 1981, 1989).

I chose an economic geography approach for this thesis for four reasons: its conceptual underpinnings, dynamism, heterogeneity of methodologies and relevance for practical application. I argue that all four reasons are directly relevant to the study of development banking for sustainable development.

The first reason I chose to approach the research with an economic geography lens is the conceptual underpinnings of the discipline: difference, differentiation and heterogeneity (Clark et al., 2000). Difference refers to, "distinctive patterns of economic performance." Differentiation refers to the, "realization that difference is actually the product of ongoing economic processes that sustain long-term spatial variation" (Clark et al., 2000). Heterogeneity refers to the notion that cultural and institutional variables that were "previously thought out of bounds or irrelevant to market performance and innovation" (Clark et al., 2000) are indeed relevant to the study of economies and societies. These three pillars are relevant to the study of development banking for sustainable development. As I outline later in this chapter, development banks are heterogeneous institutions, both with regards to their own form and function as well as with regards to

the contexts within which they operate. Development banks can be large (relative to their geographical context), small, broad, narrow, financially profitable or insolvent. As a result of this inherent nature of development banks, to study these financial institutions and their role in sustainable development, I adopt an approach that appreciates the wide ranges of possibilities of how development banks function (difference and differentiation) and the multiple reasons for why this wide range of possibilities exist (heterogeneity).

Second, economic geography is a dynamic field of study and has evolved significantly over the past century. The evolution of economic geography is important because it demonstrates that the discipline evolves to respond to topics of relevance. Allen Scott argued that economic geography had three major eras since the end of World War II: 1) the spatial analysis and regional science movement of the 1960s, 2) the political economic approaches in the 1970s, and 3) the focus on regional-global interactions since the mid-1980s (Scott, 2000). Clark et al. took a longer view, and chart the history of economic geography starting with the work of commercial geographers in the nineteenth century, and evolving to environmental, cultural, economic and financial geography in the 20th and 21st centuries. They also argued that the global economy has evolved significantly since 2000, particularly driven by global economic growth, technological diffusion, environmental challenges and a major financial crisis, all of which have impacted the field of economic geography (Clark, Feldman, Gertler, & Wojcik, 2018). While choosing an academic discipline for this thesis, it was important for me to choose one that had a track record of significant evolution in conceptual and paradigmatic manners. This is because development banks and sustainable development are both concepts that have evolved, and continue to, quite significantly. I believe that the richness and dynamism of the

discipline provides many perspectives on the study of a dynamic topic, such as that of development banking and sustainable development.

Third, economic geography utilizes both quantitative and qualitative methodologies as ways to understand economic activity (Gertler, 2018). This is in sharp contrast to other social sciences, particularly contemporary economics (Romer, 2015), which have taken a sharp turn towards solely quantitative analysis. Economic geographers utilize a wide variety of methodologies to conduct their research. This includes highly sophisticated quantitative models to understand spatial dimensions of economic activity (Glaeser, 2000), as well as subtler, qualitative methodologies to move beyond stylized facts of the economics field to understand the operational dynamics of how institutions function and evolve over time (Clark, 1998). My research topic focuses on the functioning of a specific set of institutions, many of which are either new or are operating in geographical contexts with poor statistical data for quantitative analysis. Therefore, choosing an academic discipline that employs different methodologies to answer different types of questions was an important consideration for me and ultimately led me to economic geography.

Finally, economic geography lends itself to applied research with practical applications. Over the past few decades, empirical research in economic geography has provided many important results that have guided business leaders, investors and policy makers on topics related to financial development, long-term investing, institutional evolution and more (Clark & Urwin, 2008; Dixon & Monk, 2011, 2016; Kaminker, Stewart, & Upton, 2012). I believe that economic geography lends itself to applied research due to the discipline's variety of methodologies and associated disciplines. My research is focused on the topic of sustainable development, which, as I outline later in this chapter, is a

topic that has significant practical and applied applications. The history of economic geography as an applied social science therefore was a significant motivator for approaching the thesis with this academic lens.

b. Development Banking

The central topic of the thesis is development banking. A defining element of development banks is their heterogeneity. Development banks range in their size, scope, spatial orientation, ownership structure, sources of capital and uses of capital (Martinez, 2017). In this section, I provide an analysis of the definitions, theoretical propositions, historical evolution, contemporary state and operating structure of development banks.

i. Definition of Development Banks

There exists no commonly accepted definition of a development bank. Herein I outline three commonly referred to definitions of development banks:

1) A development bank is a financial institution devoted primarily to stimulating the private sector of the economy (W. Diamond, 1957).

2) Development banks are government-sponsored financial institutions concerned primarily with the provision of long-term capital to industry (De Aghion, 1999).

3) A development bank is any type of financial institution that that national government fully or partially owns or controls and has been given an explicit legal mandate to reach socioeconomic goals in a region, sector or market segment. (Martinez, 2017).

From these three definitions outlined above, I make three observations regarding the definitions of a development bank.

First, from an ownership perspective, there are various perspectives on what type of entity can own a development bank. Although development banks are generally recognized as state-owned institutions, some definitions – including the Diamond definition – are open about ownership, allowing for a development bank to include privately owned (i.e. not state owned) financial institutions. Given the importance of ownership on the function of financial institutions, this broadness of definition is an important point to note.

Second, from a functional perspective, the three definitions of development banks outlined above provide different approaches on what type of projects and entities a development bank can fund. The Diamond definition focuses on the "stimulation of the private sector" of the economy. Given that there are many ways in which the private sector can be "stimulated" (Friedman, 1962; Keynes, 1936; Mazzucato, 2015), this definition allows for development banks to finance both public and private entities that could support the private sector. The de Aghion definition of development banks, however, has a much more focused approach on "industry," which implies private sector recipients of development bank financing. Finally, the Martinez definition, of the World Bank, focuses on "reaching socio economic goals," which perhaps is the broadest definition of the possible uses of development bank capital and would allow the financing of both public and private entities.

Third, from a spatial perspective, the definitions of development banks allow for the banks to operate at all spatial scales. None of the definitions explicitly mandate that development banks must operate at a global, regional, national or sub-national level. This is an important point to note given that development banks operate at various spatial

scales, and therefore the designation of an institution of being a "development bank" is not limited to any one type of organization.

For the purposes this thesis, based on the definitions above, I define a development bank as:

"a financial institution, directly owned by the state, that has an explicit development mandate."

By defining a development bank as such, I attempt to focus the subsequent research and inquiry in the following four ways. First, I focus on development banks as *financial* institutions, thereby ensuring that the analysis focuses on the role of institutions providing financial capital as opposed to other types of capital – for example, social capital to human capital. Second, I focus on banks that have a direct government ownership. This means that my research will not focus on other types of financial institutions, such as privately-owned investment banks and impact investment firms, which may have a development orientation through their functioning but not owned by the state (Mudaliar, Bass, & Dithrich, 2018). Third, I focus on institutions that are explicitly mandated for the pursuit of "development." The term, "development," will be analyzed further in the thesis and does not limit the research to entities that are only financing private entities. Fourth, the definition that I offer makes no claim to the necessary spatial orientation of a bank to be considered a development bank.

ii. Conceptual Propositions Underlying Development Banking

The existence of development banks is underpinned by four, related conceptual propositions. In this section, I provide a brief overview of the four propositions. The

underpinnings of development banks are underpinned themselves by long standing philosophical and empirical debates within various strands of literature. I present these propositions to explain the conceptual bases of the existence of development banks, but not the normative justification of development banks. Chapter four of the thesis examines these conceptual propositions in significant detail.

The first proposition is that development is a desirable outcome in a society and can be achieved through increased investments in an economy. Development banks exist because development is an outcome that is desired by a society. There are many definitions of the term development and many ways in which development can therefore be achieved. One important aspect of the achievement of development, however, is the need for investment – that is the channeling of financial saving to productive investments – that allows for the development process to occur within a region (Chenery, 1967; Domar, 1946; Harrod, 1939).

The second proposition is that the state is needed to make specific investments in an economy. This proposition is critical to the existence of development banks because it underlies the need for the state to become involved in the allocation of financial capital. One persistent debate within economics has been the appropriate role of the state versus the market for optimal outcomes. This debate consists of both philosophical and empirical notions of what are public versus private goods and the role of the state in overcoming the failures of the market. The existence of development banks as state-owned institutions therefore is underpinned by the theoretical belief that the state needs to make specific investments that the market is unable to on its own.

The third proposition is that for the state to make specific investments that support development, designated institutions in the form of development banks are needed to facilitate the intermediation of saving for the needed investments. This proposition relates to the notion of the creation of specific and dedicated institutions with a form and function – in this case, in the form of a development bank - for the state to make or channel the investments that are needed for development to occur. This proposition relates to the fact that organizations or systems are needed to intermediate capital for the purpose of financial projects that support development. This proposition is also related to the notion that there is a failure of financial intermediation in other forms of financial intermediaries and institutions that can be overcome by the creation of development banks. The channeling of saving for investment will not – according to this proposition – happen on its own.

The fourth proposition is that a bank, as opposed to capital markets operating on their own or other types of financial institutions, is a specific type of financial institution that can match the needs of the providers and users of financial capital for the desired development outcomes. The final proposition of the existence of development banks therefore relates to the formation of a bank as the type of institution that channels saving to investments. There are many types of financial institutions that are involved in the intermediation of capital. The existence of development banks therefore is the by-product of the belief that the structure of a bank is preferable to other forms of institutions.

The four propositions highlighted above are conceptual. The conclusion of the thesis examines whether these conceptual propositions are supported by empirical observation.

iii. Historical Evolution of Development Banking

To investigate development banking in a contemporary context, I argue that it is important to understand their role and evolution throughout economic history. I posit that there have been four eras of development banking in recent economic history.

The first era of development banking occurred in continental Europe as a catalyst for the Industrial Revolution. Continental Europe was the home of the first era of development banking, while the region was playing catch-up with Great Britain's early efforts and progress towards industrialization. In 1822, the Societe Generale pour Favoriser l'Industrie Nationale was formed in Brussels as a financial institution aimed at supporting Belgian industry (W. Diamond, 1957). In 1852, France witnessed the inception of two of the most significant and foundational development banks in history – Credit Foncier, a mortgage bank focused on long-term agricultural loans and subsequently industrial development, and Credit Mobilier, which focused on utilities and industry (R. Cameron, 1961). Although these institutions did not survive for long – Credit Mobilier, for example, only lasted for fifteen years – they became a model that other European nations, including Germany, Austria, Netherlands, Italy, Switzerland and Spain, imitated. These banks were mainly privately owned but had significant government connections, including at times, initial capital from national governments. According to Diamond, these banks served as "planners, entrepreneurs, financiers and managers," and served Europe's needs for large amounts of capital needs for industrial development (W. Diamond, 1957).

The second era of development banking was the creation of state-led development banks after World War I and World War II, once again mainly in Europe. After World War I,

various countries in Europe – including Belgium, France, Finland, Poland and Hungary, created state-owned financial institutions focused on the "problems and reorganization of existing enterprises" (W. Diamond, 1957) after the war. Unlike the set of development banks created in the 19th century described above, these institutions were less focused on building and promoting new enterprises and more focused on rebuilding pre-existing enterprises. After World War II, many development banks were created at various spatial scales. In 1944, the International Bank for Reconstruction and Development (IBRD) was created as part of the Bretton Woods system to help reconstruct Europe and finance anti-poverty efforts globally. In addition to the IBRD, large national development banks were formed in major economies, including the Development Bank of Japan (DBJ) in 1948, the Kreditanstalt fur Wiederaufbau (KfW) in Germany in 1948 and the Industrial and Commercial Finance Corporation in Great Britain in 1945, among others (W. Diamond, 1957).

The third era of development banking was during the period of decolonization in Asia, Africa and Latin America during the 1950s and 1960s. It was during this period that many regional development banks, including the Asian Development Bank, the African Development Bank, and the Inter-American Development Bank, and sub-regional development banks were created. Two major forces drove this period of development banking: the need for industrialization and Cold War dynamics. Industrial-led growth was seen broadly as the way forward for countries that were entering their post-colonial period. Development banks were seen as institutions that could support the industrialization efforts of countries by providing long-term capital for the start-up of industries that could not be provided by other types of financial actors (W. Diamond, 1957). In addition, the United States and the Soviet Union had entered proxy wars around the war and the regional development banks were possible tools for the United

States and its allies to have influence over Asia, Africa and Latin America. This period of development banking was critical as it witnessed the creation of the largest development banks still operating today (Engen & Prizzon, 2018).

The fourth era of development banking has been the China-led era of development banking through the creation of both national and global development banks by the Government of the People's Republic of China. The China Development Bank, created in 1994, has played an important role in China's own development trajectory both domestically and internationally (Yuan, 2013). In 2014, the Government of the PRC also led the creation of two regional development banks – the Asian Infrastructure Investment Bank (AIIB) and the New Development Bank (NDB) (Shah, 2016).

Development banks have persisted throughout various economic cycles and in highly differentiated environments, ranging from Western Europe before the Industrial Revolution to modern day China. The persistence of development banks as a financial instrument and institution is noteworthy, I argue, in and of itself.

iv. Contemporary State of Development Banking

Given that there is no commonly accepted definition of a development bank, there is also no common agreement regarding how many development banks exist or have existed. The number of development banks and their collective size depends significantly on what definition is used for the category. A 1998 survey of development banks found over 550 development banks operating around the world (Bruck, 1998). A 2011 study found 288 development banks operating globally. This study included development

agencies, general development banks, special-purpose development banks and commercial banks with development objectives (Musachio & Lazzarini, 2014).

In this section, I provide an overview of development banking operations through a spatial lens, providing context of how development banks operate at the global and regional, national and sub-national levels. I use a spatial classification given the research questions that I am pursuing in this thesis.

At the global and regional levels, as of 2019, there existed at least twenty-five development banks (Engen & Prizzon, 2018). These banks can be categorized within three sub-categories: global, regional and sub-regional development banks. Global/regional development banks refer to the set of financial institutions that have multiple nations as owners. Table 1.1 below provides a list of ten largest global/regional development banks and the total size of assets of the institutions for the latest year for which the data are available.

Table 1.1: Ten Largest Global and Regional Development Banks (by total assets in USD billions)

Name of Bank	Total Assets
European Investment Bank	$666.3
World Bank	$307.3
Asian Development Bank	$125.9
Inter-American Development Bank	$113.3
European Bank for Reconstruction and Development	$56.2
African Development Bank	$21.6
Asian Infrastructure Investment Bank	$17.8
Islamic Development Bank	$12.9
New Development Bank	$10.0
Central American Bank for Economic Integration	$9.2

Sources: (ADB, 2018c; AfDB, 2018; *Central American Bank for Economic Integration Annual Report 2017*, 2018; *Financing Asia's Future: 2017 AIIB Annual Report and Financials*, 2018; *Islamic Development Bank 2018 Annual Report*, 2019; EBRD, 2018; EIB, 2018; Group, 2018; IADB, 2018; NDB, 2018)

At the national level, there is no consensus estimate regarding the number of national development banks that exist. As of 2019, there existed a loosely constructed global industry association called the World Federation of Development Finance Institutions (WFDFI), which was a federation consisting of five regional associations of development financing institutions: the African Association of Development Finance Institutions (AADFI), the Association of Development Financing Institutions in Asia and the Pacific (ADFIAP), Association of National Development Finance Institutions in Member Countries of the Islamic Development Bank (ADFIMI), the Latin American Association

of Development Financing Institutions (ALIDE), and the European Development Finance Institutions Association (EDFI). As of 2019, there were collectively 300 individual members of the constituent associations of the WFDFI, after removing development banks that that are members of multiple associations and privately owned banks ("WFDFI," 2018). I note however that this list is not comprehensive of all national development banks operating globally, as these associations are voluntary in membership and there is no obligation of a national development bank to join. In Table 1.2 below, I highlight the eight largest national development banks and their total size of assets for the latest year for which the data are available.

Table 1.2: Eight Largest National Development Banks (by total assets in USD billions)

Name of Bank	Total Assets
China Development Bank	$1,957.1
KfW Bankengrup (Germany)	$536.8
BNDES (Brazil)	$251.1
Korea Development Bank	$235.2
Japan Bank for International Cooperation	$161.6
Development Bank of Japan	$141.22
Bank for Development and Foreign Economic Affairs (Russia)	$53.3
Banobras (Mexico)	$34.2

Sources: (*Banobras Annual Report 2016*, 2017; *Vnesheconombank Annual Report 2015*, 2016; BNDES, n.d.; CDB, n.d.; DBJ, 2019; JBIC, 2019; KDB, 2018; KFW, 2018)

At the sub-national level, there existed a growing number of financial institutions that have been developed to finance specific aspects of the broader sustainable development

agenda. Namely, these institutions included state, county and city level development finance institutions that are owned by government actors at the sub-national level. There was no global association of sub-national development finance institutions. In Table 1.3 below, I highlight four sub-national development finance institutions in the United States.

Table 1.3: Four Largest Sub-National Development Banks in the US (by total assets in USD billion)

Name of Bank	Total Assets
Rhode Island Infrastructure Bank	$1.7
California Infrastructure and Economic Development Bank	$0.7
NY Green Bank	$0.5
Connecticut Green Bank	$0.2

Sources: (*California Infrastructure Economic Development Bank*, 2018; *Connecticut Green Bank Comprehensive Annual Financial Report 2018*, 2018; *New York Green Bank 2018 Audited Financial Statements*, 2018; Rhode Island Infrastructure Bank, 2018)

Finally, at the community level, there exist many financial institutions that that have a development orientation, including community development finance institutions (CDFIs) credit cooperatives and microfinance institutions (MFIs). The CDFI network in the United States and United Kingdom consist of privately owned commercial banks that serve low-income communities (Benjamin, Rubin, & Zielenbach, 2004; Cull, Demirgüç-Kunt, & Morduch, 2009). Some MFIs are publicly owned and some are privately owned. For the purposes of this thesis, community-level development banks have been omitted from the scope of the research.

v. Mandate, Governance/Ownership, and Financial Operations of Development Banks

There is significant heterogeneity in the mandate, governance and ownership, and financial operations of development banks.

From a mandate perspective, development banks can have a narrow or broad mandate. A narrow mandate for a development bank means a bank that is focused on a specific sector or type of borrower – for example, agriculture or small and medium sized enterprises (SMEs). At the global and regional level, mandates are generally focused on two issues: economic development and supporting regional cooperation and economic integration. At the national level, as noted earlier, some countries have many development banks, each of which operates with a narrow, sector specific mandate. For example, India has a development bank focused on agriculture, the National Bank for Agriculture and Rural Development, a bank focused on housing, the National Housing Bank, and various other state-owned banks focused on different development sectors in the country. Other countries have chosen to have one development bank with a broad mandate, such as Brazil with BNDES and China with the China Development Bank. According to a recent World Bank survey, 49% of national development banks had narrow mandates and 51% had broad mandates (Martinez, 2017). At the sub-national level, many of the recently formed development banks were focused on, specifically, the sustainable/green energy agenda.

From a governance and ownership perspective, development banks have many operating models. Regarding ownership, governments mostly own development banks. There are instances of private ownership of development banks, generally in the form of minority

shareholders, but in general development banks are state-owned (W. Diamond, 1957; Martinez, 2017). (As I noted earlier, many private sector financial institutions have impacts on development outcomes, but they are not considered development banks for the purposes of this thesis). Regarding governance, a Board of Directors that represents the owners and major stakeholders of the institution generally governs development banks. The global and regional development banks generally have boards that represent the shareholders of the bank, whereas the national and sub-national development banks have boards consisting of government representatives. The topic of supervision of development banks is often quite complex, given that the owner and regulator of a development bank is often the same entity (i.e. the government itself) (de Castro, 2018).

From a financial operations perspective, development banks have various sources and uses of capital. From a sources of capital perspective, development banks rely on multiple funding sources, depending on where they operate and what mandate they have. The sources of funding for development banks include deposits, domestic and international capital markets, overseas development assistance, sovereign funding from budgets, sovereign guarantees and through public utility surcharges. From a uses of capital perspective, development banks can lend to households, private sector entities, state owned enterprises and other government entities, including local governments. Development banks can also take equity positions in companies and projects. Development banks engage with their clients through multiple financial instruments, including providing loans, making equity investments, issuing guarantees, making grants and providing technical assistance, among others. Finally, development banks provide financing at both market-rate and concessional prices, depending on their mandates (Bruck, 1998; Engen & Prizzon, 2018; Martinez, 2017).

c. Sustainable Development

This thesis examines development banks within the context of sustainable development, one definition of which is, "the kind of development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987). The concept of sustainable development is not new – natural scientists have warned about the environmental impacts of economic development, and social scientists have warned about the social inclusion and inequality impacts of economic development, for centuries (Sachs, 2015). What is new, arguably, is the scale of the current and future possible impacts of the lack of sustainable development and the global response in international policy frameworks, region and national initiatives and the efforts of businesses and investors to more intentionally respond to sustainable development challenges.

The global economy has experienced a significant rise in the environmental and social impacts of economic development. From an environmental perspective, the increase in greenhouse gas (GHG) emissions, driven from the impact of increased economic activity through energy, transportation and agriculture, has led to an atmospheric concentration of carbon dioxide of 410 parts per million (ppm) in 2019 from just 280 ppm in 1950. This is a level of carbon dioxide atmospheric concentration that the Earth has not experienced since the Pliocene epoch, a period of planetary history between 2-4 million years ago during which humans did not exist (Sachs, 2015). From 1970-2010, it was estimated that the Earth lost fifty two percent of its bio-diversity (WWF, 2014). From a social perspective, inequality within countries has risen sharply over the past many decades (Milanovic, 2013, 2017). A significant rise in inequality has proven to decrease

economic growth (Ostry, Berg, & Tsangarides, 2014) and increase political polarization (Alesina & Perotti, 1996; McCarty, Poole, & Rosenthal, 2008).

In response to the perceived growing concerns regarding sustainable development, there exist three, inter-related policy frameworks, all of which were affirmed by the member states of the United Nations during the same year in 2015. The first global policy framework is the Addis Ababa Action Agenda (AAAA). The AAAA was affirmed by the member states of the United Nations in July 2015 as the financing framework for the sustainable development agenda (*Addis Ababa Action Agenda*, 2015). The origin of this international policy track is the International Conference on Financing for Development, which occurred in Monterrey, Mexico in March 2002 (*Report of the International Conference on Financing for Development*, 2002). This was the first, United Nations-sponsored summit ever conducted to address the financial issues related to international development. The Doha Declaration in 2008 (*Doha Declaration on Financing for Development*, 2008) and then the AAAA in 2015 followed the Monterrey Consensus of 2002. These three international agreements, although not legally binding, reaffirmed the importance of domestic and international, public and private financial flows to support development efforts around the world.

The AAAA explicitly mentions the importance of the role of development banks in financing the sustainable development agenda. Within the AAAA outcome document, there are thirty-three references to "development banks" and various roles that they can play in the financing of development, including for trade finance, infrastructure finance, sub-sovereign finance and other aspects of sustainable development financing. The outcome document explicitly states:

"We note the role that well-functioning national and regional development banks can play in financing sustainable development, particularly in credit market segments in which commercial banks are not fully engage and where large financing gaps exist" (*Addis Ababa Action Agenda*, 2015).

Development banks are seen by international institutions involved in the global sustainable development agenda-setting processes, namely the United Nations, as an essential intermediary for development financing within the AAAA.

The second global policy framework is the Agenda 2030 for Sustainable Development, which was endorsed by the member states of the United Nations in September 2015. The Agenda 2030 for Sustainable Development was the culmination of three years of international consultation after the Rio+20 Conference in 2012, which served as a follow up to the Rio Earth Summit of 1992 and the 2002 World Summit on Sustainable Development in Johannesburg, South Africa. The Agenda 2030 for Sustainable Development is noteworthy since within it is the Sustainable Development Goals (SDGs), a group of seventeen development goals that all member states of the United Nations can use as the guiding policy for sustainable development. The SDGs are a follow-up to the Millennium Development Goals (MDGs), which were a set of eight development goals that were advocated for by the United Nations from 2000-2015 (Sachs, 2015).

The SDGs are noteworthy for two main reasons: their universality and level of specificity. From a universality perspective, the SDGs apply to both advanced and developing economies, unlike the MDGs, which were focused on low-income countries. The universality of the SDGs is understandable, given the fact that achieving sustainable development requires significant transformations in economic behavior and activities in both developed and developing economies. Secondly, the seventeen SDGs are

accompanied by a set of 169 targets and over 300 indicators, providing a level of specificity around the development goals that is unique to the SDGs (United Nations General Assembly, 2015).

The third global policy framework is the Paris Agreement, which was endorsed by the member institutions of the United Nations Framework Convention on Climate Change (UNFCCC) in December 2015. The Paris Agreement is noteworthy because it is the first legally binding climate agreement that the member states of the UNFCCC have ever agreed to. The Paris Agreement calls for member states to try to limit temperature rise to, "well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius" (United Nations Convention on Climate Change, 2015). To achieve the Paris Agreement would require substantial, and rapid, changes in the global economy and in particular in the energy, transportation, building and agricultural systems, leading to a global economy that emits zero net greenhouse gas emissions by the second half of the 21st century (New Climate Economy, 2014; Ribera & Sachs, 2015).

Although the three global policy frameworks are separate, with different legal structures, oversight, and reporting processes, they are all inter-related. The AAAA was intentionally agreed to before the Agenda 2030 for Sustainable Development and the Paris Agreement because there was a broad recognition that a global financing framework for sustainable development was needed before the details of the SDGs and the Paris Agreement could be agreed to, even though all three policy frameworks operate under different umbrellas within the international system. The three international policy frameworks outlined here also each have their own follow up processes through international consultations,

conferences and summits with the goal to ensure progress is made (Dodds, Donoghue, & Roesch, 2016).

In addition to the international policy frameworks for sustainable development outlined above, there exists a myriad of regional and national initiatives for sustainable development. Regional and national efforts for sustainable development are highly varied. Some countries, such as Bangladesh, have created Minister-level positions to coordinate the national sustainable development efforts, working across different segments of the government (Kindornay, 2018). Other countries, such as China, have focused their efforts on specific aspects of the broader sustainable development agenda, including increasing national investment in renewable energy and by creation national green financing roadmaps (Kuhn, 2018). There has also been a considerable amount of policy and investment activity at the sub-national level. Cities, for example, have formed coalitions such as the C40 Initiative to increase climate mitigation and adaptation efforts at the urban level (Kanuri, Revi, Espey, & Kuhle, 2016).

Finally, businesses and investors have begun to address the sustainable development agenda through their own actions and initiatives. There has been a considerable increase in activity of the private sector on issues related to sustainable development. This increase in activity is evidenced by a growing number of industry associations, such as the UN Global Compact, the Principles for Responsible Investing and the World Business Council for Sustainable Development, all of which have been created over the past three decades to increase business sector involvement in sustainable development efforts. These efforts have grown in size since the adoption of the SDGs (*Better Business Better World*, 2016).

d. Elaboration of Research Questions

The primary research question pursued in this thesis is regarding the effectiveness of development banks for efforts in sustainable development. I have chosen this question as my primary research question for two reasons. First, despite the prevalence of development banks, I observe that researchers have not developed a systematic way of evaluating the effectiveness of these institutions. As a result, the effectiveness of development banks as financial institutions is often assessed without specificity. I argue in this thesis that the evaluation of the effectiveness of development banking requires an examination of both the theoretical underpinnings of development banking and sustainable development, as well as empirical research of these types of financial institutions. Second, development banks are becoming more prevalent around the world. Thirty four percent of all development banks were created between 1998 and 2019 (Martinez & Vincente, 2012). If this type of financial institution becomes even more prevalent in the future, I argue that it is important for researchers and policy makers to understand their effectiveness as institutions for the promotion of sustainable development.

The secondary research question pursued in this thesis is regarding how the spatial scale of a development bank affects the effectiveness of the institution. As outlined above, development banks operate at various spatial scales – global, regional, national and sub-national. In many geographies, there exist multiple development banks of various spatial scales operating within the same environment. Given that both the supply side of development banking – governments, investors and regulators – and the demand side of development banking – project developers and businesses – have to decide which development banks to engage with, I argue that it would be a useful contribution to

understand whether and how the spatial scale of these institutions impact their effectiveness.

At this point, I would like to specifically address how I plan to address the topic of sustainable development. My thesis seeks to understand the historical effectiveness of development banks for the future development paradigm in which sustainable development may play a larger role. In the thesis, I do not assume that development banks have always had an awareness or mindfulness towards sustainable development in their function to date. My research was undertaken during a period when the international, national and sub-national policy frameworks of sustainable development were under formulation and initial execution. My research therefore was not able to document how development banks have, if at all, responded to the needs of sustainable development versus prior approaches of economic development. I do assume, however, that sustainable development may play a larger influence in the future actions of development banks, and therefore a historical analysis of the effectiveness of development banks could inform the future direction of these institutions. Further, in this thesis, I focus on specific aspects of the functioning of development banking which I argue could have a significant impact on their effectiveness for sustainable development. Within each chapter, I draw linkages between the analysis and the sustainable development agenda.

II. MOTIVATION, SIGNIFICANCE AND INTENDED CONTRIBUTION

a. Motivations

The motivation for pursuing this research topic is personal, academic and public policy related.

My personal motivation for this topic stems from the shortcomings that I perceived regarding how the financial, academic, and policy sectors have engaged on the topic of sustainable finance - namely, a lack of appreciation and curiosity of the pre-existing organizations and institutions tasked with financing development. For the first ten years of my professional career, I worked at leading global financial firms, including Goldman Sachs & Co., Investec Asset Management and Oppenheimer Funds, as well as leading research and policy centers, including Columbia University and the UN Sustainable Development Solutions Network. Having worked both in both the financial sector and in research/policy space, I noticed a growing interest from these various actors towards answering the question of how international finance can contribute to positive social, environment and sustainable outcomes. Despite this growing interest, which has been manifested in a plethora of new investment institutions, funds, research centers, policy frameworks and more, I observed a lack of understanding of how pre-existing institutions, which are tasked with the goal of financing sustainable development, are operating. I observed a tendency, in all sectors, to create new structures, without understanding what may already exist and how to reform them. This recurring observation serves as the main personal motivation for undertaking a research project to understand how a set of pre-existing global institutions operate and what role they could play in the financing of sustainable development.

In addition to the personal motivations highlighted above, there are three primary academic and policy-related motivating factors behind this thesis.

The first motivation is the desire to understand how global efforts for sustainable development can be funded and financed. The creation of the SDGs and the Paris Climate Accord initiated a series of costing estimates to understand the scale of the financing needs to achieve the interrelated goals. The estimates for achieving the SDGs range from an incremental $2.5-5 trillion of annual investments, globally, in various sectors including infrastructure, energy, health, education and agriculture (Schmidt-Traub, 2015; UNCTAD, 2014). The estimates for achieving the Paris Climate Agreement range from an additional $1-2 trillion per annum of investments in low carbon energy sources and energy efficiency initiatives (McCollum et al., 2018; Peake & Ekins, 2017). These estimates vary significantly, but provide an order of magnitude that gives policy-makers, business leaders and researchers a sense of the needs. On the other side of the ledger, global financial assets are significant, including over $100 trillion of institutional investors capital and $290 trillion of banking assets globally (Shah, Du Toit, & Wilson, 2017). By studying the economic geography of development banking, I hope to understand their potential role in intermediation of global capital for the financing of sustainable development.

The second motivation is to understand the role of a specific type of institution to respond to a global public policy agenda that has varied local manifestations. The topic of sustainable development, and how it can be reached and achieved, has led to a significant amount of empirical research at the macroeconomic and macro political levels. This research has focused on aggregate investment needs and best practices of

how governments can align their operations to the sustainable development agenda (Schmidt-Traub, 2015; UNCTAD, 2014). Although this research is a useful starting point, I believe it is essential to go from generalities to specifics to investigate how specific groups of economic actors function. A more detail-oriented analysis could possibly help policy makers and investors understand how the broader sustainable development agenda can be put into practice. The study of specific institutions, such as development banks, provides a prism into how individual organizations and actors have responded to broad shifts in how the global economy functions. There is, I argue, significant relevance of understanding those shifts to understand what is needed for sustainable development.

The third motivation is to investigate the role of the state in sustainable development specifically by focusing on a sub-set of financial institutions that have close linkages with governments. The topic of the role of the state versus the role of the market in economic affairs is a fundamental topic of economics and economic development, as is discussed in chapter three. I am motivated to understand the role of the state in financing sustainable development in more detail for two reasons. First, I contend that there may be a shift happening in global economic thinking around the role of the market versus the state in economic affairs, as frustration with market-fundamentalism increases in both the Global North and the Global South (Alami & Dixon, 2019; Kurlantzick, 2016; Rachman, 2017). If this is the case, and if there is to be an increase in state-driven capitalism, then it is important to understand the effectiveness of financial institutions that have a more pronounced role of the state compared to private sector financial institutions. Second, I observe that a predominance of the academic and policy-relevant research and initiatives on financing the sustainable development agenda has been focused on how to increase the flow of private capital for the sustainable development

(*Better Business Better World*, 2016; UNCTAD, 2014). This research and policy work has broadly ignored that complementary nature of public and private financial capital for sustainable development. As a result, I am motivated to understand how public financial institutions operate within the broader context of public and private capital for sustainable development.

The fourth motivation is that even though development banks have existed for a significant period of time, there is a dearth of empirical research on how they operate and how to judge their effectiveness. In a 2012 World Bank survey of national development banks, the authors observe:

> "little is known about DBs [development banks]…Little is known about how DBs operate, what their policy mandates are, what financial services they offer, which type of clients they target, how they are regulated and supervised, what business models they have adopted, what governance framework they have, and what challenges they face" (Martinez & Vincente, 2012).

It is curious to me that there is a lack of knowledge of how development banks operate at the same time that they are seen as a possible important intermediary of financial capital for the achievement of sustainable development. As a researcher, I find the lack of deep research on development banks to be a significant motivating factor for the pursuit of this research topic.

b. Significance and Intended Contribution

I believe that the topic pursued in this thesis can be significant, and contribute to both policy and academic knowledge.

At a broad level, the topic pursued in this thesis is significant because it attempts to provide new analytical insights into the functioning of financial institutions and financial intermediation. Institutions and intermediation are two core aspects of the global financial system. Development banks are both a specific type of institution and serve an intermediation role that is, arguably, distinct from other major financial institutions, including banks and capital market entities.

First, from a policy perspective, I believe that by understanding how development banks operate, policy makers can decide whether these are institutions that are worth pursuing for sustainable development. Policy makers around the world today are confronted with a wide array of policy choices for how to tackle the sustainable development agenda. One aspect of this is what type of financial institutions should a government create and/or support to intermediate financial capital for sustainable development. One specific institution that a policy maker could choose to create and/or support would be a development bank. I believe that by investigating the effectiveness of development banks through this research, I am providing additional insights for policy makers who are confronting the set of questions.

Second, from a conceptual perspective, I argue that this research may be significant because it provides a conceptual framework for the analysis of an institution's role and response to a broad set of economic forces, and that this framework can be used for the study of development banks as well as other types of institutions. There are hundreds of thousands of individual organizations that are involved with the sustainable development agenda in one form or another. These institutions include government agencies, private-sector businesses, private and public sector financial institutions, academic organizations, advocacy organizations and more. The international community could benefit, I argue,

from a conceptual framework that allows for researchers and policy makers to understand the effectiveness of these various institutions for sustainable development efforts. The four-part conceptual framework for this thesis, inspired significantly from the discipline of economy geography, provides an additional tool for evaluations of institutions today.

Third, from a research methodology perspective, I argue that the study of sustainable development may be enhanced through a more direct focus on structured case studies, as is presented in this thesis, as opposed to quantitatively-driven, cross-country analyses. The case-study pedagogical approach has received significant momentum in the study of business and management but has not received corresponding momentum in the public policy realm, particularly in development studies. I hope that by presenting structured case studies of four individual development banks, I can demonstrate to academics involved in researching and teaching issues related to economic and sustainable development that there is value in pursuing research through this method.

Fourth, from an academic contribution perspective, this study is the first study of development banks from the economic geography discipline and perspective. The multi-disciplinary nature of economic geography allows for a new approach of analysis for the topic of development banking, which may be useful for further study of the topic. In addition, this study undertakes case studies of specific financial institutions that have not been studied in detail in the past. For three out of the four case studies, this thesis provides one of the first detailed case studies ever written about the organizations. Therefore, this thesis contributes to the broader social science literature from both a discipline approach and the case studies selected.

III. STRUCTURE

The thesis is presented in seven chapters, with the Introduction serving as chapter one.

The conceptual framework and methodology for the thesis is presented in chapter two. The conceptual framework consists of four, inter-related concepts: the theoretical space, contextual place, structure of channels and organizational flows of development banking for sustainable development. This framework is inspired by theoretical and empirical work of economic geographers focusing on development and finance. The conceptual framework presented is a dynamic system, with various feedbacks between the component parts. The methodological approach presented is one that I argue is the most fitting for the research questions that I pursue in this thesis. I outline how I plan to evaluate the effectiveness of individual development banks after closely reviewing the literature of organizational effectiveness. I present a mixed-methods approach that borrows heavily from the fields of economic geography, economics and sociology. The methodology leans heavily on the process of undertaking "close dialogue," with key practitioners involved in development banks and their broader eco-system (Clark, 1998). This approach has been utilized significantly in labor economics in the mid-20th century and more recently in economic geography for the study of financial institutions.

The theoretical space of the thesis is presented in chapter three. The goal of this chapter is to highlight the major theoretical topics and debates that support the existence and functioning of development banks. The four theoretical topics that are examined are the topics of development, the state versus the market in economic affairs, institutions and organizations, and banks as financial intermediaries. I argue that these four topics present the most salient theoretical underpinnings of the existence of development banks. By

investigating the theoretical debates within these four topics, I enter the subsequent empirical analysis with a deeper understanding of the theory behind the existence of development banks. I argue that theory and practice are reflexive with one another – a core concept that guides the conceptual framework (Soros, 2003).

The following three chapters present the four case studies of the thesis, each of which focuses on the contextual places, structure of the channels and organizational flows of development banking for sustainable development. The four development banks chosen for the case studies were the Asian Development Bank (ADB), the Uganda Development Bank (UDBL), the New York Green Bank (NYGB) and the Connecticut Green Bank (CGB). The four banks were chosen based on the desire to have a selection of case studies with diverse background in terms of spatial scale (regional, national and sub-national), financial geographies and development policy engagement. In addition, these four banks were chosen because of my access to them and for considerations regarding the research budget that I had for this thesis.

The role of the ADB on regional cooperation and integration efforts is presented in chapter four. The focus on regional cooperation and integration was chosen from the perspective of the ADB's additionality compared to other financial institutions that are operating in the Asia Pacific region. The case study answers the question of how the ADB has responded to its formal mandate to support regional cooperation and integration efforts across the region in which it operates. The chapter analyzes the role of external crises in accelerating the bank's efforts in this space and it provides insights into the ADB's relative effectiveness in supporting the "software" of regional cooperation, namely national and regional public and financial policies, versus the "hardware," namely cross-border infrastructure investments.

The impact of policy consistency and capability traps for the UDBL is presented in chapter five. The focus on capability traps was chosen from the perspective of the UDBL's internal capacity to respond and carry out its intended mandate. This case study examines how the oscillating and, at times, dramatic change in direction of public policy of the Government of Uganda impacted the effectiveness of the UDBL. Specifically, the chapter examines how the inconsistency of public policy led to the bank falling into a "capability trap," in which the institution is unable to either develop or attract the human capital that may be necessary for the bank to be an effective financial institution within its region.

Chapter six presents a comparative case study of the NYGB and the CGB through the lens of institutional context and flexibility. The focus of this comparative case study is on the notion of political and policy alignment, and how these two institutions have had to remain flexible in order to evolve with the quickly changing political and policy contexts within which they operate. The NYGB and CGB were formed very near to one another and exist in political and financial geographies that are remarkably similar. However, in their short existence as state-level green banks in the United States, they have evolved in divergent ways due to forces that were outside of their internal control. This comparative case study examines how political and policy alignment of a sub-national development bank impacts its need to be flexible as an organization.

Chapter seven serves as the concluding chapter of the thesis, in which I present conclusions, contributions to literature, topics for further research and policy implications that are borne out of the research process for the thesis. This chapter serves as a culmination of the thesis, and reflects upon the lessons learned from both a research

process and the research conclusions. This chapter presents a set of conclusions, topics for further research and policy implications that is directed for different sets of actors, including researchers, policy makers and financial sector participants.

The structure of this thesis is inspired significantly by recent empirical work in the field of the economic geography of financial institutions. Specifically, academic work on the topic of sovereign wealth funds by Gordon Clark, Adam Dixon and Ashby Monk provided me a structure for how I approached structuring the thesis (Clark, Dixon, & Monk, 2013). Specifically, the Clark, Dixon and Monk manuscript blended theoretical constructs with case study analysis in order to understand how sovereign wealth funds operate as financial institutions. This manuscript gave me many ideas for how I went about structuring my own thesis and approach.

IV. LIMITATIONS

There are, at least, four major limitations of the thesis. I would like to discuss these limitations at the onset of the thesis to manage the expectations of the reader.

The first limitation is that this thesis is not a comprehensive study of the complete development banking architecture operating around the world. The topic of this thesis may imply that the study will provide a complete picture of the effectiveness of the entire development banking system and its interaction with the broader requirements of sustainable development. However, I argue that such a study would not be feasible within this thesis, given the vast number of development banks that are currently operating in the financial system.

The second limitation is that the case studies do no present comprehensive analyses of any single development bank. I have chosen four development banks to research, each with a single "organizational flow" in mind. That means that for each development bank, I am examining its effectiveness through one aspect of its function. The study does not, however, examine all the salient aspects of the four development banks, or even one of the four, with regards to the needs of sustainable development. It would have been possible, I argue, to undertake a single-case study approach for the topic and examine only one development bank through various perspectives. This approach though would not have highlighted the heterogeneity of development banks and also would not have allowed the spatial comparison, which serves as the second research question of this study.

The third limitation is that the thesis does not explicitly compare the effectiveness of development banks with other financial intermediaries that are involved in the financing of sustainable development. Development banks operate within a broader set of financial institutions that have a development mandate – this includes sovereign development funds, impact investment vehicles, corporate social investment and other channels. One way of examining the effectiveness of a development bank would have been to compare a development bank with another development finance institution operating in the same geography to understand the respective strengths and weaknesses of both types of organizations. This is not the approach taken for this study.

The fourth limitation is methodological, and relates to the shortcomings of both the quantitative and qualitative data that exist for this topic. It is challenging to obtain both quantitative and qualitative data for most development banks. From a quantitative perspective, many development banks, particularly in low-income settings, do not keep

comprehensive data records. In addition, many development banks have been created in the past two decades, leading to a short time series and historical record. From a qualitative perspective, many of the stakeholders of a development bank have either formal or informal relationships to the official sector, thereby preventing their ability to engage in research projects such as this one. These structural barriers complicated the data collection process for the study and serve as a limitation to the recplicability of the findings.

The fifth limitation is related to the nature of this study versus the dynamic nature of institutions, particularly financial institutions. This study examines the effectiveness of development banking for sustainable development during the period when the research was conducted. This study did focus on the evolution of the development banks in question in two ways – their histories before the research was conducted, and their evolution during the research period through repeated interviews with research participants. However, despite these attempts to understand the evolution of the development banks that I studied, the thesis does not attempt to predict how they may evolve in the future, as the requirements for sustainable development may change. Development banks, like many other institutions, are dynamic and have the proven ability to evolve and respond to new situations. In addition, efforts for sustainable development are evolving significantly, which could have an implication on how development banks operate. As a result, a fundamental limitation of this study is that it cannot consider the potential evolution of the institutions studied in response to the needs of sustainable development.

Chapter Two: Conceptual Framework and Methodology

I. INTRODUCTION

The conceptual framework presented in this chapter is a four-part framework that is comprised of the perspectives, places, channels and flows related of the economic geography of development banking for sustainable development. Specifically, the conceptual framework consists of the *theoretical space*, *contextual* place, *structure* of channels and *organizational* flows of the research topic. The framework was inspired by both theoretical and empirical contributions of social scientists that have worked on topics related to global finance and sustainable development.

The methodology presented is a mixed-methods approach, utilizing both qualitative research methods of semi-formal interviews and close dialogue and quantitative data when available. The methodology used was borne out of both philosophical and practical reasoning regarding what research methods would be most effective for the topic pursued for this thesis.

II. CONCEPTUAL FRAMEWORK

The conceptual framework of the thesis is comprised of four elements with regards to topic of the economic geography of development banking for sustainable development: the theoretical space, contextual place, structure of channels and organizational flows. In this section, I provide a detailed analysis of the conceptual framework and its component parts.

The inspiration for this conceptual framework is derived from theoretical and empirical literature focused on the spatial dimensions of development, the spatial dimensions of finance and perspectives on institutional economic geography. The observation that economic development occurs in a geographically uneven manner has been articulated by many social scientists (Ocampo & Vos, 2009). There are various causes of spatially uneven economic development, including transportation costs (Redding & Turner, 2015), agglomeration of skills (Krugman, 1991) and physical geographies (Gallup, Sachs, & Mellinger, 1999). The unevenness of economic development requires researchers to understand both the broad forces that lead to these uneven outcomes, as well as the context-specific implications of uneven development, including institutional formation and evolution. This insight has been critical for the formation of a conceptual framework for this thesis, since development banking is not a homogenous concept and the broad umbrella of development banking responds differently to different development contexts. It was therefore important to develop conceptual framework that investigates the variety of how development banks exist in different external contexts.

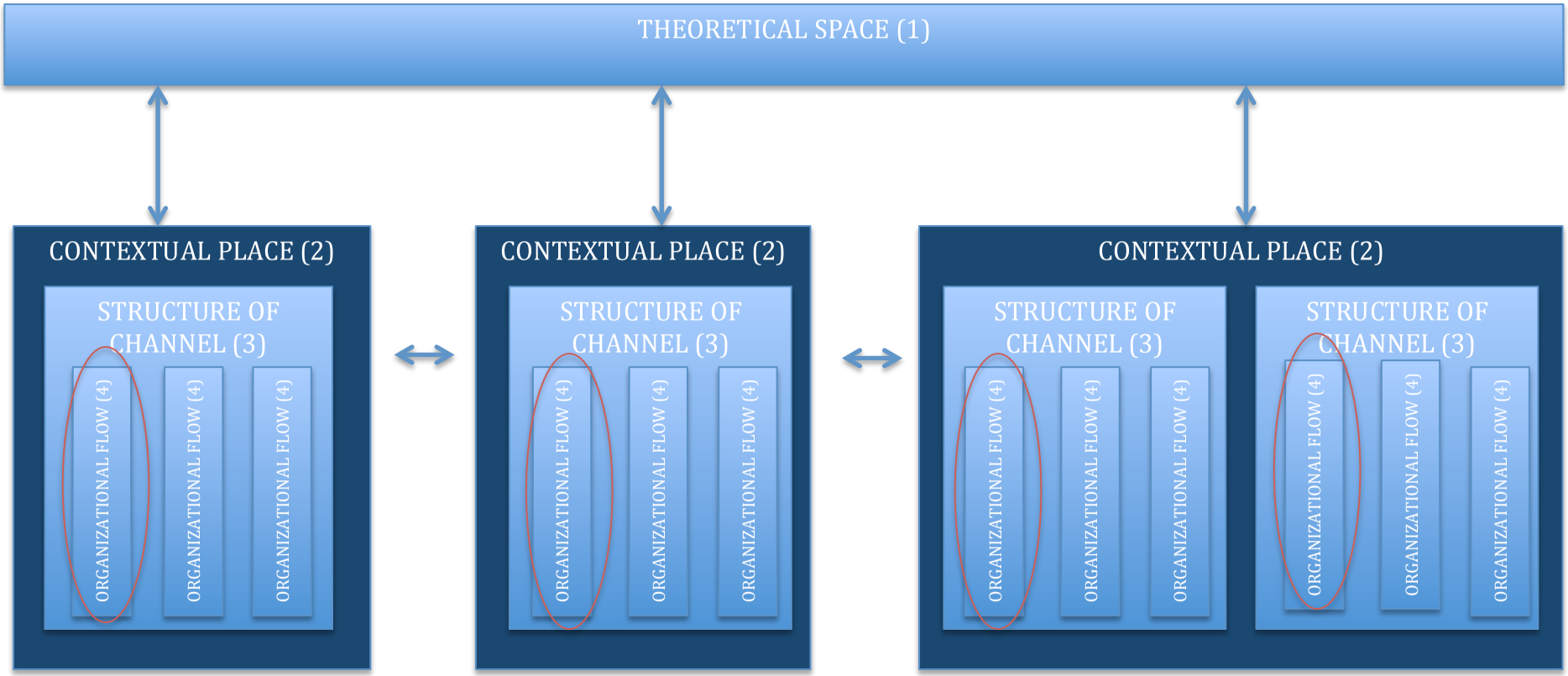
The topic of the spatial dimensions of global finance has also been an important inspiration for the development of the conceptual framework. The relationship between geography and finance has not always been appreciated in mainstream finance and economics, which largely views financial capital as geographically agnostic and flowing seamlessly from geography to another based on relative risk/reward metrics. Recent conceptual and empirical scholarship though has inserted an important geographic dimension to the study of finance and money and argues that money is in itself geography, contingent in both space and time (Leyshon & Thrift, 1997). Two specific aspects of the study of financial geography were particularly useful for the development of the conceptual framework of this thesis – the study of financial centers and the study

of capital flow movement. The study of financial centers evokes many relevant topics for the study of development banking, particularly with regards to how historical legal and human capital endowments can impact outcomes in the future (Wójcik, Knight, & Pažitka, 2018). In addition, the study of the movement of financial flows has had a significant influence on the development of this conceptual framework. Given the omnipresence of money, attempts have been made to develop heuristics to explain the movement of capital in a more structured and approachable way (Clark, 2005). The conceptual framework presented in this chapter – perspectives, places, channels and flows – is a heuristic to understand the effectiveness of development banking for sustainable development.

Finally, the topic and academic discipline of institutional economic geography has been an important influence on the development of the conceptual framework and methodology of this thesis. Specifically, Gertler articulated four components of a "reconstituted economic geography" in a seminal article on the topic of the place of institutions in regional economic change (Gertler, 2010). Gertler argued that the "next generation of institutional analysis" within economic geography would allow for a greater emphasis on the agency of individual agents and institutions to be understood, focus on institutional evolution and change over time, commit to inserting a stronger place for geographical and spatial analysis and allow for greater methodological variety in the form of comparative case study analysis. The conceptual framework and methodology developed for this thesis has consciously used elements of each of these four elements in its design.

A schematic of the conceptual framework is presented in Figure 2.1. The motivation of this conceptual framework was to establish a framework that achieves three goals - a

Figure 2.1: Conceptual Framework



strong basis in academic research, repeatability and one that allows for the heterogeneity of individual organizations to be examined and understood. First, the conceptual framework presented below is derived from academic and empirical literature in economic geography, as discussed above. The building blocks of the conceptual framework have been discussed in various theoretical and empirical research efforts in the field (Clark, 2005; Harvey, 2001). Second, the conceptual framework is repeatable, which means that it can be used for the analysis of four different development banks, as is done in this thesis, and also more broadly for the study of financial institutions that are involved in the field of sustainable development. Third, the conceptual framework allows for the uniqueness of individual contexts, structures and flows (Sections 2, 3, and 4 of the framework) to be analyzed independently of one another – thereby respecting the heterogeneity of development banks.

a. Theoretical Space

The starting point for the conceptual framework is the theoretical space of the topic of the thesis. I begin the thesis at this point because I argue that theory and practice have a strong reinforcing impact in the fields of finance and sustainable development. Therefore I argue that an empirical analysis of a development bank must begin with the theoretical debates that underpin the existence of development banks themselves.

The theoretical space of the thesis focuses on the four main building blocks of the research: the topics of development, the role of the state versus the role of the market in economic affairs, institutions and organizations and financial intermediation through banking. I arrived at these four building blocks because I argue they are the most pertinent topics through which development banks can be analyzed. Each of these

building blocks presents an important set of questions and debates that need to be understood before empirical analysis is done.

With regards to development, the most pertinent questions for my research relate to the topics of defining and charting the concept of development, understanding the drivers of development and analyzing the conceptual evolution from development as a concept focused on human well-being to one that encompasses both human development and environmental considerations. I argue that these three topics are essential building blocks for the study of development banking because these topics provide insight into the underlying function of development banks – that is, to help achieve development. By interrogating this concept in greater detail, I develop a set of conceptual insights to understand various aspects of what purpose a development bank has been built to achieve. These tools help guide subsequent questions that I confront throughout the empirical research process.

With regards to the state versus the market, the most pertinent questions for my research relate to the dynamics of the optimal role of the state (government) and markets in economic systems and the implementation of this dynamic through industrial policy mechanisms. Since development banks are most often owned and significantly controlled by state actors, the topic of the effectiveness of a development bank is inseparable from the long-standing debate in economics around the roles of the state versus markets in the economy. This topic has philosophical, moral and empirical lenses. The second aspect of this section focuses on one particular aspect of the implementation challenges of state/market dynamics, which is that of industrial policy. The topic of industrial policy focuses on what role, if any, the state should have in supporting industrialization efforts of an economy. The first iterations of development banks in the 19th century was formed

during a period of industrialization of Continental Europe (W. Diamond, 1957), and these institutions have continued to be involved in industrialization efforts since. This section seeks to focus on key aspects of the state versus markets topic that can help guide foundational questions regarding development banks in subsequent chapters.

With regards to institutions and organizations, the most pertinent questions for my research relate to the topics of what is an institution, from where do institutions derive their legitimacy and design and what is the optimal spatial dimensions of institutions within an economy. The topic of what defines an institution and what role do they play in economic development is one that has had a significant impact in academic discourse and policymaking. Institutions are broadly viewed as either as norms/"rules of the game" that govern, both formally and informally, economic and political behavior, as well as organizations with a form and function that seek to achieve certain objectives (Clark & Monk, 2017). The way in which the topic of institutions is defined has a significant impact on the analysis of development banks as institutions of finance and development. Relatedly, development banks are mostly state-owned institutions, and as a result, there remains an important question regarding from where these banks derive their legitimacy. Finally, development banks operate at various spatial scales, from global to sub-national. As a result, to judge the effectiveness of a development bank, it is important to understand the broader debates regarding how the spatial dimensions of a financial institution impact its effectiveness.

Finally, with regards to the subject of banking and financial intermediation, the most pertinent questions for my research relate to the topics of the history and evolution of development banks, the role of banks as financial intermediaries and the interaction between the state and the banking sector specifically. The conceptual and empirical

validity of development banks as tools for economic development has oscillated significantly since their inception, based on many factors ranging from broad philosophical perspectives on the topic to quantitative evaluations of their role in economic development. The topic of why banks exist is important to consider, since banks play, arguably, a specific role in financial intermediation, which is not served by capital market in and of themselves. There are many debates, both conceptual and empirical, around what is the optimal role of banks versus other entities involved in financial intermediation. Finally, the connection between the state and the banking sector is complex. Given the fact that development banks have a significant state involvement, it is important to understand these institutions within the broader frames and debates of the role of the state in the banking sector.

By beginning the thesis with the theoretical space of the topic, I enter the subsequent empirical analysis with a conceptual foundation of the theoretical debates related to my research topic. Specifically, the tools are conceptual insights that are formed by understanding the long-standing academic debates that exist within the realm of the research topic. These insights are furthered with the beginning sections of each of the case studies. This section is derived primarily from a review of theoretical and empirical literature on various aspects related to development banking.

b. Contextual Place

The second aspect of the conceptual framework is the place of development banking for sustainable development. I argue that to understand the role of development banking for sustainable development, it is important to understand the context within which the bank is operating. With regards to context, I argue there are two particular aspects that warrant

attention: the development history of the region and the contemporary development challenges that the region faces at the time of analysis.

The development history of a region is important to understand since it provides the backdrop for why a development bank was created. Given that economic systems are complex, it is impossible to provide a full overview of all aspects of the development history of a region. However, I argue that it is possible to provide a detailed overview regarding specific aspects of the development history of a region that may have a significant impact on the role of the development bank in the region. The broader conceptual point that is uncovered by analyzing the development history of a region is related to that of path dependency. The topic of path dependency relates to the question of whether the region within which a development bank operates is on a fixed path, based on historical events (in the social, political, economic, natural resource endowment), or is the region able to overcome its historical trajectory through interventions such as the creation of specific financial institutions with a stated purpose (Hall, 2009; Hodgson & David, 2013).

The contemporary development challenges are important to understand since they provide a broad understanding of the various challenges that a development bank may be seeking to overcome in the context within which it operates. The study of the contemporary sustainable development challenges of a region can be informed by both quantitative data, produced by international development agencies and research organizations, and qualitative data, produced through interviews and close dialogue with economic participants involved in the region. I argue that to form a full picture of the contemporary sustainable development challenges requires both quantitative and qualitative analysis, given the complementarities of the two approaches in studying the

state of sustainable development (the topic of mixed methods research will be explained later in this chapter).

In order to understand aspects of both the sustainable development history and context within which a development bank is operating, I argue that it is important to establish an analytical framework for the development bank in question. The creation of an analytical framework for the study of the place of a development bank (as well as the structure of the channels and organization flows) is a vital step in narrowing the broad conceptual topics highlighted in both the theoretical space and contextual place sections of the conceptual framework thus far.

c. Structure of the Channels

The third aspect of the conceptual framework is the structure of the channels of the development bank. Development banks are organizations, with a structure of ownership, governance and regulatory oversight, and sources and uses of capital that are important attributes of the form of the organization. I argue that analyzing the structure of a development bank provides important perspectives on the analysis of their function.

With regards to ownership structure, development banks vary widely from being fully owned by the government to being fully privately owned. Although most development banks are state-owned, the level of state ownership, and the mechanisms by which state ownership exists, vary widely. This wide variation of ownership structures is important for the analysis of how a development bank functions because the ownership of a financial institution can have a significant impact on their effectiveness and their ability to carry out their intended mandate (Michie & Lobao, 2012). Different ownership

structures can also have indirect impacts on development banks through the legitimacy with which external actors perceive them.

With regards to governance structure and regulatory frameworks, development banks range from having independent boards comprised of representatives from various stakeholders of the bank (general public, academia, business, government etc.) to having governing boards representing only one stakeholder, namely the government. The governance of a development bank provides an important lens into the functioning of the institution, as the governing body is ultimately responsible for the institution itself. Relatedly, development banks operate with a wide variety of regulatory frameworks. There are instances of development banks that have no formal regulatory oversight and there are instances where certain Ministries within a government or Central Banks regulates development banks (de Castro, 2018). The ADB and UDBL, for example, are not regulated by any entity. The NYGB and CGB are regulated by their respective state governments.

Finally, there is a wide variation in both the sources and uses of capital of development banks. From a source of capital perspective, development banks originate their financial capital from many sources, including governments, private investors and philanthropic organizations, and through various channels, including direct investments and capital market activities. These various sources of capital are injected into a development bank through various financial instruments, including equity, debt and as co-investment capital. From a use of capital perspective, development banks vary significantly in what types of investments they make by both type of project (private companies, public companies, infrastructure projects, state owned enterprises etc.) and sector of project (agriculture, health, education, infrastructure etc.).

The place and structure of the development banks presented in chapters four, five and six are derived from both interviews and close analysis of publications originating from the development banks themselves. These sections of the chapters are descriptive in nature, but form the basis of the analytical aspects of the chapters presented both in the subsequent section of the individual chapters as well as the conclusions of the project as a whole.

d. Organizational Flows

The fourth aspect of the conceptual framework is the organizational flows of a development bank. I define an organizational flow as a specific, identifiable aspect of how the organization functions and what it produces. There are three important aspects of the concept of organizational flows with regards to development banks: the variety of flows, the inputs and outputs of flows, and the value of focusing on a specific flow to understand the broader institution.

First, development banks have a variety of organizational flows. Although banks, and other financial institutions, are generally assessed by their financial flows (measured in terms of the amount of financial capital deployed over a period of time), development banks can be assessed by a broader set of flows because development banks have both financial and non-financial characteristics in terms of their functioning. Assessing non-financial flows is not a simple task; because such exercises often times are subjective and qualitative in nature. Given the fact that development banks have a development purpose, in one form or another, it can be important to analyze and understand various forms of non-financial flows in addition to financial flows.

Second, organizational flows can be understood from both the perspective of the input and the output of these flows. From an input perspective, one can understand organizational flows by answering the following question: what did it take for the development bank to produce the organizational flow in question? This question can be answered from a variety of perspectives, including human capital and innovation, policy alignment and ownership structure. From an output perspective, one can understand organizational flows by answering the following question: what did the development bank accomplish?

Third, in the schematic of the conceptual framework, I highlight one flow for each of the case studies since I argue that analyzing a specific flow of a development bank can provide insights into the broader institution as a whole. This approach of organizational analysis can be understood as a fine grained analysis, which is a research approach that is used both in the physical sciences (Humphreys, Minshew, Leonard, & Behrmann, 2007) as well as in the field of organizational management and political science (Tilly & Goodin, 2006). The decision to use a fine-grained analysis methodology will be explained in the subsequent methodology section.

e. Linkages and Feedback Mechanisms

The conceptual framework presented in this section is dynamic and therefore has various feedback systems and interaction points within it. The two main feedbacks within the framework are between the theory and the practice and between various development banks themselves. These interaction points are highlighted in the conceptual framework by the arrows that exist between each of the case studies.

The interaction point between theory and practice, or section one and sections two/three/four of the conceptual framework presented, is an important dynamic as academic theory is enhanced by empirical observation and empirical practice can help revise academic theory. This dynamic between academic theory and empirical observation is particularly salient for the subject of this research project because there is no academic consensus regarding the key four underlying pillars of the research topic (the concepts of development, the role of the state versus the role of the market in economic affairs, institutions and organizations and banks as financial intermediaries). Each one of these broad topics is open to both theoretical and empirical debates. Therefore empirical analysis is vital in further refining the conceptual and theoretical debates at play. I do so by drawing an explicit linkage between the theoretical space (section one of the conceptual framework) and the contextual place/structure of channels/organizational flows (sections two, three and four of the conceptual framework, which is the empirical research component of the thesis).

In addition to the linkages between theory and practice highlighted above, development banks are in both formal and informal conversations with one another, and they inform one another's practices. The arrows that connect the various case studies within the conceptual framework demonstrate this point. Formally, development banks share best practices through networks. Informally, development banks are the subjects of research projects, such as this one, that provide avenues for cross learning. This research project is not analyzing each development bank in isolation of one another, but rather taking learning from one context and applying them, informally, to the study and analysis of another context. I highlight this interconnection within the conceptual framework.

f. Correspondence with the Structure of the Thesis

The conceptual framework presented in this section guides the structure of the thesis. The theoretical space of the subject is presented in chapter three. The place, structure of channels and organizational flows are presented in chapters four-six, which are the case studies of the thesis. The linkages between the perspective, place, channels and flows are presented in chapter seven, which serves as the conclusion of the thesis. I note here that chapter six serves a comparative case study between two sub-national development banks operating in the same geographic area. This is the reason that on the diagram, there are two structural channels and organizational flows that are embedded within one place.

III. METHODOLOGY

The motivation for the mixed-methods methodology presented below is borne out of both philosophical and practical reasoning for how to best collect the necessary data for the thesis.

From a philosophical perspective, I approached the development of the methodology with an awareness of the shortcomings of purely quantitative research on topics related to social phenomena, particularly around the effectiveness of specific policies and organizations for sustainable development (Rodrik, 2012). I observed that economies, institutions and sustainable development are complex phenomena (Kirman, 1997, 2010), in which causal mechanisms are very difficult to identify. Although quantitative research is able to provide structured thinking through comparable metrics, they often lead to a desire to generalize social phenomenon outside of the particular contexts within which

they occur. I wanted to avoid this in my research, and instead focus on the specific phenomena occurring within specific development banks that were responding to the challenges of sustainable development.

From a practical perspective, many of the institutions and regions that I planned to study suffered from poor quantitative data, including short time-series and poor collection of records. As a result of these two drivers, a mixed-methods approach, borrowing from geography, sociology, and economics, was used to conduct the research for this thesis.

a. Effectiveness

The primary research question for this thesis is: "Are development banks effective financial institutions for sustainable development?" A critical concept within this question is the concept of effectiveness – how it is defined, measured and evaluated. In order to develop a methodology for the research, it was important for me to first understand what the concept of organizational effectiveness means for a development bank.

i. Overview of Approaches to Defining Effectiveness

With regards to the definition of effectiveness, there are various definitions based on perspective and discipline. Effectiveness is often boiled down to the concept of being successful in producing a desire or intended result (Matz, 2005). In the organizational management domain, effectiveness has been defined as the maximization of return to the organization by all means for some specific period of time (Pathak & Singh, 2013). In the legal domain, there is no generally accepted definition of effectiveness, with certain legal

domains defining effectiveness as a change in human conduct while other legal domains focusing on achieving measurable improvement of a situation (Matz, 2005).

With regards to methodological heterogeneity, there are various ways that the effectiveness of an organization can be evaluated. Two reviews summarize these methods as the following eight main methods: goal orientation approach, system resources approach, internal processes and operations approach, strategic constituencies approach, behavioral approach, competing values approach the contradiction school approach and the fine-grained strategy (K. Cameron, 1980; Pathak & Singh, 2013). I provide here a short overview of each of these methodologies:

a) Goal Orientation: This approach focuses on how well does an organization accomplish its own stated goals.

b) System Resource Approach: This approach focuses on how successful an organization is in acquiring the needed resources for achieving its goals.

c) Internal Processes and Operations Approach: This approach focuses on how the internal structure, management, and functioning of organization operates and whether these processes create a healthy system.

d) Strategic Constituencies Approach: This approach defines effectiveness on the level of satisfaction of an organization's strategic stakeholders and constituencies.

e) Behavioral Approach: This approach focuses on measuring how the goals of the organization and the goals of the individual are integrated as a barometer for the effectiveness of an organization.

f) Competing Values Approach: This approach maintains that there is no generalizable set of criteria that can define an organization's effectiveness. Instead, this methodology looks at areas of intersection across three dimensions: organizational focus, organizational structure and organizational means and ends.

g) The Contradiction School Approach: This approach highlights an organization's effectiveness by minimizing contradictions of goals between various constituencies of the organization.

h) The Fine Grained Analysis Strategy: This approach evaluates an organization's effectiveness by establishing a referent and a small set of criteria, a priori, against which to judge an organization's effectiveness.

The literature in the methodology of assessing organizational effectiveness highlights four critical points. First, there has been long-standing disagreement and debate within the disciplines of administrative science, management science and sociology on how to best evaluate the effectiveness of organizations (K. Cameron & Whetten, 1983). The crux of this debate lies in the fact that organizations have many goals, stakeholders and demands, and therefore many ways to judge the "maximization of return" of the organization in question (Pathak & Singh, 2013). The second critical point is that there is a time-dimension of the organizational effectiveness debate, where one's perspective on the question of organizational effectiveness can evolve significantly when the time

horizon also changes (Quinn & Cameron, 1983). Third, there is broad agreement that since there is no universal theory in evaluating organizational effectiveness, there is a need to integrate different methodologies for the purposes of different organizations (K. Cameron, 1980). The fourth critical point is that effectiveness is a social construct – it is a term that social scientists, policy makers and organizational leaders have developed and used in order to evaluate organizations.

ii. Approach Used to Define Effectiveness

I approached the thesis with the functionalist perspective of financial organizations, adopted for the study of development, without disregarding the distinctiveness of development banks as a specific form of a financial institution. The functionalist perspective takes, "as given the economic functions performed by financial intermediaries and asks what is the best institutional structure to perform those functions" (Merton, 2007). The functionalist approach does not take as given that the institutions of finance will persist, but instead that the functions that the institutions of finance seek to undertake will persist and that competition will cause greater efficiency over time (Bodie & Merton, 2002; Merton & Bodie, 1995).

With regards to the thesis, my approach focused on the functional performance of development banks in relation to their mandates to support development outcomes in their respective geographies. I did not approach the thesis with the belief that development banks are the only way for development to be financed, or even the optimal way for development to be financed. Instead, I approached the thesis with the desire to understand *how* development banks function with regards to their mandates of promoting and support development outcomes. Despite the focus on the *function* of

development banks, the thesis is not ignorant of the fact that it focuses on a specific *form* of financial institutions – a development bank, which I defined in chapter one. Form and function are deeply intertwined (Dixon, 2011, 2012) and endogenous to one another, with function often influencing the form of an organization and the form of an organization influencing its functioning. The methodology and approach of my thesis was inspired significantly by empirical studies of institutional investors and sovereign wealth funds and their performance against their mandates (Clark et al., 2013; Clark & Monk, 2017)

In order to operationalize a functionalist study of the effectiveness of development banking, I used a combination of two methodologies for the evaluation of organizational effectiveness of development banks: the fine-grained analysis strategy and the strategic constituencies approach. I chose to use and integrate these two frameworks because they were the most applicable to the research topic and methodology that I chose for this project.

The fine-grained analysis strategy was developed as a response to the growing debate and disagreement around the evaluation of organizational effectiveness. This strategy highlights the need to analyze an organization's effectiveness along pre-chosen aspects/pillars/criteria. This strategy has been used as an approach to evaluate the effectiveness of higher education institutions in a series of seminal studies in the late 1970s and 1980s (K. Cameron, 1978, 1981). Although this approach will not give a full account of an organization's effectiveness, it can lead to successful inquiry. It is widely known that there is no universal best practice towards evaluating organizational effectiveness and that all methodologies have weaknesses (K. Cameron & Whetten, 1983) . One suggestion is to restrict the concept of organizational effectiveness to a small

set of specific areas and only analyze the organization with those referents in mind. The justification of this methodology is as follows: "This is done by focusing on certain critical *a priori* choices – referred to earlier – that help give the concept of organizational effectiveness some meaning in each evaluation. This means that certain critical choices should be made to guide the assessment that will provide a basis for selecting among certain inevitable trade-offs. There can be no perfect evaluation…" (K. Cameron, 1980).

The strategic constituencies approach highlights and responds to the fact that different constituents of an organization will have a different approach and perspective on its effectiveness. This should not be viewed as a limiting factor in the attempt to understand an organization's effectiveness, but rather part of the complexity and richness of organizational analysis. This approach focuses on the value of judging organizational effectiveness through an approach that understands that, "several different effectiveness statements can be made about the focal organization, reflecting the criterion sets of different individuals and groups" (Connolly, Conlon, & Deutsch, 1980). The underlying logic of this methodology is that different constituencies of an organization have different perspectives, needs, desires and approaches towards how to evaluate the organization's effectiveness (K. Cameron, 1980). This methodology is valuable as it allows for the fact that different constituencies may have different perspectives on the effectiveness of an organization.

In order to operationalize my approach to studying effectiveness, I began by identifying five specific aspects of development banks that could be used as the basis of analysis of their effectiveness. These five aspects are size/instrument, additionality, alignment, internal resources and capabilities, and concentration. I chose these five areas with three considerations. First, these five aspects of development banks all have a deep basis in the

theoretical and empirical study of development banks. The five topics are all aspects of development banks that have been used in prior studies of effectiveness of this form of organization. Second, the five aspects chosen are heterogeneous. They deal with different aspects of the form and function of development banks, thereby allowing me to be flexible in the way that I approached each individual development bank. Third, the five aspects are both qualitative and quantitative in nature. I sought to choose five referents that would allow me to pursue mixed-methods research.

The first component is size and instrument. I argue that a development bank's effectiveness for sustainable development can be evaluated on the total size of its lending and the instruments that it uses in its operations. With regards to size, a critical question regarding the effectiveness of a development bank is whether the development bank is operating at a size that is meaningful for the pursuit of sustainable development in its region while maintaining financial stability and sustainability of its own (Bhattacharya, Oppenheim, & Stern, 2015; Humphrey & Prizzon, 2014). On instrument, a critical question is whether a development bank has the ability, and indeed is, deploying the right financial instrument – debt, equity, credit enhancement, investment guarantee etc. – for the right policy target (Humphrey & Prizzon, 2014). An evaluation of the size and instruments deployed by a development in response to the needs of the region in which it is operating therefore can provide important insight into the effectiveness of the organization itself.

The second component of the framework is additionality. Conceptually, this referent refers to identifying whether a development bank is functioning in a way that is different, and additional, to the pre-existing financial system, or whether it is duplicating efforts that could otherwise be accomplished by other financial institutions operating in a

region. A development bank's additionality can be evaluated at the institutional level and at the specific project/financing level. At the institutional level, I argue that a development bank's additionality can be examined by whether the bank is – by the nature of its existence and form – able to undertake certain development initiatives that other financial institutions are not. At the project-level, I argue that a development bank's effectiveness can be evaluated by whether its activities allow for additional capital – mostly from private sources – to enter into a certain sector or project or whether it is instead "crowding out" or replacing private investment (Lazzarini, Musacchio, Bandeira-de-Mello, & Marcon, 2014). This relates directly to how the development bank coordinates its activities with other providers of finance within a region.

The third component of the framework is alignment. I argue that a development bank's effectiveness for sustainable development can be evaluated on whether its lending is to sectors and projects that are aligned with a region's strategy or plan for achieving development (Kurlantzick, 2016; Lin, 2011). There are at least two parts to this notion of alignment for sustainable development. The first is whether it is indeed possible and desirable to plan an economy's investments in sustainable development. The second is what role the development bank should have in the creation and execution of this plan.

The fourth component of the framework is internal resources and capabilities. I argue that a development bank's effectiveness for sustainable development can be evaluated on whether the institution has the right level and types of resources and capabilities to achieve its mandate. This type of analysis means examining the level of human and technological capabilities at the organizational level and understanding the linkage between the internal capabilities of a development bank and its ability and track record in translating its knowledge into outcomes that accelerate progress towards sustainable

development in a certain region (Woolcock, Lant, & Andrews, 2010). Given the importance of knowledge for economic growth, I argue that the knowledge transfer component of a development bank is critical for its effectiveness in sustainable development.

The fifth component of the framework is geographical concentration. This is a geographic approach and relates to the tendency of financial activity to agglomerate geographically due to various behavioral and geographic reasons, including home/region bias that may exist either consciously or sub-consciously for the allocator of capital (Coval & Moskowitz, 1999; Ke, Ng, & Wang, 2010; K. Lewis, 1999). I argue that a development bank's effectiveness for sustainable development can be measured by its awareness of the tendency of financial capital to cluster and the need for correction through directing investments to offset this clustering.

I argue that all five referents outlined above – size/instrument, additionality, alignment, internal resources and capabilities, and geographical concentration – are integral to a development bank's ability to contribute to the requirements of sustainable development. First, the size/instrument of a development bank is essential to consider given the multi-trillion dollar per annum investment needs required for the achievement of SDGs, one heuristic for the sustainable development agenda (UNCTAD, 2014). If a development is not operating at a size, or with the financial instruments, that make it significant for the needs of sustainable development within a specific geography, that provides an important set of insights regarding their broader effectiveness. Second, the additionality of a development bank is an important characteristic for sustainable development because it outlines what a development bank is doing that is different than other financial institutions already in operation. Sustainable development, arguably, requires cooperation

between various stakeholders (United Nations General Assembly, 2015), and therefore an analysis of a development bank's ability to understand its unique role among a larger set of financial institutions can be an important attribute to consider. Third, alignment with public policy is an important characteristic for a development bank's effectiveness for sustainable development given the globally adopted public policy frameworks of the SDGs and the Paris Climate Agreement as well as the growing number of national policies in sustainable development-related sectors, including energy and agriculture. Understanding how a development bank has evolved its own functioning to respond to global, national and sub-national policy frameworks regarding sustainable development can provide perspective on the broader effectiveness of the bank in supporting sustainable development. Fourth, the internal resources and capabilities of a development bank can provide insight regarding the institution's ability to respond to the complex and inter-disciplinary agenda of sustainable development. By understanding the skills and expertise of the staff of a development bank, it is possible to form judgments regarding the broader capabilities and possibilities of the bank itself. Fifth, the geographic concentration of a development bank can highlight important attributes of the institution's ability to understand, and respond to, the geographic unevenness of economic and sustainable development.

Critics may argue that the five referents above focus more on the inputs of a development bank as opposed to the outputs of the bank, which may be more relevant in order to understand the effectiveness of a development bank. To this critique, I would make three relevant points. First, I argue that the goal of my research is to understand the function and dynamics of development banks as institutions, much in the same way that economic geographers have studied institutional investors including pension funds and sovereign wealth funds (Clark et al., 2013; Clark & Monk, 2017; Clark & Urwin,

2008). To study the function and dynamics of an institution, it is often important to study input mechanisms as opposed to merely the results of the institution in terms of key performance indicators, such as jobs created or energy installed. This is a similar approach as taken by Clark and his colleagues in his various studies. Second, I argue that the inputs and outputs of a development bank are closely linked. I argue that it is not possible to understand the output of a development bank – its contribution to development – without understanding the various factors that lead to the output, including the referents that I have chosen to study of a development bank. Third, as I outline in the preceding section, I believe that each of the referents that I have chosen are inextricably linked to the broader goals of sustainable development. In each of the subsequent empirical chapters, I highlight the connection between the referent chosen for the study and its relevance to the needs of sustainable development.

After identifying the five aspects of development banks that I would use as potential prisms through which I would assess their effectiveness, I then analyzed the development bank based on one of the five broad topics highlighted above. I entered this process of the research after doing a significant amount of background research on the institution, thereby limiting the set of possible topics to even fewer than the five above. I ultimately chose one distinct topic to focus on specifically when analyzing the development bank. This one aspect of analysis is linked to the conceptual framework, as it is the organizational flow that was analyzed.

Using the strategic constituencies approach, I identified the key strategic constituencies of each development banking. I then engaged with the various constituencies of the development bank to understand their perspectives regarding how the organization was

fulfilling its mandate through the perspective of the one referent that I chose for the research of the bank.

I conclude this section with a clear statement of recognition that there is no universally accepted approach to evaluating the effectiveness of an organization. I developed a methodology to assess the effectiveness of development banks based on both literatures from organizational behavior as well as from examples of how economic geographers have studied other financial institutions. I fully accept that there are other possible ways by which the effectiveness of development banks could be assessed for efforts in sustainable development.

b. Case Study Approach

The research was conducted with a comparative case study methodology. A case study can be defined as, "empirical inquiry that investigated a contemporary phenomenon in depth and within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2009). I argue that the study of development banking for sustainable development is a prime candidate for case study research given both the "real-life context" of the research as well as the blurred distinction between the "phenomenon," which can be considered the development bank itself, and the context within which they are operating.

The decision to use a case study approach was inspired significantly by the work of economic geographers. Bent Flyvbjerg argued that case study research allows for focus on specifics rather than generalities and for testing hypotheses against both observable facts and theoretical questions (Flyvbjerg, 2001, 2006). Flyvbjerg argued that the case-

study methodology is misunderstood by many elements of the research community for the following reasons: a belief that theoretical knowledge is more valuable than practical knowledge, that generalization cannot happen from a single case, that case studies are most useful for creating hypotheses and not testing, that case studies contain a bias towards verification and that this type of research is difficult to summarize. He contended that these are fundamental misunderstandings of both the value and process of case study research and also that there is significant value in a scientific discipline that is built upon a, "systematic production of exemplars" through case study research. The decision to use a case study approach was also inspired by the work of recent empirical work of economic geographers in studying sovereign wealth funds and pension funds using a comparative case study approach (Clark et al., 2013).

A critical aspect of comparative case study research is the selection of cases. There are many ways that cases can be chosen for a comparative case study analysis. These methods include random selection, whereby cases are chosen in a random way in order to prevent bias, and information-oriented selection, whereby cases are chosen for a specific set of reasons based on expectations regarding their information content (Flyvbjerg, 2006). The case study selection for this research project was done through information-oriented selection, with three major considerations.

The first consideration was intended heterogeneity. The four development banks examined attempted to represent the significant variation amongst these institutions. There were two metrics by which I approached the intention of heterogeneity:

a) Spatial Scales: My research focused on the economic geography of development banking. Therefore, the selected case studies focused on development banks operating at varied geographical scale – regional, national and sub-national.

b) Financial Geographies: The cases chosen were intended to comprise of development banks operating in varied financial geographies. This meant that each case study would focus on a development bank that was operating in a region with diverse levels of financial market development and sophistication.

The second consideration was access. Many development banks are purposely-opaque institutions, given their historical ties to government, political leaders and geopolitical considerations. To undertake my research, however, I required access to individuals and data for these organizations. Therefore, my case study selection was heavily influenced by which development banks I had access to and what information – qualitative and quantitative – they are willing to share.

The third consideration was research budget. I chose case studies based on places that I was able to spend considerable time to conduct interviews and review data and analysis. The affordability of certain regions therefore impacted my case study selection.

With these considerations in mind, the four case studies chosen for this thesis were the Asian Development Bank, the Uganda Development Bank, the New York Green Bank and the Connecticut Green Bank.

c. Mixed Methods

The research was undertaken with a mixed-methods approach, combining both qualitative and quantitative research techniques. I argue that a mixed-methods approach is beneficial for the study of development banking given both the qualitative and quantitative nature of these types of financial institutions.

The methodological tools and experiences of Gordon Clark, Michael Piore and Albert Hirschman inspired the qualitative research methodology. Clark's emphasis on the value of close dialogue as a research methodology was a guiding influence throughout this project (Clark, 1998). Clark demonstrated, both conceptually and through his own empirical research with colleagues on specific financial institutions (Clark & Monk, 2013; Clark & Urwin, 2008), that engaging in detailed, unstructured discussions with practitioners can provide valuable insights into how organizations operate. Clark argued that such an approach has major benefits over the "stylized facts" that simplify and generalize human behavior. Clark argued that close dialogue allows for the research to understand "the exchange of information" and the "management of networks of information" as "vital social processes that are ignored at the peril of the institutions concerned." This insight, I argue, is particularly relevant to the study of development banks, given the various complexities associated with these types of financial institutions.

Similarly, Michael Piore was a pioneer in the field of qualitative economics and case study research through, "open-ended, unstructured interviews with economic actors" (Piore, 2002, 2006). Piore's work addressed a wide variety of issues, including labor markets (Doeringer & Piore, 1972), migration (Piore, 1981), and employment adjustment to trade (Piore & Safford, 2006). Piore's approach is noteworthy and relevant to my research

project for three reasons: the importance of narrative, the interaction between empirical research and theory and importance of solving problems. First, Piore maintained that open-ended interviews allow for the creation of narratives, which are, in and of themselves, observations of relevance for a researcher. Instead of considering narratives as a detriment to objective research, Piore believed that they could help test and contribute to theory. Second, Piore maintained that the rigidity of economic theory provides a basis for qualitative research, as it empowers the interviewer with a set of concepts that can be tested against qualitative observations and reality. Third, Piore argued that one of the reasons that qualitative research worked for his study of labor markets was the practical, real-life and problem-oriented nature of the topic, which allowed for a set of nuances that could be understood through qualitative research. All three reasons highlighted here are relevant to the study of development banking for sustainable development.

Finally, Albert Hirschman's work has had a significant influence on my understanding of development economics in general and also methodologies for approaching the topic. In particular, Hirschman's work on development project-level analysis was a major influence for me. Hirschman (1967) studied the effectiveness of development projects through a qualitative, mixed-methods approach in his pioneering work *Development Projects Observed.* In this book, Hirschman studied eleven different World Bank financed projects in order to understand how development projects are created and what it takes for them to be successful. It was in this book that Hirschman developed his concept of the, "hiding hand," an insight regarding how human creativity allows otherwise unfeasible projects to be successful (Hirschman, 1967). Hirschman combined project-specific interviews with his broader interest in political economy to produce an important piece

of research that had a significant influence on development planning for decades to come.

The close dialogue approach consisted of conducting semi-formal interviews with key individuals in the development banking eco-system for each of the four chosen case studies. I approached the selection of interviewees systematically to ensure a comprehensive understanding of the institution. This was done after undertaking an internal and external stakeholder mapping exercise of each development bank. Below is an initial list of key individuals within the development bank eco-system with whom I intended to engage. For each interviewee, I sent an introductory email with details about the research topic that I was pursuing. I had developed a broad list of questions that I planned on using to guide each of the discussions, but I did not share these questions in advance. I have included the list of the questions in Appendix I.

a) Development Bank (Internal)
    a. President/CEO and Senior Leadership
    b. Ex-Presidents and Senior Leadership
    c. Policy and Strategy Team
    d. Transactions and Execution Team
    e. Fundraising and Investor Relations Team

b) Government Employees Engaged with Development Bank (External):
    a. Economic Planning Commissions and Team
    b. Finance Ministries
    c. Central Banks
    d. Environment and Energy Ministries

c) Financial Sector Eco-System:
    a. Leaders of Commercial and Investment Banks in same region
    b. Leaders of Institutional Investors and Intermediaries in the same region

d) Demand-Side: Users of Capital
    a. Infrastructure developers
    b. Small and Middle Sized Enterprises (SMEs)

At this point, I would like to highlight the approach that I took for the semi-structured interviews. For the data collection, I intentionally approached the interviews in a semi-structured conversation format and did not take direct quotes from the interviews for the thesis. By choosing this approach for data collection, I consciously decided not to record the discussions for the purposes of re-examining the contents after the discussions were had. I made this decision for two reasons. First, I believed that semi-structured discussions would allow for a more open discussion compared to the outcome of a discussion with predetermined questions. I believed that a formal interview would lead to less nuance and detail that can come from a more open-ended discussion. Second, I made the decision not to record the conversations and use direct quotations because of the sensitivities of the topics that I was covering in the research questions. Most of the interviewees for the research were government employees. As a result, there was a significant amount of sensitivity to the discussion topics. If I had recorded the conversations or appeared that I was quoting, verbatim, what was being discussed, I believe that I would not have had thorough and meaningful insights from the research approach. Following the "close dialogue" approach outlined by Gordon Clark I made this decision knowing the trade-offs – most notably that the thesis would not have direct

quotes from the interviewees. I understand that having direct quotations could have strengthened some of the empirical arguments made in the following chapters of this thesis. This was a trade-off that I had to make in order to complete the research, as I had intended to.

The semi-structured interviews took a place over a period of time ranging from 2016-2018. This was an intentional decision for three reasons. First, I believed that having multiple discussions with the same individuals would allow for a deeper and more nuanced understanding of the various issues that I was researching. Second, I believed that having multiple discussions would allow me to understand the evolution of the development bank over a period of a time and not just at one snapshot in time. Third, the sustainable development agenda was just being formally adopted in the international and national systems during this period. This fact meant that there was a potential for significant change to be happening during the period of the research. I wanted to ensure that I was capturing this evolution over the time. The importance of doing multiple interviews with the same participants is a research methodology point that I used with the inspiration of Gertler's 2004 study of the institutional influence on manufacturing in Europe versus North America, where he outlined the importance of studying institutional change in qualitative research by undertaking multiple interviews with participants over a period of time (Gertler, 2004).

The quantitative research for this project was driven by the collection of the limited amount of publicly available, quantitative data regarding development banks. There exists no database that maintains the historical financial data of development banks. In addition, some development banks, including the UDBL, have no record of their historical financial information outside of physical binders in their offices, which cover

only a small portion of their history. As a result of these challenges, through this research project, I have begun the construction of such a database for the purposes of future research of the topic of development banking. The development banks studied in this project form the initial basis of this database. In addition, data regarding sustainable development indicators of a region are more readily available through the growing amount of economic data provided by international financial institutions and development agencies such as the United Nations, World Bank and IMF. These data were used to understand topics related to the sustainable development context within which a development bank was operating.

d. Positionality

I undertook this research process with an acute awareness of the challenges of positionality when it comes to academic research (Kezar, 2002; Sultana, 2007). The term positionality refers to both, "an individual's world-view and the position they have chosen to adopt in relation to a specific research task" (Holmes, 2014). My awareness of the complexity of my positionality with regards to the research topic created periods of self-reflection both before and during the research process itself.

The impact of positionality in the research process has been discussed significantly in both the disciplines of economic geography and feminist studies. In the field of economic geography, positionality has been approached both with regards to how space impacts economic activity and how spatial positioning impacts one's perspective on economic activity (Sheppard, 2008). In addition, geographers such as Gordon Clark have articulated how the positionality of researchers can influence data collection in close dialogue research processes (Clark, 1998). Clark argued that the positionality of the

researcher with regards to the participant must be carefully considered, as there are power dynamics and knowledge asymmetries between researchers and practitioners that can lead to either very useful exchanges for both parties or not. In the field of feminist studies, the concept of positionality has been an important topic as it highlights how the position of a researcher can influence the objectivity of knowledge and research processes. Feminist theory has highlighted various ways in which positionality impacts research, including power dynamics between researchers and participants and persistence of the relational dynamics between researchers and participants (Nagar, Lawson, McDowell, & Hanson, 2008; Rose, 1997; Valentine, 2002).

There are costs and consequences to the research process of not factoring in how positionality impacts the collection and interpretation of data. I see three major implications of a researcher being unaware of how positionality impacts the research process. First, the researcher's approach towards the participant can be negatively influenced by his or her relational position to the subject and the topic. The researcher can be introducing biases and preconceived judgments regarding the topic of research that could lead the participant to answer questions and provide information that simply confirm the researcher's opinions. Second, the participant can provide information to the researcher for reasons other than objective academic inquiry. If the participant, for example, is interested in impressing the researcher, this could lead to exaggerations of information. Third, the researcher can falsely believe that all information collected during interviews and close dialogue is objectively true because a research subject provided it. All three of these avenues could have a major implication in how data is gathered and interpreted.

With regards to the "world view" that I brought to this research topic, I was aware of two salient aspects that could influence the way that I approached and conducted the research: my interest in development banks leading to an advocacy for development banks, and my views regarding the broader ability to finance the world's sustainable development agenda. I had developed a strong interest in development banks for many years preceding the beginning of this research project. My interest in development banks had influenced my professional work in both the public and private sectors. As I began my doctoral research, however, I was highly aware that my interest in development banks could, subconsciously, lead to an advocacy for development banks and therefore blind me to the challenges represented by these types of financial institutions. Relatedly, I brought to my research a belief that the sustainable development agenda could be financed quite easily through the linking of the large amounts of global capital supply to the large amounts of global capital needs for sustainable development. This worldview had led me to a belief that solving the challenges of sustainable development financing was simply a matter of linking supply and demand in a more efficient way.

With regards to the "position chosen," I was aware of two salient aspects of my position that could influence the way I approached the research, and the way that others in the research process approached me: my American/Western academic and professional training and my affiliation with a technocratic research organization affiliated with the United Nations. As a researcher who received his training in the United States and the United Kingdom, I was aware that I was not a part of the local context in both Asia and Africa, where two of my four case studies were conducted. I was also aware that my position as an outsider could influence the way that others, particularly those with whom I was engaging, would view me. Relatedly, I conducted the research for this project while serving as a Senior Advisor to the UN Sustainable Development Solutions Network.

Although I made it very clear during my research efforts that I was not conducting research on behalf of the United Nations or any affiliated organizations, I am aware that my identity could have been construed as that.

The issues highlighted above in the context of my positionality to this research topic were ones that I was constantly aware of and reflecting on during the research and writing process of this project. The challenges of positionality cannot necessarily be solved, but rather they need to be kept in mind during the broader research efforts. I attempted to handle the issues related to positionality in three ways. First, I attempted to ensure my own consciousness of the impacts of positionality while I undertook the research. From a practical perspective, this meant that I would remind myself of how the research subject may be interpreting my position and how that could influence the data that I was collecting during the process. This also meant that I consciously absorbed the data collected through the interviews with an awareness that the data may not be purely objective and that this meant that I would have to verify certain points in follow up discussions or with other individuals. Second, I ensured that the individuals with whom I was interacting knew, very explicitly, my own background and the objective of the interaction. This is a particularly salient point given the various affiliations that I held during the research process. I made it clear with each research subject that the discussion was for the purposes of academic research for a doctorate at the University of Oxford, and not for other personal or professional purposes. Third, on a more philosophical level, I approached the entire thesis with an awareness that my research project may not lead to an unassailable truth regarding the effectiveness of developments banks for sustainable development. I accepted, to a point, that there is certain inevitable research implications brought about by my positionality as the researcher on this topic. Although I consciously tried to minimize the implications of these positionality issues, I also

consciously recognized that they would, in fact, have an impact on the data that I collected and the observations that I made. This awareness, inspired significantly by Clark's work (Clark, 1998), had implications on the research projects as a whole.

e. Ethics and Academic Integrity

My research was carried out in accordance with the rules and stipulations of the Oxford Central University Research Ethics Committee (CUREC) and the Economic and Social Research Council (ESRC). It was very important for this research process to be conducted in a highly ethical way given the sensitivity of both the research topic and the individuals involved in the research. With regards to the research topic, governments around the world are developing strategies to finance the sustainable development agenda. Development banks have been considered one important aspect of this process, as was highlighted in international policy frameworks such as the Addis Ababa Action Agenda (*Addis Ababa Action Agenda*, 2015). In addition, many of the people with whom I interacted were government employees, for whom there could be significant implications for providing information on government institutions.

To ensure that my research was conducted with the highest level of ethics and academic integrity, I ensured that I followed the guidance of both CUREC and the ESRC. This meant three specific things. First, I utilized the Checklist and the Written Information Consent documents as guides for how I went about collecting the data for the research. Specifically, I alerted all of the research participants that the data that they provided in the form of interviews would not be attributed to them and would not be quoted without their permission. Second, I kept all of the notes from the meetings in a highly secure data file and I ensured that no specific names or positions were written in these

electronic files. Third, I shared outlines of the chapters with the research participants. By doing so, it provided the participants a level of comfort of what I would be writing on the topic. My approved CUREC application is provided in the appendix of the thesis.

Chapter Three: The Theoretical Space of Development Banking

I. INTRODUCTION

The topic of the effectiveness of development banks for sustainable development is based on theoretical spaces at the intersection of various academic fields. This theoretical space is comprised of questions regarding why development banks exist, how they operate and through what mechanisms they function. To analyze the place, channels and flows of development banks - topics that will be addressed in proceeding chapters - it is important to first understand the theoretical building blocks of this topic.

The purpose of this chapter is to situate development banks within four theoretical building blocks and provide a set of conceptual insights and tools that focus my subsequent empirical analysis of development banks. First, development banks operate within a broader debate around the concept of development. Second, development banks exist in the dynamics between the roles of the state versus the role of markets in economic affairs. Third, development banks can be understood as institutions, and therefore need to be placed in the context of the role of institutions in economic development. Fourth, development banks are banks, and therefore need to be examined through the perspective of the role of banks in a financial system. The chapter ends with a concluding section, which outlines the substantive takeaways from each of the four theoretical building blocks of the topics. These substantive takeaways are ones that I utilize for the empirical analyses of development banks in the following three chapters.

It is important to note that the four broad topics covered in this chapter are the subjects of entire disciplines of academic and empirical study. The goal of this chapter is not to provide a comprehensive overview of all aspects of these topics and the various nuances of each. Rather, the goal is to highlight the most pertinent topics for the study and analysis of the effectiveness of development banking for sustainable development.

II. DEVELOPMENT

In this section, I analyze the concept of development with regards to the broader topic of development banking. In doing so, I focus on three specific aspects of the topic: the evolution and definitions of the term development, the various contributors to development and the evolution from economic development to sustainable development.

a. Development: Evolution and Definitions of the Concept

The concept of development is used in many disciplines in both the physical and social sciences. The term development is derived from the French term *developper,* the original meaning of which is, "a gradual unfolding, a full working out or disclosure of something" ("Develop," n.d.). This etymology has an important parallel to contemporary discussions of development in the social science context, particularly the two concepts of gradualism and unfolding. With regards to gradualism, the original meaning of development alludes to a slow pace of evolution. This observation is relevant to the significant debates in the 20th century regarding the pace at which economic transitions and development should occur (Weitzman, 1993). With regards to unfolding, the original meaning of the term assumes that development is the exposure of what may already exist, as opposed to the

creation of something new. This observation presaged a widespread belief that economic development is ultimately about the unfolding of human, and societal capabilities (Sen, 1999).

Although the formal study of development became significantly more pronounced in the twentieth century, the underlying concepts of development were engaged with through the broader conceptualizations of progress (Nisbet, 1980). The topic of progress has been debated and studied throughout history in mythology, religion, and philosophy and most recently through empirical research made possible by the growth of empirical social sciences. The early concepts of progress have important parallels to contemporary discussions around economic development in three major ways. First, in classical Greek and Roman thought, there was a belief in the importance of knowledge, and its persistent accumulation over time, as a precursor for human progress (Nisbet, 1980). Second, early Christian thinkers focused on the concept of unity of mankind and its collective progress as a community, as opposed to individualistic progress. Third, the period of the Enlightenment saw the concept of progress as a central element of human efforts, from concepts of biological evolution put forward by Charles Darwin (Darwin & Darwin, 2009) to social progress put forward by Adam Smith (Smith, 2000) and John Stuart Mill (Mill, 1885, 2011).

Modern economics has been focused on questions of economic development and growth and the optimal configuration of society for these outcomes. Adam Smith's contribution served as a foundational shift in economic thinking around critical issues that would form the bases of subsequent debates in empirical social sciences, including but not limited to: role of state versus role of markets, the drivers of productivity and the proper division of labor (Smith, 2000). Subsequent economists, ranging from Karl Marx

(Marx & Engels, 2016) to John Maynard Keynes (Keynes, 1936), wrote in response to Smith's views on the centrality of markets and the need for specialization in economic systems.

Development economics, as a discipline within the field of economics, received significant focus during the second half of the twentieth century (Arndt, 2012). Development economics was largely focused on two related issues: the first was how to rebuild Europe after a war which had significant impact on industrial production and human welfare and the second was how to support industrialization and poverty alleviation efforts during the period of decolonization. These two topics were related in two important ways: the role of foreign assistance/aid and the role of institutions. For both Western Europe and former colonies, there began a major academic and policy debate around whether developed economies should provide financial aid to reconstruct Europe and kick start growth in the Asia, Africa and Latin America. The Marshall Plan was one major policy initiative that mobilized public financing from the United States to support economic growth in Europe (Behrman, 2007). The second topic was around the role of what type of institutions – financial and political – were needed to form to support the industrialization efforts of Europe during its reconstruction as well as the former colonies. It was during this period that the world's major development banking institutions, at the global, regional and national levels, were formed (W. Diamond, 1957).

Conceptually, economic development and economic growth have been linked, although it is important to note that the two concepts are not synonymous with one another (A. Lewis, 1955). Economic growth refers to a rise in income or output, either at the national level or the per-capita level (Perkins, Radelet, Lindauer, & Block, 2013). This is an arithmetic figure, although the questions of how and why economies grow and the best

way to measure that growth is complex. (The methodology of measuring GDP is not consistent across geographies and many approaches have been criticized for not capturing the full economic output of a region (Lepenies, 2016)). Economic development, however, refers to a broader set of outcomes, including improvements in health, education, inequality, social cohesion and others aspects related to human welfare (Perkins et al., 2013). Although it is the case the economic growth can lead to, and is often associated with, economic development, it is also the case the economic development requires a broader lens of understanding how income is produced, distributed, spent and structured within an economy. Economic development is therefore related to the structure of an economy and a society (Perkins et al., 2013).

Today, there exists no commonly accepted definition for the concept of development within the field of development economics. There have been attempts to define the concept – such as Myrdal's definition of development as, "the movement upward of the entire social system" (Myrdal, 1974) – but such definitions lead to many conceptual and empirical questions. For example, what is meant by 'upward'? What is meant by 'social system'? How do we measure a 'social system'? What about the role of the natural environment? The Human Development Index, for example, was created in 1975 to measure a country's broader development outcomes as opposed to focusing only on economic growth and was the result of a belief that measuring economic output (GDP) did not give a full picture of a country's development. The HDI is a quantitative measure of life expectancy, education and per capita income(UNDP, 2008, 2011).

b. Contributors to Development

There remain many outstanding questions regarding how development is achieved. The topic of what type of economic configurations and policy interventions optimally lead to development is the focus of both theoretical and empirical analysis. This section provides an overview of the most relevant axes of the debate.

Economic growth models from the middle of the twentieth century played an important role in identifying the need for increased national savings to support the increased level of investments for economic growth and development. The Harrod-Domar Model (Domar, 1946; Harrod, 1939) and its associated Two Gap Model (Chenery, 1967) were particularly important in emphasizing the importance of increasing savings to fuel investments. The Harrod-Domar model posited that the growth rate of an economy was directly, and linearly, linked to its national savings and its capital-output ratio, which meant that the more a country saved and therefore invested (since in a closed economy, savings and investment are equal), the more it can grow. Hollis Chenery's Two-Gap model grew out of the Harrod-Domar framework, and posited that developing countries are limited by both a gap in in their national savings and a gap in their foreign exchange, due to limited abilities to export. Both frameworks gave support to the notion that developing countries needed foreign aid to increase investments to grow. The Harrod-Domar and Two Gap Models have been criticized by many development economists for being overly simplistic and empirically inaccurate (Easterly, 2001), but they played an important role in setting the debate and initial policy frameworks for development policy in the 1950s and onwards.

In the subsequent section, I lay out three important debates regarding contributors to development that are linked to our understanding of development banking. (I note that a major debate in economic development is on the respective role of the state versus the markets. This topic is the subject of the subsequent section of this chapter).

The first major debate is with regards to the relative importance of geography versus institutions for economic development. The "geography is destiny" thesis argues that the relative growth and development of one physical region compared to another can be explained by geographical factors, including the physical climate, its impact on the fertility of land and the implications of this for the long-term stability of a region (J. Diamond, 2005). More recently, the geography-centered view of development has focused on issues such as the proximity of countries to trade routes, the natural resource endowment and the incidence of disease in certain geographies as statistically significant determinants of development (Bloom et al., 1998; Gallup et al., 1999). The "institutions rule" thesis posits that variations in levels of economic development cannot be explained by geographical factors, but instead are the results of certain political institutions as norms, specifically the level of inclusiveness of a society (Acemoglu & Robinson, n.d.). This argument focuses on the long-term negative impacts of extractive institutions, where elites of a society capture economic rents and disincentivize entrepreneurship. This literature touches on the much broader debate on whether certain political systems, such as democracy, are conducive to economic development at certain stages of a country's evolution.

A second major debate is the role of foreign aid for low-income countries. Proponents of foreign aid for development argue that aid is necessary for two related, yet distinct reasons: historical obligations and investment gaps. The historical obligations argument

focuses on the notion that developing countries were systematically under-developed during the period of colonization and is therefore owed aid to support development now (Tharoor, 2018). The investment gap argument focuses on the notion that low-income countries do not have enough national saving to support national public and private investments in critical sectors such as health, education and infrastructure – sectors which are generally considered public goods and cannot easily be financed by private sources (Sachs, 2005). Critics of foreign aid focus on two major strands of arguments regarding the ineffectiveness of aid to promote development. The first argument is that foreign aid, and the accompanying role of foreign experts, prevents local solutions to local problems, and instead promotes solutions that are not feasible to local conditions (Easterly, 2006a; Ramalingam, 2013). The second argument is that foreign aid often is tied to conditions that are harmful to local populations and supportive of authoritarian governments, which ultimately prevents human rights from being achieved (Easterly, 2013).

The third major debate focuses on the role of financial system development in promoting economic development. There are two critical questions within this topic of economic development: the first is what are the most appropriate financial system institutions and policies to support development and the second is whether there is an optimal size of a financial system for a specific level of development of a country. With regards to the first question, there are various perspectives on which financial institutions are needed, and in what sequencing should they be created, to support growth and development in low-income countries (World Bank Group, n.d.). One argument is that development requires a full array of financial institutions that can intermediate both national and international savings for domestic investments, and to do so, governments need to play a major role in establishing domestic institutions and capital markets in early

stages of development. This argument is countered by a strand of literature in development economics that argues that although domestic capital markets are important for economic development, they should be liberalized to allow interest rates to reflect the domestic scarcity of capital (McKinnon, 1973a). With regards to the second question, there is very strong empirical work that shows that after a certain point, the size of a financial system can be deleterious to growth prospects of countries (De Gregorio & Guidotti, 1995; Levine, 2005; Rajan & Zingales, 1998).

c. Economic Development to Sustainable Development

The paradigm shift from economic development – a development trajectory focused primarily on human welfare - to sustainable development – a development trajectory that is mindful of social inequalities and environmental degradation - is one that has existed, but has been accelerating, since the 18th century. Concern about the environmental implications of economic growth was demonstrated in three landmark publications. The first publication was Thomas Malthus' *Essay on the Principle of Population* in 1798 (Malthus, 1798). In this essay, Malthus posited that the continued population growth, brought about by industrialization, would eventually lead to large-scale death and destruction of human welfare. He worried that population growth would be exponential whereas food system production would be linear, leading to an ultimate mismatch. The second landmark publication was the Club of Rome's *Limits to Growth* (Meadows, Meadows, Randers, & Behrens, 1972). This analysis, supported by simple computer models, argued that the resource-intensive path of economic growth that the world economy was on would lead to a "limit on growth sometime within the next 100 years." The third landmark publication was the 1987 World Commission on Environment and Development, known as the Brundtland Commission, which defined the term

sustainable development as, "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987).

There are many ways that academics and policymakers think about the environmental constraints to economic growth. One framework is that of planetary boundaries (Rockström et al., 2009a, 2009b) This framework posits that there are nine interlinked boundaries of the functioning of the Earth system, and that transgressing any of these boundaries could have major implications on the sustainability of the system as a well. The nine boundaries are climate change, biodiversity loss, biogeochemical, ocean acidification, land use, freshwater, ozone depletion, atmospheric aerosols and chemical pollution. Each of the planetary boundaries has an associated set of quantitative metrics and guideposts to guide scientists, policy makers and businesses to understand broader alignment. Other frameworks focus specifically on certain aspects of the environmental challenges. One such example is the target of "keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius," which was laid out in the 2015 Paris Climate Agreement (United Nations Convention on Climate Change, 2015).

The intersection of economic development and sustainability has led to a significant divergence of beliefs in whether, and how, growth can continue while keeping in mind environmental considerations. There are three major lines of thinking in these debates. The first argument is a belief that economic growth and development cannot continue, given the environmental constraints, and the world must decrease its consumption and ultimately "degrow" to be sustainable (Jackson, 2009; Raworth, 2017). This argument is

furthered by the notion that developed economies must take the lead in decreasing their consumption, while the developing world continues to grow and equilibrium is reached. The second argument is that economic growth and sustainability can co-exist with a significant amount of international cooperation through new policy frameworks and institutions (Bacchus, 2018). This line of thinking is supported by those who believe in the power of the international political and financial system to reform and guide economic behavior of countries, industries and citizens. The third argument is that economic growth and sustainability will co-exist, inevitably, due to major improvements in the technologies that industries and consumers use (Ridley, 2011). This belief is supported by major improvements in renewable energy, transportation, agriculture and other critical economic sectors that are allowing increased adoption with lower levels of resource use (Sachs, 2015).

The emphasis on sustainable development was codified in international policy in 2015 with the adoption of the 2030 Agenda for Sustainable Development by all of the member states of the United Nations. This Agenda breaks down the imperative for sustainable development in terms of five broad categories and seventeen specific goals with accompanying targets. The five categories are, "People, Prosperity, Planet, Partnership and Peace" and the seventeen individual goals are: 1) No Poverty, 2) Zero Hunger, 3) Good Health and Well-being, 4) Quality Education, 5) Gender Equality, 6) Clean Water and Sanitation, 7) Affordable and Clean Energy, 8) Decent Work and Economic Growth, 9) Industry, Innovation and Infrastructure, 10) Reduced Inequality, 11) Sustainable Cities and Consumption, 12) Responsible Consumption and Production, 13) Climate Action, 14) Life Below Water, 15) Life on Land, 16) Peace and Justice – Strong Institutions, 17) Partnership to achieve the goals. Each of these goals has an accompanying set of targets and indicators, and the United Nations General Assembly

has period reviews of national achievements towards these goals. With the adoption of the 2030 Agenda for Sustainable Development, there remain many questions regarding the feasibility of achieving these goals, particularly from the perspectives of domestic politics and financing (United Nations General Assembly, 2015).

III. STATE AND MARKET

In this section, I analyze the role of the state versus the role of the market for economic development and growth. This topic is one of the elemental aspects of modern economics and development studies, and has significant implications for the study and analysis of development banking. Given the breadth of this topic, I focus on two specific aspects of the broader topic that have direct relevance for the study of development banking: the broader debate about the role of state versus the role of markets in economic systems and the concept and implementation of industrial policy.

a. Role of the State vs. Role of Market in Economic Systems

There has long existed a debate on the optimal role of the state in an economy. As a starting point, Karl Polanyi famous articulated the notion that markets are in fact social and political constructs, and that in order for markets to exist and sustain themselves, they required consistent and deep state intervention throughout their existence (Polanyi, 2001). At a broad level, the proponents of a significant role of the state in economic affairs argue that there are inherent flaws in the ability of markets to allocate resources for the benefit of an economy and its citizens, and therefore state intervention is necessary. The shortcomings of the markets can lead to suboptimal outcomes on a variety of fronts, including allocation of resources to the poor (Sachs, 2005), allocation of

resources to environmental protection (Sachs, 2015), and the allocation of capital for long-term and uncertain projects (De Aghion, 1999), among others. The state can be viewed as the provider of public goods (Samuelson, 1954) – goods that are non-rivalrous and non-excludable. On the other hand, proponents of a significant role of the market in economic affairs argue that markets are unique in their ability to efficiently and effectively allocate scarce resources within a system. Proponents of free market systems argue that any interventions that distort the functioning of markets can lead to broader distortions in an economy (Friedman, 1962).

A useful analytical framework of the state versus market debate is provided by the concepts of market failures and government failures. The term market failure was first defined in 1958 by Francis Bator, who defined it as, "the failure of a more or less idealized system of price-market institutions to sustain 'desirable' activities or to stop 'undesirable' activities. The desirability of an activity, in turn, is evaluated relative to the solution values of some explicit or implied maximum-welfare problem" (Bator, 1958). A market failure occurs when the functioning of market forces leads to outcomes that are not in line with the maximization of the welfare of a system. Various issues, including asymmetry of information, externalities, monopolistic behavior and other causes, can create market failures. Market failures can then be corrected by government intervention. However, government intervention can also create a government failure, whereby a set of interventions by the state in a market has created inefficiencies itself (Krueger, 1990; Winston, 2006). Government failure can occur for a variety of reasons, including misaligned incentives of government workers (Buchanan, 2003), poor implementation and the limits of public policy in changing behavior. The tension between market and government failures is right at the core of the challenge of deciphering how and when a government should intervene in a market based economy.

Proponents of market-oriented economies have conceded the role of the state in a few critical areas. Ibn Khaldun, a 14th century scholar, was skeptical about the role of the government in economic affairs (Boulakia, 1971). He believed that government intervention in commercial activities would lead to poor outcomes, due to misaligned incentives of government bureaucrats compared to business leaders. Despite his skepticism, Khaldun conceded that the state should play a role in establishing laws that were supporting of commercial activities, as well as by protecting trade routes and providing security. Adam Smith held a similar perspective as Khaldun. Not dismissing the role of the government entirely, Smith believed that the state should limit its activities to administering justice, securing property rights, and ensuring education and public works are financed through tax revenues that are not a burden on enterprise. Smith's views on the importance of government provision of public works for the support of commercial enterprise is an important point that is echoed by other market-oriented economic thinkers (Smith, 2000). Friedrich Hayek conceded that the state should create laws that respect the freedom of individuals and also suggested that the state should be involved in providing health insurance to individuals (Hayek & Hamowy, 2013).

During the early 20th century, there was a significant challenge to the market-oriented economic philosophy of scholars such as Khaldun and Smith in both economic thinking and practice. John Maynard Keynes made a significant contribution to the field by underscoring the important role of government spending during recessions (Keynes, 1936). Keynes argued that markets are not self-balancing in the short run, and that the government stimulating the aggregate demand of an economy can overcome periods of economic recessions. Keynes' economic thinking was highly influential in the United States during the aftermath of the Great Depression. During this period, the Federal

Government of the United States undertook a major public spending program known as the New Deal in order to stimulate the economy, employ citizens and kick start growth (Leuchtenburg, 2009). Keynesian economic thinking continued to have a significant influence throughout 20th and 21st centuries as a justification for increased government involvement in economic affairs, both during periods of economic crisis and beyond.

There is a specific set of questions that pertain to the role of the state in financial markets. These questions arise out of the notion that financial markets are distinct from other economic markets, due to the existence of more market failures in financial markets and the various feedback loops between financial systems and the real economy. The questions on the role of the state in financial markets focus on the following topics, among others: when should a government intervene in financial markets? How should the state regulate financial markets? Should the government direct credit to key economic sectors? These topics have been debated amongst financial scholars and economists for centuries. One important contribution is that of Joseph Stiglitz, who argued for a robust role of the state in solving financial market failures. He provided a six-part framework to guide government intervention in financial markets, which include providing consumer protection, ensuring bank solvency, improving macroeconomic stability, ensuring competitions, stimulating growth and improving the allocation of resources (Stiglitz, 1994).

The topic of markets versus states is complex given the fact that there are hardly any real-life examples of a completely free market or a completely state-driven economy. The co-existence of state and market is evidenced clearly by taking a dispassionate view of the functioning of modern economies. For example, the United States, often heralded as a paragon of a free market system, is home to significant government involvement in the

agricultural, banking, energy, transportation and other key sectors (Hacker & Pierson, 2016). On the other hand, North Korea, a country that is known for its autarkic system, is home to economic markets for the exchange of goods and services (Lankov, 2016). Countries exist on a spectrum of the relative influence of the state versus the market in different sectors specifically and in the functioning of the economy generally. Recent empirical scholarship has demonstrated that the role of the state in capitalism is increasing globally and that "state capitalism" manifests itself in different models of state ownership of industry, either directly through state owned enterprises or indirectly through national financial intermediaries such as sovereign wealth funds and development banks (Alami & Dixon, 2019; Kurlantzick, 2016; Musachio & Lazzarini, 2014).

Development banks function in practice as financial institutions linked to both the state and the market. On the one hand, development banks are state organizations. They are owned by governments and are aligned to the development policies set forth by the state. On the other hand, development banks are market organizations, as they use instruments of financial markets to raise and deploy capital. As a result of the state-market linkages of development banks, these organizations are often critiqued from intellectual and policy supporters of both market-driven development actors and state-driven development actors. The market-oriented critique of development banking is that as institutions of the state, development banks are inefficient and finance projects that are financially and economically unproductive. According to this line of argument, development banks – at various spatial scales – have allocated hundreds of billions of dollars to developing countries since their formation with few tangible results to show for it (Moyo, 2009). The state-oriented critique of development banking is that these institutions, particularly regional development banks, have led to the indebtedness of low income countries to

international creditors due to the market-oriented instruments that development banks use (specifically, loans) (Danaher, 1994). In addition, according to this line of argument, many regional development banks helped promote market-oriented reforms linked to the Washington Consensus which, critics argue, led to the deconstruction of state administrative capabilities in many low income countries during the 1980s and 1990s (J. Williamson, 1990, 2008). Development banks can be viewed – according to this line of argument – as extensions of the neoliberal paradigm, which prioritizes market-based solutions to economic challenges over community-based solutions (Peck, 2010). In conclusion, development banks often find themselves in the position of perpetual defense from market-oriented and state-oriented paradigms given the fact that they employ elements of both in their functioning.

b. Industrial Policy

The dynamics of states versus markets becomes particularly relevant with regards to the process of industrialization and questions surrounding whether, and what role, a government should play in supporting the industrialization efforts of a country – a question that is the heart of industrial policy (Rodrik, 2004, 2015; Stiglitz, 2011). This topic of industrial policy is particularly relevant for the study of development banking, given the fact that the formation of development banks coincided preceding periods of industrialization.

Industrial policy is closely linked with the concept of Import-Substitution Industrialization (ISI) (Dervis & Page, 1984). The strategy of ISI for economic development refers to policies that promote domestic production over foreign imports to drive industrialization. One of the clearest and most foundational articulations of an

approach towards industrial policy is Alexander Hamilton's 1791 Report on Manufacturers to the US House of Representatives (Hamilton, 2001). In this document, Hamilton argued for the importance of a strong manufacturing sector for the country. Hamilton believed that the government needed to play an active role in ensuring that the manufacturing sector succeeded, both through the placing of tariffs on imported goods as well as through incentives for innovation.

The idea of a significant role of the state in industrialization is linked with economic models related to the Big Push and broader topics of economic planning that became important in during the second half of the 20th century. Paul Rosenstein-Rodan developed the Big Push model in 1943 (Rosenstein-Rodan, 1944, 1961). In this model, Rosenstein-Rodan argued that economic growth required a network of activities to occur. He argued that no single firm could organize this larger network of activities by itself, and therefore government was needed to make major investments in various sectors at the same time to promote industrialization and therefore growth. The Big Push model towards development was closely linked with concepts and tools around economic planning that were developed in the 1960s and 1970s. Jan Tinbergen was a pioneer in the study of economic planning. His work contributed to tools and frameworks for long-term economic planning by central actors that used various economic tools for various economic outcomes (Chenery, 1984; Tinbergen, 1968). The Big Push model, as well as broader efforts in economic planning, had a significant influence on international aid and development efforts in Africa and Latin America in the second half of the twentieth century. Accordingly, these models have been criticized both empirically and theoretically for their ineffectiveness for economic development outcomes.

The analytical approach and evidence towards industrial policy and its implementation has benefited from China's approach to economic development and the lessons learned from this experience (Lin, 2012a). China's economic development efforts since 1979, when the country began opening its domestic economy to global market forces, has demonstrated the benefits and challenges that come from a significant role of the state in industrial policy and strategy. China's evolution from an agricultural economy to an industrial giant can be attributed, although to varying degrees, to the government's role in protecting and supporting industries so that they could compete globally over time(The China Development Bank & Renmin University of China, 2011; Yuan, 2013). There are many outstanding questions, however, about the long-term economic sustainability of this approach as well as the unintended consequences of large state involvement in China's industrial evolution. These questions include, but are not limited to: whether the Chinese government can afford to support uncompetitive industries in the future, whether the geopolitical cost of state support for industry is worth the benefits and whether Chinese companies will be able to compete globally without government support (Economy, 2018; Magnus, 2018).

The implementation of industrial policy has benefited from recent scholarship from academics and practitioners inspired from its recent successes. Lin's work on "new structural economics" outlines a systematic and quantitative methodology for states to support industrial development through sound industrial policy (Lin, 2011, 2012b). Lin's approach to industrial policy focuses on a six-step framework that focuses on government's identifying and supporting industries that are within the country's comparative advantage compared to other countries who may be further along in that same industry but have similar resource endowments.

Relatedly, the role of the state has been argued to be critical for advancements in technology in the latter half of the 20th century. Many of the major technological breakthroughs of the 20th century, including the Internet, telecommunications, laser and semiconductors were made possible due to resources provided by the US Federal Government to both public and private sector research labs (Hacker & Pierson, 2016). Recent work by Mariana Mazzucato has made the case for an "entrepreneurial state," whereby the government should take an active leadership role in developing technologies and promoting industries that can solve for challenges brought about by sustainable development (Mazzucato, 2015). Mazzucato's prescriptions were based on her analysis of the commercial benefits for companies, such as Apple, that have been able to commercialize technologies that were initially financed and discovered by the state.

A critical difference between the contemporary approaches to industrial policy and industrial strategy compared to the versions employed during ISI period of the 1960s and 1970s is that contemporary approaches to industrial policy views the government as a proactive shaper of markets and not just a reactive responder to market failures. Mazzucato's work in this domain has been especially important (Mazzucato, 2015, 2018b). More recently, Mazzucato has proposed a framework for the European Commission's approach to industrial strategy focusing on "mission-related innovation" (Mazzucato, 2018a). This framework consists organization the state and business to work together on specific, well-defined missions related to sustainable development. These missions include low-carbon energy transition, electrification of transportation and improvements in agricultural technology for the purposes of feeding a growing global population. The contemporary approaches towards industrial strategy and industrial policy therefore focus more on the complementary roles of the state and market forces

and attempt to identify manners in which they can be coordinated for the achievement of certain well-defined outcomes.

The concept of industrial policy has many critics (Pack & Saggi, 2006). There are two broad conceptual arguments against industrial policy: the inability of governments to pick winners and the political influences that drive government investment decisions. Within the first category, there remains significant skepticism that governments and their associated experts can pick the winners, either entire sectors or within a sector, better than markets can (Easterly, 2013). This argument rests on the fact that government is not, and should not, be in the business of commerce, arguments that date back to the work of Ibn Khaldun in the 14th century (Boulakia, 1971). The second set of arguments against industrial policy refers to the political influences that drive government investments and support for sectors (Calomiris & Haber, 2014). This argument rests on the fact that the state is inextricably linked to politics. If the state is making investment decision based on political preferences of the ruling coalition, this could lead to poor long-term outcomes.

IV. INSTITUTIONS AND ORGANIZATIONS

In this section, I analyze the broader literature on the role of institutions and organizations in economic development. Specifically, I focus on three topics within this field: the relationship between institutions viewed as rules of the game and institutions as organizations, institutional legitimacy and design, and the spatial dimensions of financial institutions. This section is informed by the recent theoretical and empirical work of economic geographers who have studied the role of institutions in long term investing,

including pension funds and sovereign wealth funds (Clark et al., 2013; Clark & Monk, 2010b, 2017).

a. Institutions as Rules of the Game versus Organizations

There are two broad and related conceptualizations of institutions – one as rules of the game and the other as specific organizations or structures that operate within a system. One commonly accepted view of institutions is as, "rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction." This perspective of institutions views the primary role of institutions as "reducing uncertainty by providing a structure to everyday life" (North, 1990). Institutions, in this formulation, can be understood as both formal "rules" and laws as well as informal, such as broader accepted norms within a society. In this formulation, institutions are formed to decrease uncertainty and costs in economic and social exchange (O. Williamson, 1985b).

The institutions as organizations perspective can be understood through the two perspectives: as "players in the game," (North, 1990) and as entities that were formed to decrease transactions costs of economic exchange (Coase, 2012). The institutions as players in the game perspective is important as it underlines an interaction between institutions as rules and as organizations. North argued that organizations operate within the incentive structure that is created by institutions. He posited that organizations are formed to take advantage of the opportunities that present themselves through the institutional structure of a society, and that as the organizations evolve to do so, they alter institutions. There is therefore, according to North, a "lock-in that comes from the symbiotic relationship between institutions and the organizations that have evolved as a consequence of the incentive structure provide by those institutions." The second,

related perspective of institutions as partnerships formed to decrease transactions costs of exchange was put forward by a foundational contribution by Ronald Coase (Coase, 2012). He argued that firms are formed to decrease the total costs of transactions that would otherwise occur through markets. Coase's theoretical contributions served as a foundation for a significant amount of work in the institutional economics literature.

The study of the behavior and function of organizations was deepened significantly by the work of Herbert Simon and two related theoretical contributions he made to management science: the notion of bounded rationality and satisficing (March & Simon, 1958). Simon's work on organizations arose from a belief that although organizations represent "a major part of the environment," they had not been studied or examined in a systematic and theoretical way. Among Simon's many contributions to the study of organizations was the notion that there are cognitive limitations to humans who participate in organizations in terms of the time that they have to make a decision, the limitations of their own abilities and the challenges of the decisions themselves. These limitations bind the rationality of decision-making, and lead decision makers to make decisions that satisfice the conditions but are not the theoretically optimal decision to be made. The term satisfice comes from a combination of the words "satisfy" and "suffice." This insight about organizational behavior has been highly influential in understanding and guiding organizations practices for the past half of a century.

Although there has been a significant amount of work done on the role of institutions in economic development, most of this work has looked at institutions through the first definition highlighted above – as rules of the game. This literature is both historical and empirical in nature, and focuses on trying to understand the contribution of property rights and the rule of law in explaining the divergence of economic development and

growth patterns between geographies (Acemoglu & Robinson, n.d.; North, 2012; O. Williamson, 1985b). At the same time, however, the role of specific organizations, and categories of organizations, in economic development has received much less attention. Although there has been very influential empirical work on the form and function of institutional investors with regards to their mandates (Clark et al., 2013; Clark & Monk, 2017; Clark & Urwin, 2008), this type of specific organizational-level focus has not been used for the study of economic and sustainable development. This thesis seeks to bring the organizational-approach of analysis to the field of sustainable development by analyzing one specific kind of organization – development banks.

b. Institutional Legitimacy and Design

One important aspect of the topic of institutions is the question of the source and origin of an institution's legitimacy. The topic of institutional legitimacy is particularly relevant for institutions that have both financial and national objectives. Clark and Monk provided a two-part framework for how the legitimacy of an institution can be evaluated. First, institutions can be deemed legitimate, judged against societal norms including moral and political expectations as to proper roles and responsibilities" (Clark & Monk, 2010a). This perspective is normative in nature, and implies that the legitimacy of an institution is contingent upon the prevailing set of 'societal norms' in a region. This approach has its challenges though, namely that it presupposes that a country or region has a set of societal norms that is widely shared, or at least to enough of an extent, that it can be used as the basis of judging legitimacy. The second approach towards understanding the legitimacy of an institution is to judge its progress in achieving whatever purpose the institution has set out for itself. This approach towards evaluating the legitimacy of an institution is functionalist in nature, but it presupposes that

institutions have a clear purpose that is commonly understood and accepted by various stakeholders of the institution itself. Despite having legitimacy though, either for normative or functional reasons, financial institutions may react to short-term political considerations over their legitimate reasons (Roe, 2012).

Institutional and organizational design focuses on the process of creating and improving these entities. The topic of the design of organizations has two salient aspects: pragmatism versus 'truth-discovery,' and convergence versus path dependency.

First, there exists a fundamental distinction between the design process and scientific inquiry, with designers focused on the questions of whether something will work and scientists focusing on the question of whether something is true (Dixon & Monk, 2011). The design-mentality for organizations makes historical empirical research challenging, given the constantly iterating and evolving nature of organizational design (Dunbar & Starbuck, 2006). Arising for this is an important philosophical question: is there an optimal design of an organization, as a scientist may want to discover, or should the design of an organization merely reflect its response to its context and the purpose that it is trying to solve for? Institutions and organizations evolve for both exogenous reasons, as a reaction to external events, but also for endogenous reasons, responding to the changing internal dynamics.

Second, there is a debate regarding how institutions and organizations respond to global market forces and specifically, whether individual firms and organizations converge to a uniform set of behavior or whether there is path dependency of institutional behavior based on local cultures, norms and regulatory frameworks (Monk, 2008). The convergence argument is based on the belief that globalization and global market forces

exert a strong influence on individual firm strategy and behavior and therefore drive institutions to a converging set of practices (Gertler, 2001). The path-dependency argument is supported by the "varieties of capitalism" framework, which argues that institutions do not converge and instead are a function of a specific "variety of capitalism" that dictates their behavior and is the result of local variables (Hall & Thelen, 2009).

Two significant, recent breakthroughs in the study of institutional design are the best practice frameworks for asset owners (Clark & Urwin, 2008) and sovereign wealth funds (Dixon & Monk, 2011) that were recently developed by economic geographers. These frameworks are noteworthy in two ways: methodological and functional. From a methodological perspective, the best practices put forward are the result of individual case study research and are generalized. The generalized best practices find a strong balance between an appreciation of context-specificity and the need for some generalizable concepts. From a functional perspective, these frameworks are noteworthy for focusing both on principles as well as practices of institutions that are operating in these spaces. The focus on best practice is a reminder that organizations are not static and evolve both due to internal and external forces.

c. Spatial Dimensions of Financial and Policy Institutions

With regards to the geographic arrangement of institutions, there has been significant scholarship on the spatiality of financial institutions and arrangements. A significant debate between Alexander Hamilton and Thomas Jefferson during the late 18th century focused directly on the trade-offs between a national bank with regional/state branches versus state banks (Hamilton, 2009). Since the 1960s, there have been associated debates

about the geographical dimensions of currency unions, with Robert Mundell's contribution with the concept of the optimum currency area (OCA) guiding financial policy in many regions (Mundell, 1961). Mundell argued that an OCA must fit the following four criterion: 1) Labor mobility across the area, 2) Capital mobility and price/wage flexibility, 3) Risk sharing, 3) Coordination business cycles. Finally, recent scholarship since the 2008 Financial Crisis has highlighted how geographic considerations of capital flows allowed, and exacerbated, the financial crisis (French, Leyshon, & Thrift, 2009).

There are many considerations for why certain government functions happen at the local, state, provincial, federal and even regional/global level – ranging from natural economic units to issues relating to power and control (Clark, 2014a). Economic activity is often fragmented at the state or regional level, making national economic policymaking challenging to do in order to balance national interests and regional particularities (Schapiro, 2005). Control plays a significant role in the allocation of government functions, and often time supersedes considerations of efficiency ("Devolving Welfare Programs to the States: A Public Choice Perspective," 1996). Subsidiarity is a principle, originating in the Roman Catholic Teaching, that decision-making should be made at the most local-level as possible, with central authorities playing a subsidiary function (Golemboski, 2015; Mueller, 1943). This has been a guiding principle to the structure and functioning of the European Union in response to growing concern of overly centralized powers in Brussels (Fabbrini, 2016).

V. BANKING

In this section, I analyze salient literature regarding the role of the banking sector in development affairs. Specifically, I highlight the foundational literature regarding development banking, conceptual questions of the role of banks as financial intermediaries and the role of the government in the banking sector in general.

a. Development Banks

The need for financial institutions that are focused on promoting economically productive investments was clearly articulated by Alexander Gerschenkron (Gerschenkron, 1962). Gerschenkron wrote specifically about the banking sector in Europe during the 19th century, and the importance of Credit Mobilier of France, a government-sanctioned and capitalized investment bank, in promoting the industrialization of continental Europe. Gerschenkron observed that even though Credit Mobilier did not last long as an institution, its model as a government sponsored financial institution built to support industrialization was accepted and emulated in other regions including Germany. Gerschenkron argued that Britain did not need an investment bank like France did, because its approach to industrialization was different, and therefore that the institutional set-up for "backwards" countries are often different than that of advanced economies.

One of the first conceptual overviews of development banks was conducted by the World Bank in 1957 (W. Diamond, 1957) and outlined some of the nuances of this topic. Diamond's contribution to the study of development banks was significant for four main reasons. First, his essay highlighted the lack of a conceptual framework to analyze these organizations, despite their pervasiveness. He began the study by saying, "the inadequacy of the printed material on development banks is particularly surprising in view of the fact

that they are not a new device, they exist throughout the world and there is tremendous and continuing interest in them." Second, the book provides the first historical account of development banks in the 19th and 20th centuries, highlighting the influence of Credit Mobilier in the creation of development and investment banks across Europe and Asia, including Japan. Third, Diamond highlighted the many challenges facing the operations of development banks, including but not limited to: size, financial viability, influence of government, overlap with pre-existing financial institutions and other such issues that remain a complication for the study of these organizations. Fourth, despite articulating the challenges, Diamond did not provide an analytical framework to understand the effectiveness of usefulness of the institutions.

In 1989, the World Bank published an influential report about development (World Bank Group, 1989). Within this report, the authors wrote a seven-page section on "Government Intervention in Credit Allocation." In this section, the authors highlighted different forms of government intervention in credit, highlighted the benefits and challenges and then concluded with a condemnation of the impact of government intervention despite many references in the report to the inability to gauge the impact of government intervention on the broader economies. First, the report highlighted five ways through which governments were intervening in credit markets: lending requirements imposed on banks, refinance schemes, loans at preferential interest rates, credit guarantees and lending by development finance institutions. Second, the report highlighted some of the successes and challenges of these interventions, citing positive examples such as Sri Lanka and challenges in Morocco. But the chapter ends with the assertion, "Whatever conclusion is drawn concerning the impact of directed credit programs on growth and the distribution of income, it is clear that they have damaged

financial systems." This report had a significant influence in the acceptance of national development banks in the global financial system after its release.

Over the past two decades, there has been a resurgence of interest in the subject of development banking and an attempt by empirical social scientists to understand these institutions and their role in development processes (De Aghion, 1999; Lazzarini et al., 2014). A conceptual life-cycle model of development banks was developed which argued that development banks are important in less-developed financial markets and should disappear as financial markets develop (Torres & Zeidan, 2016). In addition, scholars have used the market failure framework to evaluate development banks, by articulating how a small set of selected development banks have responded to major market failures in their geographies, including information asymmetry and credit rationing, information externalities and latent capabilities, coordination problems, social-environmental impact, technical assistance and strategic trade (Musacchio, Lazzarini, Makhoul, & Simmons, 2017). Finally, general research agenda and policy-focused research has been undertaken to articulate what role development banks may have within larger, more complex financial systems (Bruck, 1998).

In addition to the cross-country empirical work described above, there have been three categories of analyses done on subsets of the development banking community. The first category is on development banking in the United States. Although the United States doesn't have one national development bank, the country has a myriad of development finance institutions with a significant role of the government. Becker and McClenahan's analysis of the Export-Import Bank (W. Becker & McClenahan, 2003) highlighted the importance of the institution in promoting US exports globally and expanding the reach of US industries since the era of the Great Depression. The authors argued that the US

Export-Import Bank has had to navigate an increasingly complex political environment domestically and financial environment globally. Michael Likosky's proposal for an "Obama Bank" (Likosky, 2010) summarizes the various efforts made since the 1980s to establish a national infrastructure bank in the United States, most recently to help finance renewable energy (a topic examined in greater detail in chapter six of this thesis). Likosky highlighted how such an infrastructure bank could borrow from successes of development banks overseas to help crowd-in private capital to finance US infrastructure. The second category of analyses of development banks focus on the experience of development banking in China (Yuan, 2013). Chen Yuan, the former President of the China Development Bank, articulated how the China Development Bank was formed and the evolution of the organization in the face of many challenges, including initial non-performing loans of over 20%. Chen argued that the goal of the CDB was the "alignment of state and the market" to support the industrialization and development efforts in China. The third category of analyses on development banks is on the regional development bank community. Recent examinations of the topic highlight the central tension between the role of RDBs as banks, concerned with profits, and as development actors, concerned with supporting development outcomes (Ben-Artzi, 2016; Delikanli, Dimitrov, & Agolli, 2018).

b. Banks as Financial Intermediaries

The linkage between saving and investing can occur through various intermediaries, including banks and capital markets. The study of the organizations and institutions involved with financial intermediation can provide important insights into why financial intermediaries exist and how they function. Globally, banks are the most pervasive form of financial intermediaries and a plurality of external finance for firms and households

comes through the banking sector, particularly in developing countries (World Bank Group, 2018). This sub-section benefits from an important review of the topic of financial intermediation that was done by Gary Gorton and Andrew Winton (Gorton & Winton, 2002).

The first important discussion in the subject of financial intermediation is why do financial intermediaries exist. This question is foundational because the link between saving and investment could otherwise occur by those who want to invest contracting directly with those who require investment dollars, through capital markets, without an organization or intermediary in the middle (Gorton & Winton, 2002). This question is the subject of significant theoretical and empirical literature, and can be analyzed through both the question of whether bank loans are different than bonds and also what specific roles do banks play in the broader financial system.

With regards to the question of whether bank loans are different than bonds, there is both conceptual and empirical evidence that suggests that bank loans are in fact unique in their functioning of connecting saving and investment. Mostly conceptual work by Fama suggested that bank loans are in fact unique compared to commercial loans through an important analysis. He observed that since banks must hold reserves against their liabilities, banks could invest less than their total amount of liabilities. This is like a tax on the bank, and therefore if the bank is not providing any special service or function, banks should be replaced by nonbank alternatives within a financial system. Given the fact that those who place deposits in banks are willing to bear this cost, Fama implied that there must be unique attribute to banks and their financial instruments (Fama, 1985; James, 1987). Empirical work on the uniqueness of banks has focused on event studies between firms and banks and showed abnormal stock market reactions to

bank loan agreements on firms compared to other sources of financing (James, 1987). This implies a special role of banks in intermediating savings for investments.

A critical defining characteristic of banks is their role as a delegated monitor. This argument was put forward by Douglas Diamond and has served as important conceptual pillar of the study of banks in financial intermediation (D. Diamond, 1984). Diamond posited that banks exist to 'monitor' borrowers, a function that is important for lenders given the cost associated with this function. Diamond observed that there is fundamentally an information asymmetry between borrowers and lenders/investors, and that an intermediary can help solve this information asymmetry by monitoring the borrowers at a cost that is lower than if the lenders were to monitor the borrowers. Diamond further observed that the intermediary is in itself "monitored" by the fact that if it isn't successful in its own job as monitoring borrowers it would pay the costs through bankruptcy and poor financial performance. The "delegated monitor" framework put forward by Diamond had a significant influence in further work on the role of banks in financial intermediation, with significant parallels and important insights into development banks.

Another important characteristic of banks is their role as information producers (Gorton & Winton, 2002). Banks are able to produce information about the return dynamics of specific project by investing their own capital in those projects. By investing the wealth of the bank (which of course is the wealth of the individuals and institutions who have put their capital into the bank), the bank is providing information to the broader market about specific projects that are otherwise private in nature. Institutional investors – in the form of pension funds, insurance companies and their delegated asset managers – also serve a similar function. Although banks may be incentivized to not share this

information with other banks, they can overcome this by creating coalitions (or syndicates) of lenders to projects and companies, thereby sharing the information that they are producing about private opportunities to a larger group of institutions. There remains though an important debate about whether banks are more efficient at producing information about specific markets than are capital markets.

The study of banks as financial intermediaries is complicated by a few specific reasons. First, price data for banks is not as easily available as it is for the other securities markets, for examples stocks and bonds. It is not easy to find how the prices of individual assets (loans) of banks are trading at specific points of time, making empirical research on banks quite complicated. Secondly, banking is highly linked to law and regulation, topics that make the study of the banking sector fall outside specific, narrow sectors of academia. Third, the technologies of banking have evolved considerably over the past few decades, with new platforms and instruments calling into question what aspects of intermediation have remained constant and what is fundamentally different to require new frames of analysis (Gorton & Winton, 2002).

c. Government Interaction with the Banking Sector

Governments have a significant role in the banking sector. The amount of government intervention in the banking sector varies significant by geography and sector. There are many ways in which governments interact with the banking sector. These mechanisms include, but are not limited to: regulation and supervision of banking sector, provision of deposit insurance and intervention during periods of financial crises and panics (Demirgüç-Kunt, 2012).

One aspect of the interaction between governments and the banking sector is the topic of whether governments should be direct owners of banks. In 2002, a highly influential study on the impacts of government ownership of banks analyzed the impacts of government ownership of banks using a unique data set comprised of government ownership of large bank in 92 countries (La Porta, Lopez-De-Silanes, & Shleifer, 2002). The paper framed the topic of government ownership of banks with the notion that government ownership of banks can be explained for "developmental" reasons or "political" reasons. By developmental reasons, government ownership of banks can be explained by the goal to improve the state of development of a region and by political reasons, government ownership of banks can be explained by the desire of government to control finance and politicize resource allocation. The paper ultimately sided with the "political view" of government ownership of banks and came to four conclusions. First, the paper concluded that government ownership of banks is large and pervasive. Second, the paper concluded that government ownership is particularly significant in developing countries. Third, the paper concluded that government ownership of banks is associated with slower subsequent financial development. Fourth, the paper concluded that government ownership of banks is associated with lower subsequent growth of per capita income.

Critiques of the paper argue that conceptually, lower growth rates could in fact prove a developmental function of government ownership of the banking sector (Rodrik, 2012). Empirical critiques find that higher state ownership in the banking sector is indeed associated with faster economic growth, with institutional factors and architecture serving an important role in explaining subsequent growth (Andrianova, Demetriades, & Shortland, 2008). In addition, the paper was written during a period of significant transition from government ownership to private ownership of banking industries

globally, and the impacts of this transition on growth and development had still not been fully borne out in the data.

The concept of the interaction between politics and the banking sector was examined closely in an important contribution by Calomiris and Haber that identified the underlying influence of politics throughout a banking system and not just for those banks that have government ownership (Calomiris & Haber, 2014). The guiding question for Calomiris and Haber was if a stable banking system is so critical for economic growth and stability, why are there so many banking crises, particularly given the high level of supervision and regulation that exists in most major financial capitals in the world? The authors argued in this analysis that the answer to this conundrum is politics. They argued that the fragility of banking systems reflects the political institutions that exist in a country and the interaction between the following players in the system: the group in control of the government, bankers, minority shareholders, debtors and depositors. The authors suggested that the ultimate function, and fragility, of a banking system depends on interactions and coalitions built between these actors. This political-economy approach to banking leads to an important and startling observation: "…that there are no fully private banking systems; rather, modern banking is best thought of as a partnership between the government and a group of bankers, a partnership that is shaped by the institutions that govern the distribution of power in the political system."

VI. CONCLUSIONS

In this section, I link the theoretical building blocks of this chapter to the subsequent study and analysis of development banks.

a. Development

First, the term "development" is vague and there exists no commonly accepted definition either in the academic or policy fields. This creates challenges for the study of the effectiveness of development banks, as the function of these organizations (the achievement of development) is not universal and clearly definable. The distinction between growth and development is critical, as investments in critical infrastructure may create growth but not necessarily development. This is in stark contrast to other types of financial institutions, such as pension funds, that have a clear outcome or goal as their purpose.

Second, there is no commonly accepted understanding of what actions lead to the development of a region. Although there is broad consensus that investment is needed to finance development, the amount of investment, prioritization of sectors and source of the investment are all debated. This causes an inherent tension for development banks, as they evaluate what role they should functionally have in promoting 'development' in a region.

Third, sustainable development requires additional sets of tools and analyses for development banks to undertake compared to economic development. The environmental dimension of sustainable development means that development banks do not just contend with the challenging question of what investments lead to economic development, but now have to ask whether these investments are in line with broader environmental constraints and boundaries. These questions bring an additional layer of complexity, as global efforts for sustainable development are mired in geo-political topics that are often broader than the considerations of specific financial institutions.

b. State and Market

First, despite the long-standing debate around the optimal role of the state versus markets in economic development, there exists a broad consensus in the academic literature that some level of state involvement is needed for the functioning of an economy. This point is evidenced by the fact that even some of the most ardent free-market thinkers, such as Adam Smith and Friedrich Hayek, conceded that certain goods should be provided by the state. This is directly relevant to the study of development banks, as many of the projects that these institutions finance can be considered as public goods where states may have a role in their provision.

Second, the topic of industrial policy is inextricably linked to development banking at the national and subnational levels. Development banks have often been, and can continue to serve, as a tool of industrial policy, as countries seek to use their own financial institutions to support national industries either for catch-up economic growth or for the creation of new technologies and sectors. Industrial policy has, arguably, been proven to be a success in many countries, but the implementation of industrial policy is still mired in the broader debates around the role of the state in picking winners.

c. Institutions and Organizations

First, although there are two broad and related views of the role of institutions in economic development (i.e. as "rules of the game" and as organizations/ "players in the game"), the institutional analysis of development banks for this thesis is firmly in the latter category. This approach to institutions focuses on their form and function with

regards to a broader purpose for achievement. Organizations do have the ability to influence the broader rules of the game but can and should be studied as entities on their own. In this regard, I do not embrace the Douglass North approach for understanding institutions as "rules of the game" in that I am not focusing on the intersection between development banks and financial regulation and policy norms. Rather, I embrace the Clark/Monk approach for understanding institutions as organizations with a form and function that can be evaluated against certain sets of criteria (Clark & Monk, 2017).

Second, the literature around organizational and institutional design highlights the tension between standardization of best practices versus discovery of context-specific solutions, which is a relevant point of tension for questions around the optimal design of a development bank. The "best practices" literature of long-term investors, particularly asset owners and sovereign wealth funds, provides a template for finding a balance between a prescriptive, "one-size-fits all" and an overly loose approach towards organizational design.

Third, the optimal spatial dimensions of financial institutions and policy are a function of many other factors, including a philosophical perspective around the most effective size of government and economic perspectives around issues related to labor and capital mobility, risk sharing, business cycle coordination and related factors.

d. Banking

First, despite the prevalence of development banks, there exists no conceptual and empirical framework for the analysis of these types of intermediaries. Development banks have existed since the 19th century. Yet, the questions regarding the classification,

procedures and operations of development banks that exist today are very similar to the ones that were put forward in the 1950s and that continue to be a source of frustration during the 1980s and 1990s.

Second, banks serve a unique function in the linking of savings to investments within an economy. Conceptual and empirical work demonstrates that banks are indeed unique to other financial institutions in their role as delegated monitors and information providers to the broader financial system. These two functions of banking are generally construed through the perspective of commercial banking, but they are highly relevant for the study of development banking, where development banks can be seen as having a "delegated role" in monitoring projects and providing information about these projects to the broader financial system.

Third, there exists a deep connection between governments and the banking sector. Government ownership of banks is pervasive both directly and indirectly. There are many aspects to the interaction between governments and the banking sector, of which development banking is just one. Cross-country empirical work has suggested that government ownership of the banking sector slows down subsequent economic growth, but national case studies also show that government ownership of banks has been critical during certain periods of development and crises. Given the deep linkages between government, politics and banks, it is difficult to identify the stand-alone impact of government ownership on long-term economic growth or sustainable development.

Chapter Four: The Asian Development Bank: Dynamics of Crisis and Regional Cooperation/Integration

I. INTRODUCTION

In the following three chapters, I examine the effectiveness of four specific development banks: the Asian Development Bank (ADB), the Uganda Development Bank (UDBL) and the New York Green Bank (NYGB) and Connecticut Green Bank (CGB). These three chapters make up the empirical section of this thesis. These three chapters should be considered both individually and collectively. Individually, each chapter ends with a set of conclusions that are relevant to the examination of effectiveness for the development bank itself. Collectively, the chapters analyze four development banks at various spatial scales – regional, national and sub-nation – with conclusions of the entire research project being provided in chapter seven.

In this chapter, I examine the effectiveness of the ADB through the prism of institutional additionality. Specifically, I seek to understand how the ADB has historically delivered on its mandate to work on regional development matters for the Asia Pacific region. The concept of additionality can be understood in multiple ways with regards to development banks. Additionality can mean the function of a development bank in financing projects that otherwise would not have been financed if the development bank did not exist. Additionality can also refer to the resources that a development bank brings to the development context of a geography that are not offered from other financial institutions. I chose to examine the ADB through this perspective given that the ADB is one of the sole regional development banks in the Asia Pacific region. Therefore,

from an institutional perspective, the bank has the potential to play a role in regional development that is differentiated by the very nature of the form of the institution itself.

The promotion of regional cooperation and integration (RCI) is a stated purpose of many of the major regional development banks of the world (AfDB, 1964; EBRD, 1991; IADB, 1959). As financial institutions owned, partially or fully, by countries within a geographic region, these institutions operate as instruments for the promotion of RCI through various activities. These activities may include the development of regional infrastructure projects, creation and strengthening of sub-regional institutions and the sharing of best practices of economic and financial policies, among others. Although there has been significant analysis done on a project-by-project basis of the role of regional development banks in RCI (Fujimura & Adhikari, 2010; PPIAF, 2007), a close analysis of the evolution and effectiveness of different approaches to the broader topic of RCI has not been undertaken. This chapter seeks to fill this academic and policy research gap by closely investigating the evolution of the ADB's approach towards RCI.

The ADB is a regional development bank for the Asia Pacific region. The ADB was established in 1966 with the stated purpose to:

> "foster economic growth and co-operation in the region of Asia and the Far East and to contribute to the acceleration of the process of economic development of the developing member countries in the region, collectively and individually" (ADB, 1966).

The ADB's shareholders consisted of nineteen countries outside of the Asia Pacific region and forty-eight countries within the region. As of December 2017, the ADB had total assets of $182 billion, making it the largest regional development bank in Asia and the fourth largest in the world (ADB, 2017b).

Since its formation, the ADB had a stated objective to promote RCI within the Asia Pacific region. This objective is highlighted throughout the Charter of the ADB. For example, it was noted in the second clause of Article II of the Charter that the Bank will, "utilize the resources at its disposal for financing development of the development member countries in the region, giving priority to those regional, sub-regional as well as national projects and programmes" (ADB, 1966). Despite the form of the ADB (a bank partially owned by regional members) and the stated function of the ADB to promote RCI, the ADB had a non-linear path in its evolution on this topic. Only in recent years has the ADB taken a more explicit and proactive approach towards RCI. This chapter analyzes ADB's evolution on the function of RCI.

In this chapter, I make two arguments. First, I suggest that despite having a mandate to work on RCI, a regional development's bank work on RCI is fundamentally challenged by the lack of a functional definition of the 'region' in which it operates. Second, I maintain that the advent of regional-level crises can accelerate a development bank's efforts in RCI. Specifically, a regional crisis can spur a development bank's efforts in promoting the software of cooperation and integration, more so than the hardware of regional integration. These notions are illustrated through a detailed examination of the strategy and practice of the ADB since its formation in 1966.

I begin this chapter by presenting the analytical framework for the subsequent analysis, focusing on conceptual debates on the definitions of regions, the role of crises in accelerating regional integration and the distinct challenges of building software versus hardware of RCI. Then, I analyze the history and evolution of the ADB as an institution and highlight defining features of the development context in which it currently operates.

Next, I investigate the ADB's efforts in promoting RCI since its formation, highlighting inflection points in the institution's approach towards promoting integration at a regional and sub-regional scale. Fourth, I discuss the relative success of the ADB in developing sub-regional organizations and expanding financial policies at the national level compared to the development of cross-border physical infrastructure projects. I end the chapter with a set of conclusions pertaining the role of regional development banks in promoting regional cooperation and integration.

II. ANALYTICAL FRAMEWORK

The analytical framework for this chapter is based on three areas of academic inquiry: the concept of a region, the various definitions of regional cooperation and integration, and the role of crises in accelerating regional integration. The analytical framework presented here is linked to the broader analytical framework of the thesis through the topics of development and the role of the state versus markets, which are sections one and two in the four-part analytical framework presented in chapter three. With regards to development, this section develops an overview of the concept of regions and an overview of different forms of regional cooperation and integration and their contribution to development. With regards to the role of the state versus markets, this section provides an overview of how crises, including financial crises, can impact regional affairs and how they can serve as a trigger for enhanced state cooperation. These issues are examined through the broader concept of institutional additionality, as outlined in the introduction of this chapter. The purpose of this chapter is to understand what role the ADB has played with regards to regional matters in Asia Pacific, given its role as one of a few regional development banks operating in the region. In order to examine the institutional additionality, if any, of the ADB, I develop an analytical framework focused

specifically on the topics of region, regional cooperation and integration, and the role of crises in regional integration, based on a literature review presented in this section of the chapter.

a. Regions

A central challenge for both the analysis and practice of regional integration is the lack of consensus around what defines a 'region' (Russett, 1967; Thompson, 1973). The various interpretations of what constitutes a region have been a long-standing debate in the fields of geography, political science, economics and anthropology. This debate has significant practical implications for the functioning of a regional development finance institution such as the ADB.

The concept of a region has a strong association with physical and natural space (Claval, 2007; Herbertson, 1905). Countries or cities that share a common physical space, or are in close proximity to one another, are often considered to be within the same region. Even in multi-faceted definitions of what constitutes a region, physical geography and barriers are often used as the first criteria of identifying one region (Hettne, 1999). There are many challenges with a location-focused definition of region. First, it is conceptually challenging to delineate where one physical space ends and another begins. This can be the case both a micro-geographic level, within a city or town, as well as at a macro-geographic level, at the scale of countries our continents. Second, physical barriers – such as mountains or bodies of water - are not insurmountable barriers that necessarily prevent communication or coordination. If physical location is to be considered delineation for a region, it is often supplemented with other factors.

Domestic political allegiances and cross-national policy coordination can also serve as the bases of defining a region. The political and policy aspects of region-identification can be understood both through domestic politics and international relations (Mansfield & Solingen, 2010). From a domestic politics perspective, regions are often defined by spaces where dominant political coalitions at the domestic level operate (Katzenstein, 1993; Solingen, 1998). This approach to regional analysis focuses on the commonality of preferences of political actors across countries to delineate a regional space. From an international politics perspective, regions can be defined as a group of countries whose policies are in coordination with one another for a certain intended outcome (Axelrod & Hamilton, 1981; M. Taylor, 1976). In this case, regions are often defined by membership in political unions or associations, such as the European Union (EU) or the Association of Southeast Asian Nations (ASEAN).

The dynamics of economics and investments provides a framework for another approach towards defining and analyzing a region. This approach focuses on the rate of investment and trade in between certain geographic areas and whether this happens at a rate faster than with the rest of the world (Krugman, 1980, 1991). The economic dynamics within a certain geographic region are often the underpinning for the creation of institutions such as currency unions and preferential trade agreements. With regards to currency unions, there has been a longstanding debate in the field of monetary economics regarding which conditions – labor mobility, capital mobility, risk transfer, business cycle synchronization – best lend themselves to the creation of a single currency (McKinnon, 1963; Mundell, 1961). These debates have been particularly lively in analyses around the effectiveness of the Euro currency and the Eurozone in general (Krugman, 2013). Within the context of trade, regional groups are often made in trade agreements

between different countries in order to increase the efficiency of the allocation of goods and services.

Finally, cultural identity, including language, religion and the perception of a shared history, is often a strong indicator of a regional grouping (Risse-Kappen, 1995). The importance of cultural identity in forming regions is related to the importance of social networks and social capital – that is, the value of communities of association (Putnam, 2001). Studies of nation-building processes since the end of World War II have demonstrated that the pace of nation-building is uneven around the world, and is often influenced by the existence of a common language, ethnicity, culture, history and symbols (Utz, 2005) . Given that individuals often hold many identities, it is challenging to identify the relative value and importance between competing or associated identities – for example, a national identity versus a regional identity.

The conceptual challenges of defining the boundaries and constituents of a region have practical implications for a regional development bank such as the ADB. Without a well-defined framework for the definitions of regions and sub-regions, a regional development bank can find it challenging to promote various initiatives that it may be begin. This includes physical infrastructure projects as well as policy integration and institutional development. This is the case for both RCI at the broadest level – in the case of the ADB, for the 'Asia Pacific' region – as well as smaller scales with regards to the sub-regions of Asia Pacific within which it operates.

b. Regional Cooperation and Integration

Relatedly, there is a definition challenge of what regional cooperation and regional integration means in both theoretical and practical manners. This is a line of inquiry that has its roots in scholarship in political science, international relations and international economics. Fundamentally, RCI refers to the process of regional units (nations, states, cities) becoming more connected to one another (Schmitter, 2007). This increased interconnection may occur, and be analyzed, through different channels, including economic, financial and political. These aspects of RCI are often connected with one another.

From an economic perspective, RCI generally refers to increased economic linkages between regional units, in the form of trade of goods and services as well as financial flows (Balassa, 1961; Viner & Oslington, 2014). From a political perspective, this concept refers to increasing formal and informal cooperation mechanisms between regional units, in the forms of treaties, agreements and membership in common formal and informal organizations (Haas, 1967; Nye, 1971). Underlying these aspects of cooperation and integration are both physical and non-physical channels. From a physical perspective, RCI often refers to the creation of cross-border infrastructure – for example, roads, bridges, tunnels, airports, energy transmission systems – that facilitate an increased flow of goods and services between various regional actors. From a non-physical perspective, this concept refers to the harmonization of public policies and legal structures, as well as membership in organizations and institutions that create the opportunity for cooperation and integration. The physical and non-physical channels of regional cooperation and integration are highly reliant on one another but they can be understood and analyzed as distinct phenomena (ADB, 2006).

There is a significant body of literature on the benefits of RCI. The underlying benefits are often grouped in two categories: collective economic welfare and peace and security. From an economic welfare perspective, there are many arguments, both theoretical and empirical, that increased linkages between regions – through trade and financial flows – make all actors better off (Ricardo, 1821). This concept underpins much of the logic behind increased trade integration between countries, commonly grouped under the categories of free trade and globalization (Rodrik, 2018). From a peace and security perspective, there is the belief that as nations become more economically integrated with one another, the costs of war and conflict increase and thereby prevent the inception and escalation of conflict (Mill, 1885).

c. The Role of Crises in Regional Dynamics

Economic and financial crises, whether exogenous or endogenous in nature, have the ability to change the structure of a region and the institutions that operate within it. This is evidenced both in academic theory as well as in recent empirical observation.

It is important to note that there is no common functional definition around what constitute a crisis (Henning, 2011). The term originates from the Greek word, 'krisis,' which means 'decision' (Dictionary, n.d.-a). The term is used for a variety of situations in economics, politics and finance, ranging from geo-political tensions related to war, a sharp and protracted fall in financial asset values, major epidemics and economic depressions.

A fundamental reason that a crisis can alter the structure of a region is its ability to open up the space – institutionally, politically and economically – for reform (Gourevitch, 1986). An essential aspect of the linkage between crises and reform is the impact of a crisis on the worldview of practitioners. A significant shock to a system allows practitioners to re-evaluate the assumptions with which they are operating in a way that a gradual change scenario may not. Along the same lines, a crisis has the ability to make visible the challenges of the status-quo system (Calder & Ye, 2004). Structural challenges in a system often times only come to broad visibility during a shock scenario. (Saurugger & Terpan, 2016a). Finally, a crisis has the ability to weaken the position of vested interests that favor the pre-existing structure (Saurugger & Terpan, 2016b). This is a concept that is essential to the power and necessity of collective action.

Economic crises have historically had a particular impact on matters of regionalism and integration. This is particularly the case when a crisis makes clear the need for coordinated action. This can lead to the creation of new regional initiatives or the reform of pre-existing initiatives and institutions. The currency crisis in Europe in 1992 is often cited as a critical juncture that accelerated the movement for the European Monetary Union, which was officially formed in 1998 (Degner, 2018). Similarly, the Latin American Debt Crisis, which began in the early 1980s, led to the strengthening of many regional arrangements(Parthenay, 2018). Crises can also lead to the disintegration of regional arrangements. This is particularly the case for geo-political crises.

d. The Conceptual Linkage Between Regions, Cooperation/Integration, Crises and Sustainable Development

In this chapter, I argue that the efforts of RCI for a regional development bank were challenged by the lack of definitional clarity of the 'region', which it seeks to integrate. I observe, through close-dialogue with practitioners, that this lack of definitional clarity has historically slowed down the efforts of the ADB in increasing its work on RCI, despite a very clear mandate for these efforts in the Founding Charter of the Bank. However, I argue that these challenges were overcome by the practical realities of the Asian Financial Crisis (AFC) in 1997-1998. The AFC fundamentally altered the ADB's efforts in RCI by identifying the need for both collective policy responses at both the Asia Pacific level as well as at a sub-regional level. Since the AFC, I observe that the ADB has been more successful in its promotion of the 'software' of RCI – specifically, the coordination of financial programs and the creation of sub-regional institutions for policy planning and coordination – as opposed to the 'hardware' of RCI in the form of physical infrastructure. Although the results of the RCI initiatives of the ADB have been mixed to date, the efforts of long-term regional cooperation and integration were increased by a short-term financial crisis.

There are two important conceptual linkages between the topic of this chapter – regional cooperation and crises – and sustainable development. First, increased regional cooperation can be both a boon and a detriment for broader efforts around sustainable development. From the perspective of optimism, regional cooperation can lead to higher levels of economic growth by providing access to larger markets, increased risk sharing between individual economies and policy cooperation and coordination between countries to solve regional environmental and social issues (Balassa, 1961; Glaeser, 2000).

From the perspective of pessimism, however, regional cooperation and integration can further deepen unsustainable economic growth if proactive measures are not taken. Given that the Asia Pacific region is comprised of over fifty individual countries, it is important, I argue, to understand the dynamics of the ADB's efforts on regional integration for its implications on sustainable development matters in the years to come. Second, sustainable development is an approach to economic development that requires long-term investments and policy frameworks that allow increased investments in new forms of technology and infrastructure. Given the long-term nature of, for example, efforts to decarbonize energy and agricultural systems, I argue that it is important to understand how a development bank responds to short-term crises from a functional and strategic perspective.

III. PLACE AND STRUCTURE OF ADB

This section provides a detailed contextual backdrop of the ADB. In this section, I provide an overview of the history, evolution and current state of operations of the Bank and then I highlight five aspects of the contemporary external context in which the Bank functions that are of particular relevance to the study of the ADB's efforts on RCI.

a. ADB: Contextual Place

As of 2018, the external context within which the ADB operated was complex from a sustainable development perspective. This section highlights five aspects of the external context of the ADB that are relevant to the broader inquiry on the evolving role of the Bank in RCI efforts.

The first characteristic of the ADB context is the broad-based improvement in standards of living throughout much of the Asia Pacific region over the past five decades. At the time of the formation of the ADB, the economic and political condition of major economies in the region was low. India, for example, had experienced economic growth rates of approximately 1% from 1917-1947 and 4% from 1947-1960s (Dreze & Sen, 2013). There were significant food shortages and famines across the region. In China, for example, food shortages between 1959 and 1961 led to the deaths of tens of millions of individuals (Chow, 2007). However, since this period, there has been a major improvement in the standards of living of the region. Major economic transitions – including the Green Revolution in India, economic reforms in China and industrialization efforts across many large economies – has led to improvements in life expectancy, education levels and GDP per capita figures for the region. In 1966, for example, average life expectancy in development Asia was approximately 50 years. In 2016, average life expectancy has risen to 71 years (McCawley, 2017).

The second characteristic regarding the context of the ADBs operations are the contemporary challenges of sustainable development in the region. The economic growth, described above, has led to a set of environmental and social challenges in many countries in the Asia Pacific region. From an environmental perspective, Asia Pacific faces challenges including air pollution, water scarcity, biodiversity preservation and an increase in extreme weather events (ESCAP, 2017) . India and China have sixteen of the twenty cities with the worst air pollution in the world, for example (BBC, 2018). From a social perspective, many countries in the Asia Pacific region are witnessing increasing inequality within their countries, although poverty has decreased dramatically at the same time (Iwasa & Zhao, 2017) .

The third characteristic is the large variation in the economic structures, levels of development and growth rates of countries within the broader Asia Pacific region. From an economic structure perspective, member states of the ADB that receive lending include natural resource rich countries such as Indonesia, manufacturing countries such as Vietnam and advanced service based economies such as Singapore. The variation of the member states include small island states such as Tonga and Samoa as well as major global economic leaders such as China and India. From a level of development perspective, the GDP per capita of member nations of the ADB ranges from $600 to $50,000, the largest spectrum of per capita economic output of any regional development bank in the world ("World Bank Database," 2017) . And finally, from a growth rate perspective, although the Asia Pacific region has been amongst the most dynamic growth regions in the world for the past five decades, there is significant heterogeneity in economic growth rates within the region ((Kohli, Sharma, & Sood, 2011).

The fourth characteristic is the evolving geopolitical architecture of the region, and particularly the growing influence of China in economic and financial affairs of the Asia Pacific region. China's economic rise since reforms began under Deng Xiaoping in 1979 is unprecedented in scale and speed, with an average annual economic growth rate of 10% per year from 1980-2015 having driven a thirty-fold expansion of national economic output in thirty-five years (Lin, 2012a). In 1999, China initiated its "Go Out Policy," which marked the acceleration of Chinese Foreign Direct Investment (FDI) . In 2013, the Chinese President Xi Jinping announced the beginning of the "One Belt, One Road" Initiative, a major global infrastructure investment program that has the potential of interacting with over 100 countries around the world, including every country that is a member of the ADB (Shah, 2016). To assist in the financing of the One Belt One Road Initiative, the Government of China launched the Asian Infrastructure Investment Bank

(AIIB), a regional development bank, which has the potential of rivaling the ADB in many regards. The AIIB has over sixty members and although its total lending in 2017 was only $3.3 billion (1/7th that of the ADB) (AIIB, 2018), the expectations are for the AIIB to rival the ADB in size of lending in the next decade.

The fifth characteristic is the increased economic integration of the region despite a highly diffused and informal institutional context. The Asia Pacific region has become more economically integrated, through the perspectives of trade and financial flows, than in its past (ADB, 2011). This economic integration has happened despite the fact that the region does not have one overarching political, financial or economic institution or organization that formally coordinates policies and programs between countries. The region does not have a common currency either. In those two regards, this region is unlike the European Union and the Eurozone areas respectively. Instead, Asia Pacific region has at least forty inter-governmental organizations focused on regional integration (ADB, 2010a).

The five aspects of the external context for the ADB are highly relevant to the study of the ADB's efforts on RCI in three ways. First, the ADB's efforts on RCI are occurring in a backdrop of both significant economic dynamism and development challenges. The economic growth within the region over the past five decades has meant both broad-based improvements in living standards and opportunities as well as significant challenges. Second, the ADB's efforts on RCI are happening in the backdrop of geo-political shift in the region, with a possibly competing framework and approach towards regional integration through the Belt and Road Initiative and a possibly competing development bank to promote this initiative. Third, the ADB's efforts on RCI are

happening in a context of broader momentum towards economic integration in the region.

b. ADB: Structure of Channel

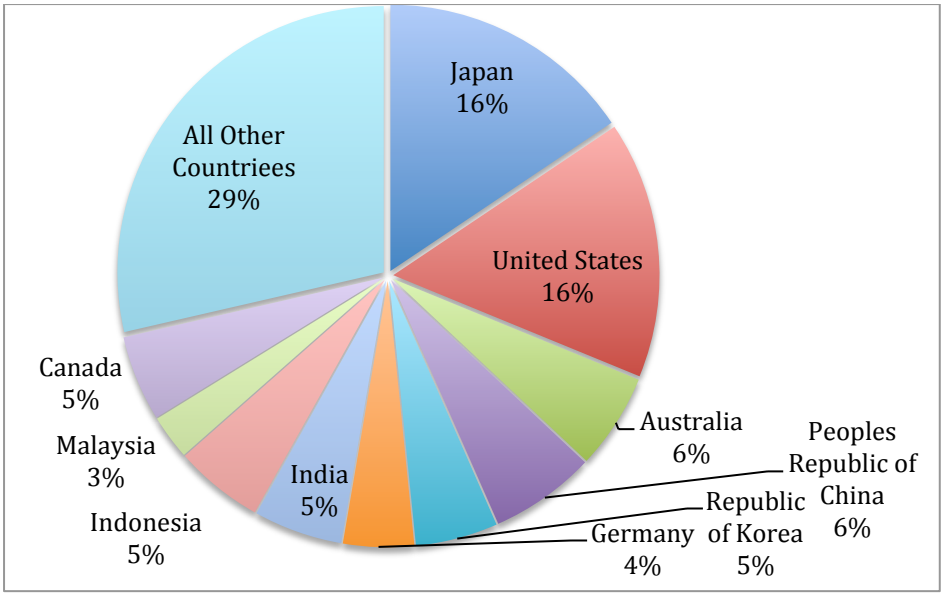
The ADB was formed in 1966 as a regional development bank for the Asia Pacific region. The formation of the ADB occurred in the context of three important events and trends, which gave impetus for the creation of the Bank. The first trend was the rise of multilateral organizations after World War II (WW II). In the immediate aftermath of WW II, international organizations were developed and strengthened with the aspiration to prevent future global conflicts (Eichengreen, 1992; Middleton, Bordo, & Eichengreen, 2006) . These organizations include the United Nations, the World Bank, International Monetary Fund and World Trade Organization. The second significant trend was the significant need of financing for the former colonies in Asia, Africa and Latin America. This period of de-colonization made readily apparent the need for major investments in agriculture, industry and infrastructure in order for former colonies, such as India and Indonesia, to grow. The third trend was the apparent success of major programs of international assistance for rebuilding economic structures, namely the Marshall Plan and the early successes of the World Bank in general (Huang, 1966; McCawley, 2017).

The impetus for the creation of the ADB came from two main sources concurrently: the Government of Japan and the UN Economic Commission for Asia and the Far East (ECAFE), now known as the UN Economic and Social Commission for Asia and the Pacific (ESCAP). The earliest proposals for the establishment of such a development bank for the region came in 1956, when the Japanese Finance Minister suggested the idea to the US Secretary of State John Foster Dulles. Although there was little interest from

the US Government at the time, the idea continued to be discussed and worked through in Japanese government and financial sector participants. In 1963, the Japanese Finance Ministry established a Working Group to formalize the planning of the creation of the Bank. Concurrently, the UN's ECAFE had begun in 1961, independent of the Japanese efforts, to investigate the feasibility of a regional development finance institution. In 1964, these two streams of the UN and Government of Japan merged and in 1966 the ADB was formally launched (Huang, 1966; McCawley, 2017).

As a multilateral development finance institution, the ADB is owned fully by its member states, governed by a Board of Governors and presided over by a President. At the time of its inception, the ADB had thirty-one members, of which nineteen were from the Asia Pacific region and the remaining twelve were from outside the region (McCawley, 2017). In 2017, the ADB had a total of sixty-seven members – forty-eight of which are from the Asia Pacific region and nineteen are from outside. The largest regional shareholders were Japan (15.6%), the Peoples Republic of China (6.4%) and Australia (5.8%). The largest non-regional shareholders were the United States (15.6%), Canada (5.2%) and Germany (4.3%) (ADB, 2017b). The ten largest shareholders of the Bank and their respective share of total subscribed capital can be seen in Figure 4.1. The Bank is governed by a forty person Board of Governors, which then delegates governing power to a Board of Directors that directs the ADB from its headquarters in Manila. The Board of Directors is comprised of twelve resident directors, who are responsible for the 'direction of the general operations of the Bank,' including taking decisions concerning policies of the Bank, and all loans, guarantees, investments and technical assistance by the Bank. Eight of the twelve members of the Board are from within the region and four are from outside (ADB, 2018a).

Figure 4.1: Largest Shareholders of ADB, 2016



Source: (McCawley, 2017)

From the sources of capital perspective, the ADB has four main sources of financing. The first is the shareholder capital from the member states. The Bank's shareholders have placed equity into the Bank through two channels – paid-in capital, which refers to equity capital that has been injected into the Bank for lending purposes, and callable capital, which refers to capital that has been set aside by the shareholders to protect ADB's creditors, in the event of a default. The historical contribution of paid-in capital versus callable capital for the ADB can be seen in Table 4.1. As of 2016, total paid in capital was $8 billion and callable capital was $151 billion. The second source of financing is retained earnings from lending operations. The profits made by the ADB in its lending operations are not distributed back to the shareholders of the Bank and are instead recycled to increase balance sheet for lending. The third source of financing is the capital markets. The ADB is a AAA rated financial institution and is therefore able to borrow capital from capital market sources – Central Banks, insurance companies, pension funds – to fund its operations. The fourth source of capital for the ADB is

grants. The ADB receives grant funding from member states and non-sovereign organizations (including foundations) and serves an intermediary for donations for various projects and initiatives (ADB, 2018b).

Table 4.1: Contribution of Paid In and Callable Capital (Current $, millions)

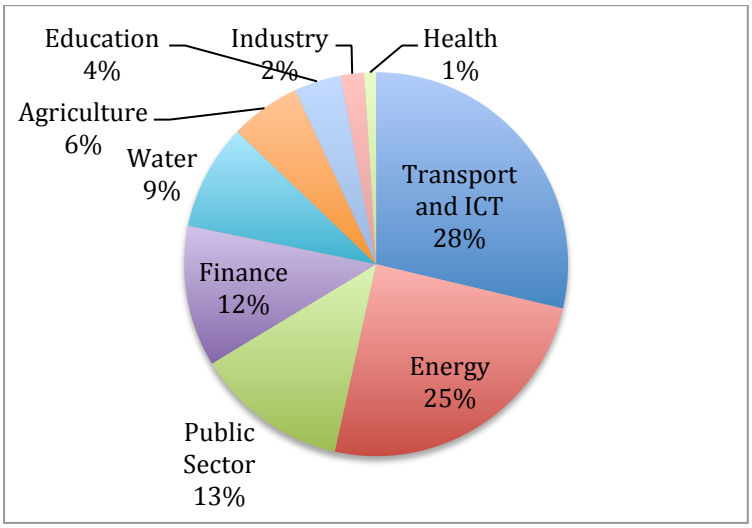
Year	Paid-In ($)	Callable ($)	Total ($)
1966	550	550	1100
1971	880	1870	2750
1976	1614	6724	8338
1983	1920	14054	15974
1994	3437	45941	49378
2009	7950	151459	159408

Source: (ADB, 2017b)

From a use of capital perspective, the ADB's operations can be categorized into four elements: market-based lending, concessional lending, equity investments and technical assistance. The ADB's market-based lending is referred to as Ordinary Capital Resources (OCR) lending, and these loans are made to countries that have a higher level of economic development and are able to take on near-market level cost of capital. The concessional lending program is directed at the less developed economies that need access to low-cost capital to finance development projects. Third, the ADB makes equity investments in companies and projects. Fourth, the ADB provides significant resources to countries through Technical Assistance projects (ADB, 2017b). From a sectoral perspective, the ADB lends to various sectors, including transportation, energy, finance

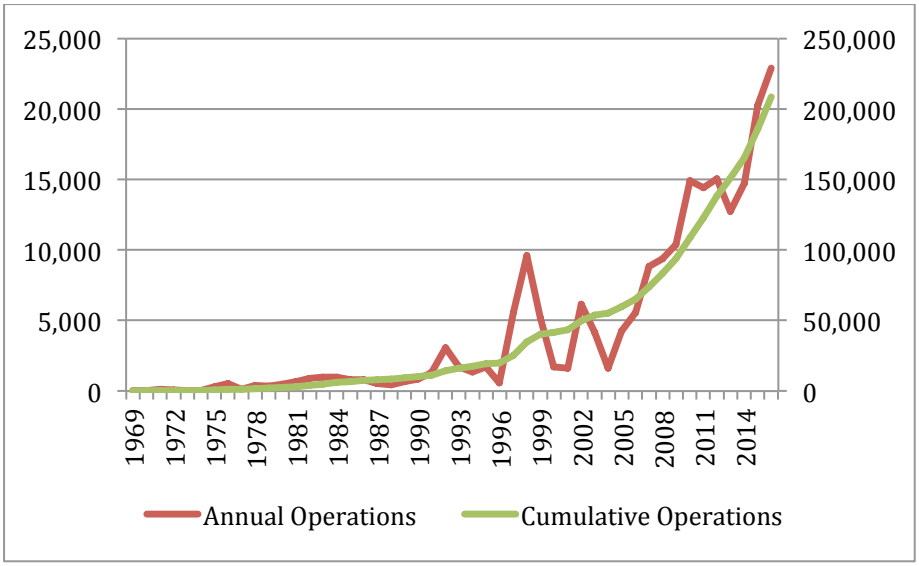
and agriculture. The ADB's operational approvals by sector can be seen in Figure 4.2 below and the ADB's annual and cumulative development operations can be seen in Figure 4.3.

Figure 4.2: Operational Approvals by Sector, 2007-2016



Source: (McCawley, 2017)

Figure 4.3: Annual and Cumulative Development Operations ($ million, current)



Source: (McCawley, 2017)

Finally, the strategic direction of the ADB is laid out through long-term plans and vision statements of the Bank. These vision statements articulate priority sectors, regions and approaches to development finance, and have had a significant impact in changing the direction of the organization in the past. For example, the Strategy 2020 document placed climate change as a major priority for the ADB – a decision that paved the way for a major re-allocation of capital to more climate aware projects (ADB, 2018d)

IV. THE ADB'S EVOLVING EFFORTS IN REGIONAL INTEGRATION

In this section, I analyze the ADB's evolving efforts in RCI since the Bank's formation in 1966. I observe that RCI initiatives were always a stated goal and intention of the Bank, but were not followed through in a substantial way until the Asian Financial Crisis of 1997-1998. I underscore the persistent challenge of defining the scope of the region in which the ADB operates in both general and specific terms, as well as the lack of a conceptual framework around the end goal and methods of achieving RCI. I chart the evolution of the Bank's efforts until the crisis and then analyze the various ways in which the operations of the Bank evolved in response to the region-wide crisis.

a. Intentions and Early Efforts on RCI

The two early proponents of the concept of a development bank for Asia and the Pacific– the UN ECAFE and the Government of Japan – believed in the importance of a 'regional' approach to development financing with a strong focus on coordination of policies and projects between countries. The UN ECAFE, established in 1947, had conceptualized, since its formation, various approaches to increased economic cooperation and assistance to the region. In 1947, France and Thailand had proposed a

"Pan Southeast Asian Union" to channel economic assistance to the region, for example. In September 1961, UN ECAFE established a "Consultative Group of Experts on Regional Economic Cooperation in Asia," which examined the viability of a regional development bank, but didn't pursue it. In 1963, the UN ECAFE continued its deliberations on ways to improve the economic condition of its member states, and began deliberations on the creation of a regional trade bank which would promote intra-regional trade efforts. These ideas served as the substantive basis for the creation of the ADB (Huang, 1966; McCawley, 2017).

The Government of Japan's interest in regional cooperation came from a different origin compared to ECAFE. Both prior and after World War II, the Government of Japan was eager to have a prosperous regional neighborhood, particularly in Southeast Asia, that was able to purchase Japanese exports (which in turn was needed for Japan to finance imports). In 1957, the Government of Japan first proposed the creation of an "Asian Development Fund" to make long-term loans to low rates of interest to countries in Asia seeking long term financing for industrial growth. The US Government as well as many Asian countries, which saw this as an overt attempt by Japan to increase influence in the region, did not support this proposal. In 1963, efforts began once again within the Ministry of Finance to create a regional development bank. These efforts were integrated with the work at the UNECAFE, which led to the formal creation of the ADB in 1966 (Huang, 1966; McCawley, 2017).

The interest in regional cooperation, integration and development that spurred the creation of the ADB is clearly highlighted in specific references in the ADB Charter. The first reference is in the pre-amble of the Charter:

"The Contracting Parties:

CONSIDERING the importance of closer economic co-operation as a means for achieving the most efficient utilization of resources and for accelerating the economic development of Asia and the Far East…

In Article 1, a section that highlights the purpose of the Bank, it is stated:

"The purpose of the Bank shall be to foster economic growth and co-operation in the region of Asia and the Far East and to contribute to the acceleration of the process of economic development of the developing member countries in the region, collectively and individually. Whenever used in this Agreement, the terms "region of Asia and the Far East" and "region" shall comprise the territories of Asia and the Far East included in the Terms of Reference of the UN Economic Commission for Asia and the Far East."

In Article 2, a section that highlights the functions of the Bank, it is stated:

"To fulfill its purpose, the Bank shall have the following functions:

ii) to utilize the resources at its disposal for financing development of the developing member countries in the region, giving priority to those regional, sub-regional as well as national projects and programmes which will contribute most effectively to the harmonious economic growth of the region as a whole

iii) to meet requests from members in the region to assist them in the coordination of their development policies and plans with a view to achieving better utilization of their resources, making their economies more complementary, and promoting the orderly expansion of their foreign trade, in particular, intra-regional trade." (ADB, 1966)

The excerpts above from the Founding Charter of the ADB highlight three critical aspects regarding the Bank and RCI. First, it is very clear that the founding members of the Bank appreciated the importance of economic co-operation between various countries in the region. In fact, this is laid out in the first sentence of the charter. Second, the Charter explicitly references the importance, and in fact priority, of 'regional' and 'sub-regional' projects for the ADB to lend to. Third, the Charter explicitly articulates the possibility of the "coordination" of policies and trying to make economies more

"complementary" to one another in the region. It is therefore very clear from this textual analysis that the ADB had a strong intention to make RCI a central part of its mission from its inception.

Despite explicit references to the importance of regional cooperation in the Charter of the ADB, as analyzed above, the ADB engaged very modestly in the RCI initiatives for the first three decades of its operations. This is most clearly evidenced by the fact that the Bank did not have an articulation of what it meant by RCI until 1994, when the Bank published its first Regional Cooperation Policy (RCP) framework(ADB, 2006). Based on discussions with ADB historians and long-serving staff, as well as a deep analysis of archival resources, I observe that there were two deep reasons for the lack of more explicit and focused work on RCI: a lack of definition around the 'region' in which the ADB operates and a lack of a theory of change of what actions a development bank can take to promote RCI outcomes.

There were twenty-four original regional member countries of the ADB, which included: Afghanistan, Australia, Cambodia, India, Indonesia, Japan, Republic of Korea, Lao PDR, Malaysia, Nepal, New Zealand, Pakistan, Philippines, Samoa, Singapore, Sri Lanka, Taiwan, Thailand, Vietnam, Hong Kong, Fiji, Papua New Guinea, Tonga and Bangladesh. As stated in the section above, the regional member countries of the ADB could be any country that was a member of the UN ECAFE. The ADB had not specified sub-regions within this broader group until the early 1990s (a point which will be discussed in more detail later in this chapter). This list of countries represented a significant variety of economic structures, political systems, cultural traditions, languages and religious denominations. It represented countries that were in military conflict with one another (i.e. India and Pakistan) as well as economic rivals. Aside from outsourcing

the process of membership to the ECAFE, the ADB did not undertake any significant efforts to proactively define the regional constituents and by what criterion a member country would be accepted or denied as being part of that region.

It is important to note that Asia specifically, although popularly considered as one entity, has very little coherence from a language or religious perspective. Prior to the arrival of Western colonial powers, there was never a word for "Asia" in the languages spoken in that part of the world (Kissinger, 2014) . At the time of the formation of the ADB, this geographic region also did not have any formal political or economic institutions that bounded the nations together in a set of rules, laws or currencies (ADB, 2010a).

The lack of a clear and commonly accepted perspective of what was meant by "regional" cooperation and integration had significant implications on the functioning of the ADB in two major ways. First, without a clear, internal definition of the regional groupings and structures that the Bank wanted to use, the ADB had to delegate that function to pre-existing institutional structures. This proved to be problematic for the ADB because within the Asia Pacific region, there are many dozens of informal regional groupings and organizations. This made it very difficult, according to practitioners within the ADB, for the bank to design projects that were responsive to the needs and interests of the government clients that the ADB was serving. Second, without a clear definition of what constituted a regional project or initiative, the ADB resorted back to the many national-level projects that were being developed by country teams and the governments in the region.

In addition to a lack of specification of what constitutes the 'region' in which the ADB is operating, I observe that the Bank did not have a theory for what economic or political

interventions would cause countries to cooperate and integrate more with one another. For example, the Bank did not have a generally accepted framework of whether cross-border transportation infrastructure projects would lead to increased economic integration more so than assisting countries to develop trade policies that are complementary to one another. Despite the centrality of regional cooperation in the Founding Charter, the Bank became very focused on financing individual projects in energy, transportation, agriculture and other sectors that required external financing within the member countries.

The two challenges articulated above – the lack of a coherent framework of 'regions' and a 'theory of change' around RCI – are, of course, not the only challenges that prevented the ADB from taking a more explicit leadership effort on RCI efforts in the Asia Pacific regions. Other challenges would include the highly complex nature of regional cooperation and integration efforts, the lack of formal legal institutions and organizations governing trade and investment in the region, on-going political and economic disputes between countries in close proximity, and other such considerations. From an empirical perspective, it is not possible to identify which of these reasons had the highest explanatory power for the lack of RCI initiatives of the ADB.

The ADB's lack of a framework and track record on RCI led to the Bank developing its first Regional Cooperation Policy (RCP) in 1994 (ADB, 1994). This document is critical for four reasons. First, the document affirms the Bank's lack of focus on RCI during its first twenty-eight years of existence. The only examples of ADB's work in this space that could be offered as evidence of a focus on RCI was "feasibility studies for a small number of sub-regional projects," "actively participated in sub-regional activities related to the Nam Ngum Hydropower Project," and "maintained close contact with the

Committee for Investment for the Lower Mekong Basin" (ADB, 1994). Second, it refers to two critical strategy documents of the ADB – the *Study of Operational Priorities and Plans of the Asian Development Bank for the 1980s* and the *Panel Report of the Asian Development Bank in the 1990s*, both of which affirmed the important *regional* role of the ADB which the Bank was not living up to (ADB, 1978, 1987) . Third, the document put forward a three part framework for future work on RCI: a) increasing understanding and awareness of regional cooperation, b) identify potential projects that have regional implications and c) finance projects that have strong economic rationales and relate to issues of regional importance. Fourth, the framework did not call for new resources to be put into these efforts and instead argued that regional cooperation and integration work, like all other ADB initiatives, should be led by demand from the member countries themselves.

b. The Asian Financial Crisis and the ADB's Short-Term Response

During the first three decades of the existence of the ADB, the Asia Pacific region experienced a broad and significant improvement in economic conditions. The Asian Tigers – Hong Kong, Singapore, South Korea and Taiwan – underwent industrialization in a rapid manner, and their economies grew at over seven percent per annum from the 1960s to the 1990s (World Bank Group, 1993). China's economic reforms, beginning in 1979, were laying the groundwork for subsequent industrialization and rapid decrease in poverty rates (Chow, 2007). The Asia Pacific region did experience periods of regional challenges and crisis during the first three decades of the ADB's existence. The 1973-1974 Oil Shock, for example, increased the import costs for much-needed natural resources for industrializing Asia and required the ADB to make significant increases and improvements in their lending arrangements to help countries work through this period (McCawley, 2017). However, none of these challenges were insurmountable, and both

the region in general and the ADB specifically managed to work through them and continue the momentum of growth and integration.

The Asian Financial Crisis, however, fundamentally changed the outlook of the region and the efforts of the ADB in a lasting way. According to a historian of the ADB, "the 1997 Asian financial crisis was one of the most significant episodes in the 50 years of the work of the ADB in Asia. The crisis was a dividing line. It separated the first 30 years from the subsequent 20 years"(McCawley, 2017). After decades of growth, the AFC prompted an unprecedented drop in economic activity in the crisis-hit countries. For example, the five most affected countries – Indonesia, the Republic of Korea, Malaysia, the Philippines and Thailand – experienced a 30% drop in economic output (as measured by Gross Domestic Product) in a matter of eighteen months (Corsetti, Pesenti, & Roubini, 1999).

There are many competing perspectives and explanations for the causes of the AFC. (A full treatment of the AFC is beyond the scope of this chapter and thesis). However, for the purposes of this chapter, it is important to highlight three specific aspects of the AFC. The first aspect of the AFC is its regional nature. Many analysts point to July 1997 as the starting point of the crisis, when the authorities of the Government of Thailand stopped defending the peg, which had linked the US Dollar to the Thai Baht at a fixed exchange rate for the previous decade. Once this peg was removed, the Thai Baht began to lose value quickly, driving Thailand into a deep recession. This began a contagion throughout Asia, sparked by the outflow of capital of global investors, which impacted over a dozen countries. Although the crisis was triggered by the events of one country, its impact was regional (Corsetti et al., 1999). The second salient aspect of the AFC was the lack of preparation from both regional as well as global public financial institutions to

respond to the crisis. The IMF, which played a significant and controversial role in the bailouts of various Asian countries, was not prepared for the size and depth of the crisis (Weisbrot, 2007) . The same was true for the World Bank and the ADB. The third aspect of the crisis was that there was a broad acceptance that countries in Asia needed to re-examine their domestic financial policies and institutions in order to ensure such a crisis was not repeated. One critical aspect of this re-examination was the need for Asian countries to develop foreign exchange reserves of their own, so that periods of capital outflows could be handled in the future (ADB, 2017a).

Although the ADB's focus had been on long-term physical infrastructure projects, the Bank played a significant role in the short-term response to the crisis. There are two main aspects of the ADB's role in the crisis that set the stage for the Bank's subsequent efforts in regional cooperation and integration. First, the ADB provided emergency financial support at levels that the Bank had previously never operated. The ADB's Financial Sector Program Loan to the Republic of Korea in 1998 of $4 billion was ten times larger than any previous loan of the Bank. This loan is especially noteworthy given the fact that the Republic of Korea, due to its relatively high level of economic development, had been a non-borrowing member of the ADB since 1988. The ADB provided large-scale and quick support to various other crisis-affected countries in the region, including Thailand and Indonesia (McCawley, 2017). Second, there was recognition amongst some policy-makers in the region and in the Bank that the IMF's approach to the crisis was not optimal. The concerns about the IMF response focused on two areas: lack of coordination and communication with its partners, including the IMF, and the level of austerity that was placed on affected Asian countries. These observations led policymakers in the region and in the Bank to think more deeply about

regional-mechanisms to respond to regional crises in the future (Blustein, 2003; Weisbrot, 2007).

The AFC had a significant impact on the strategy and role of the ADB. The crisis forced the Bank to re-evaluate its approach towards supporting economic development, leading the Bank to play a role both in short-term macroeconomic crises as well as long-term development initiatives. The crisis made the Bank confront its relationship with other large international public financial institutions, such as the IMF and the World Bank, and for the ADB to question which institutions are best placed in philosophy and approach for crisis situation. Most significantly, the crisis led the ADB to be more proactive in developing an approach towards RCI that would build resilience to protect against future regional shocks.

V. THE IMPACT OF THE AFC ON ADB'S EFFORTS ON RCI

In this section, I analyze the evolution of approach of the ADB to RCI after the AFC. I argue that the ADB's major response to the AFC was an understanding of the need to accelerate work on RCI through various dimensions, including both the *software* of RCI – domestic policies and regional organizations – as well as the *hardware* of RCI – cross-border infrastructure projects. I observe that the ADB's work on the software of RCI has likely been more successful and transformational than its work on the hardware of RCI. This observation is derived from a qualitative perspective, given the poor quantitative metrics of evaluation of RCI efforts developed by the ADB.

a. Short Term Response to AFC

The AFC clarified to many policy-makers across Asia that deeper regional coordination and integration was necessary to ensure resilience to economic shocks (ADB, 2008). In order to achieve this resilience, governments in Asia began to develop initiatives that took a more 'top down' approach towards regional integration and coordination to supplement the 'bottom up' market-led approaches that had existed prior to the crisis. Prior to the crisis, the major Asian government initiatives around integration and cooperation included Association of Southeast Asian Nations (ASEAN), the Asia Pacific Economic Cooperation (APEC) and the ASEAN Free Trade Area (AFTA) (ADB, 2010b). These initiatives were generally quite loose in nature – platforms and forums for meeting as opposed to formal bodies with authority – and therefore were considered to be ineffectual for the type of the integration and coordination that was believed to be necessary to build resilience in the region from economic shocks.

The ADB played two important yet subtle roles in response to the AFC: a trusted convener of countries within the region and a provider of technical inputs to countries. Both of these aspects of the ADB's role in the post crisis recovery are important to note because they are both outside what the ADB was traditionally known to do, which is building long term infrastructure projects throughout the region.

From a convening perspective, the most influential aspect of the post-AFC period was its role in the development of Chiang Mai Initiative (CMI). In May 2000, the ADB convened the finance ministers of the ASEAN + 3 countries at its Annual Meeting in Manila. Prior to this meeting, countries in the region had been considering the creation of an Asian Monetary Fund (AMF), a pool of financial reserves from Asian countries to

be used during periods of capital outflows from the region to support national currencies (Kawai, 2015). This idea was supported strongly by Japan, but opposed by the United States, and never was implemented (McCawley, 2017). Instead, the ADB supported the development of the CMI, which is a network of bilateral currency swaps between sixteen countries in the Asia Pacific region. These swap arrangements provided a level of safety and assurance to the markets that during periods of financial stress and outflows, the region would act in a coordinated way to defend currencies and broader financial stability. The ADB played a key role as a convener and secretariat to this initiative. In 2012, the CMI was expanded and became the Chiang Mai Initiative Multilateralized (CMIM), and became a self-managed pooling arrangement with $240 billion in reserves. The ADB has played a critical role in the development and expansion of the CMI in its role as a convener and technical advisor to this initiative.

From a technical inputs perspective, one of the first initiatives that the ADB launched in response to its mandate from ASEAN was the Regional Economic Monitoring Unit (REMU). REMU's had three major focus areas – supporting ASEAN, being a knowledge and research hub, and building and developing the Asia Recovery Center (ARIC). ARIC was a specialized knowledge center focusing on helping countries that had been particularly affected by the AFC to build long-term economic recovery programs. One of the most important outcomes of the REMU was the creation of the Asian Bond Markets Initiative (ABMI), for which the ADB has served as the technical secretariat and eventually has developed donor trust funds to support. The ABMI was launched in December 2002 by the ASEAN + 3 group with the goal to develop local currency bond markets within Asian financial systems. This initiative was launched so that Asian countries would not be as reliant as they had been before the financial crisis on foreign capital flows in non-local currencies, which had created vulnerabilities to sudden capital

outflows as had occurred in 1997 and 1998. Since the launch of the ABMI, the total size of local currency bond markets in Asia has increased from $1.1 trillion to $10.2 trillion, with significant positive externalities through the region (ADB, 2017c).

After the AFC, the ADB also made a conscious effort to strengthen subregional cooperation programs within the Asia Pacific region (ADB, 2011). This decision, according to many ADB officials, was made out of a realization that the broad umbrella of 'Asia Pacific' needed to be broken down into smaller groups that shared geographical and economic characteristics, which would allow for greater integration programs to take place. In 1992, the ADB had established the Greater Mekong Subregion (GMS), which included Cambodia, China, Lao, Myanmar, Thailand and Vietnam as a regional cooperation program to support trade and investment in the region. The ADB served as the official secretariat of this group, which has since facilitated the development of over $1 billion of projects. Based on the success of this model, the ADB established the Central Asia Regional Economic Cooperation (CAREC) body and the South Asia Subregional Economic Cooperation (SASEC) body. In formal evaluations from the member countries, these coordination groups have been deemed highly successful channels for increased coordination and cooperation within sub regions (ADB, 2010b).

b. Operational Changes to ADB Strategy on RCI

Although the ADB began to play a much more proactive and coordinated role in efforts of regional cooperation and integration, as outlined above, the Bank still did not have an overarching strategy to reflect its evolving efforts from the 1994 RCP. In 2006, the ADB developed its Regional Cooperation and Integration Strategy (RCIS) (ADB, 2006). The goal of RCIS was to clarify how the ADB would support the RCI initiatives in the region

as a reflection to its evolving work in this space after the AFC. The RCIS put forward four pillars of work on RCIS: 1) Subregional economic cooperation programs on cross-border infrastructure and related software, 2) Trade and investment cooperation and integration, 3) Monetary and financial cooperation and integration and 4) Cooperation in regional public goods. These four pillars were constructed with an intention to re-enforce one another. To support these four pillars of work, the RCIS put forward four roles for the ADB to support and promote RCI: 1) As a financial institution – increasing finance available for RRCCI projects, programs and technical assistance, 2) As a knowledge bank, expanding the creation and dissemination of knowledge and information on RCI to countries, 3) As a capacity builder, furthering support to countries and regional bodies to build their capacity and 4) As an honest broker, strengthening ADB's role as a catalyst and coordinator of RCIS (ADB, 2006).

In addition to outlining four key pillars and four key roles, the RCIS realigned the internal functioning of the ADB to support these initiatives. First, the Bank restructured the Regional Economic Monitoring Unit (REMU) to become the Office of Regional Economic Cooperation and Integration (OREI), which became the overall facilitator of the Bank's efforts on RCI issues. The ADB established a RCI Community of Practice consisting of staff members from across the Bank to provide guidance on RCI issues, organize conferences and promote learning. In 2007, the ADB established a Regional Cooperation and Integration Fund (RCIF), with capital from the Government of Japan and ADB's own balance sheet, to further support the Bank's work in this space. The RCIS made clear that the Bank was going to prioritize its efforts on RCI more than in the past. This was further clarified with the Bank's Strategy 2020 document, which proposed a goal of 30% of all lending operations to be aligned with RCI initiatives by 2020.

The ADB's efforts in establishing a framework for its engagement on RCIS was an important step in the bank's evolution on these issues. Based on interviews with key stakeholders from within and outside the Bank, I argue that the RCIS had three fundamental challenges that have impacted its success. First, the results and monitoring framework does not provide a useful guidepost for ADBs efforts in RCI. There are 41 Performance Monitoring Indicators (PMIs), with no relative weighting of importance of one versus another. In addition, there are no timelines provided and no specificity of projects or regions. Second, there was no definition put forward of what constitutes an RCI project. This is an issue that was exacerbated once the Bank put forward a quantitative target in its Strategy 2020 around RCI. Without a clear definition of what constitutes a RCI project, it allowed for misclassification. Third, the RCI prioritized overtly the physical infrastructure dimensions of Pillar 1 versus the software/policy dimensions of Pillar 1 as well as the other pillars. Explicitly, Pillar 1 was identified as the "core component" whereas Pillar 3 was deemed as the "least relevant." This is particularly noteworthy given the successes of the ADB in financial policy issues after the AFC.

c. ADB's Efforts on the Software vs. Hardware of RCI

Since adoption of the RCIS, the ADB has undertaken a significant amount of work in the RCI space. This includes thousands of individual projects, hundreds of technical assistance projects to governments, hundreds of papers and reports. Despite the expansion of the Bank's efforts around RCI, the ADB had not developed a robust effort at evaluating the successes of its various initiatives in this space. That is not to say that the Bank does not have a well-developed Results Framework at a project level, which

assesses the perceived successes and failures – both quantitatively and qualitatively – for each of the Bank's various engagements.

From a qualitative perspective, there is broad recognition and support for the work of the ADB in building financial sector resilience in the region through its ABMI and ASEAN+3 efforts. For many of the staff that I interviewed, both within the Bank as well as outside the Bank, the ADB's efforts in promoting financial and monetary cooperation after the AFC remains the Bank's single biggest and ongoing achievement in this space. Based on my discussions, this perspective originates mainly from two distinct origins. The first origin of this perspective is based on the idea of additionality. There are many potential sources of financing for infrastructure projects at the national and regional level, but there are very few organizations with the credibility and history of the ADB to bring together countries from the region and build out policy initiatives that strengthen resilience through increased integration. For many policymakers with whom I interacted, the ADB stands alone in this regard and the Bank is trusted more than the World Bank and the IMF, particularly the latter after the AFC. The ADB is valued by many because of its role in developing local currency bond markets and the swap lines through the Chiang Mai Initiative. Even though these projects are not visible physical infrastructure projects, amongst policymakers in national capitals, it is clear that there is significant value ascribed to these initiatives for promoting economic resilience.

In addition, the ADB is well recognized for its work in building out the sub-regional institutions that have become a platform for sub-regional cooperation and integration. The development of informal political and economic institutions and organizations across Asia is an important evolution in the region. The work of the ADB in building and supporting regional platforms, such as GMS, SASEC and CAREC, is hard to

quantify given the qualitative nature of such organizations. One of the main reasons why many participants in this study have deemed these organizations successful is that they have broken down the 'Asian Pacific' region into subgroups that are more actionable, given their relative geographic proximity to one another. This is helpful not just for the countries that are participating in these groups, but also for the ADB, as it plans projects.

Finally, the ADB's work in providing technical assistance to governments on improving the harmonization of public policies to support integration has also been well appreciated during conversations with major stakeholders. Despite the growing number of policy sharing forums globally, many interviewees appreciated the ADB's role in providing technical assistance on regional integration issues given the ADBs expertise on infrastructure issues as well as its understanding of local context. Although interviewees did not want to provide specific examples of the outcomes of technical assistance provided by the ADB on regulatory issues related to regional integration, they were grateful for the ADB's role, given their ability to provide insights into how other countries were dealing with similar issues and therefore how greater harmonization could happen.

Despite its history and reputation as an "infrastructure bank," the ADB has not been seen as successful on the development of physical infrastructure projects for RCI. This is for two reasons: definitional and practical. From a definitional perspective, the ADB has not developed a clear classification system of what type of project constitutes an RCI project. Instead, the ADB's definition is, "any project that has positive regional spillovers" can be classified as an RCI projects (ADB, 2011). As a result, a large majority of the Bank's infrastructure projects that are classified as RCI projects are national projects in energy and transportation that have a regional element to them. This point

can be seen very clearly in Table 4.2 below, where a large majority of projects and out of total operations in the RCI space, as classified by the ADB, has been single country projects. The ADB has had very little success in contributing to the large regional infrastructure and transportation projects that many staff and observers had hoped the ADB would work on.

The second reason for the ADB's lack of success in cross-border infrastructure projects is practical. The planning and financing of multi-country infrastructure projects is a major challenge for development banks all around the world. That is because often time, the challenges of executing on these projects are beyond the scope of what regional development banks see as their role. Cross-border infrastructure projects requires a high degree of trust and cooperation between countries given the fact that these projects often have uneven benefits for the various countries involved. As a result, only 12% of the ADB's total project lending for RCI has been on cross-border projects (ADB, 2015), a level that is below what many participants in the study would have hoped to see for the Bank's efforts in this space.

Table 4.2: Distribution of RCIS Loan and Grant Projects by Type

Year	Single Country		Multi Country		Total	
	# of projects	Amount ($m)	# of projects	Amount ($m)	# of projects	Amount ($m)
2003	5	859	0	0	5	859
2004	14	1332	2	2.7	16	1335
2005	11	391	5	40.4	16	432
2006	7	205	5	153.5	12	359
2007	10	1210	13	1378.4	23	2589
2008	16	1266	2	20	18	1286
2009	27	1572	5	60.5	32	1633
2010	32	3113	8	282	40	3396
2011	26	2622	1	150	27	2773
2012	25	2406	23	436.2	48	2842
2013	25	2513	6	67.1	31	2581
2014	26	2576	5	141.0	31	2717
2003-2014	**224**	**20070**	**75**	**2731.8**	**299**	22803
%	75%	88%	25%	12%	100%	100%

Source: (ADB, 2015)

The challenges for the ADB to be a financier for large, inter-country infrastructure projects were made clear during a project-level visit to Nepal. In Nepal, the ADB has struggled to play a meaningful role in a potentially transformative set of hydropower projects. According to estimates, Nepal has over 84,000 MW of hydropower potential of which 43,000 MW has been deemed economically feasible (Alam et al., 2017). The

development of hydropower energy would potentially be transformational for Nepal, whose population struggles from a significant shortage of electricity and energy access, as well as the broader South Asia region. Despite significant efforts, the ADB has not been able to make a meaningful contribution to the development of the hydropower energy potential in Nepal, which would, through the generation and transmission of energy, further integration to the South Asia region. The main challenge that is preventing the ADB from playing a larger role in this area is political, not economic. The hydropower potential in Nepal is much larger than the potential use in the country itself, and therefore the costs of development (which are tens of billions of dollars) are only justified if agreement can be made with neighboring countries on the transmission of energy throughout the region. This necessity, however, includes Nepal having to negotiate with India and Pakistan, which have significantly competing interests, national firms and project developers who would be competing for the business of building such a project. Although the ADB has done a fine job in the technical analysis of the hydropower potential, it has not been able to successfully deal with some of the challenges that come with inter-country infrastructure projects. This experience of the ADB is mirrored in discussions with ADB staff and policy makers in other regions, including Kazakhstan for Central Asia and Bangladesh for South Asia.

The ADB, both in headquarters as well as in country missions, has not figured out a solution for this challenge of how the Bank can play a more significant role in cross-border infrastructure projects. For many ADB staff interviewed for this study, the Bank's efforts on RCI should be focused solely on cross-border infrastructure projects in energy and transportation. The Bank's inability to make a major impact in this space is a source of frustration and to many staff interviewed it shows the limitations of the ADB.

VI. CONCLUSIONS

In this chapter, I argue that despite having a regional mandate, a regional development bank faces many challenges when it tries to operate on a region-wide level. Although there are many challenges that a regional development bank faces in doing so, I observe two foundational challenges – the lack of a functional definition of the concepts of regions, regional cooperation and regional integration. I also argue that economic and financial crises have the ability to alter a regional development bank's path on RCI efforts, and specifically lead to a Bank's involvement in policy development ('software') that supports RCI. By exploring these dynamics in the context of the ADB and its efforts in the Asia Pacific region, I come to four broader conclusions around developing banking on a regional scale.

First, development banks must develop a very clear understanding of how and why they define the region of operations the way that they currently do. There are many different approaches to how a region is defined, as articulated in the theoretical framework section at the beginning of the chapter. A development bank and its member states could benefit from deciding their own framework for how and why a broad region or sub-regions are defined and then building programs based off of those definitions. Despite fifty years of existence with a clear and stated mandate on the importance of RCI, the ADB has never gone through an exercise like this, although the sub-regional programs have come close to it. Even the sub-regional platforms of the ADB were not constructed with a broader conceptual framework in mind, but rather a grouping of countries based on geographical proximity. The clear delineation of regional constituencies and approach would help clarify the efforts of a regional development bank.

Second, although development banks are in the business of long-term lending and development, their strategy and approach can be markedly shifted by short-term crises. A development bank should not ignore the opportunities that may arise from their unique role in short term crises. For the ADB, the AFC allowed the Bank to understand and evolve its approach to one critical issue – RCI – which it had not been able to think through for the first thirty-five years of its existence. By becoming involved at the level, which it did during this financial crisis, the Bank's long-term strategy and channels of implementation on RCI issues became more evident to both itself as well as its member countries. This observation has a potential implication for issues related to sustainable development. It can be inferred from the analysis presented in this chapter that the ADB's efforts on sustainable development could be spurred by a regional environmental crisis, much in the way that its efforts on RCI were spurred by the advent of a regional financial crisis.

On the topic of the impacts of crisis on the ADB, I would like to make two further points here, with regards to the impact of the Global Financial Crisis (GFC) and the moral hazard issues that could arise from the ADB's response to financial crises. First, it is important to note here that the 2007/2008 GFC did not have a meaningful impact on the long-term strategy of the ADB in the same way that the AFC did in 1997/1998. The GFC did not catalyze a fundamental rethinking of the ADB's role in economic and financial matters in the region. I suggest that there may three possible explanations for this. First, the GFC was a financial crisis the epicenter of which was in the United States. Although there were significant global reverberations of the GFC, including in Asia, its main geographic center was unarguably not Asia itself. Second, many Asian economies were in much stronger positions to handle a financial crisis in 2007/2008 compared to 1997/1998, due in large part to measures that were undertaken after the AFC. The

increase in foreign-exchange reserves and the bi-lateral currency swap lines discussed in this chapter, both of which were significantly influenced by the ADB's efforts, provided financial stability to the region that did not exist in the last major crisis. Third, Asia benefited significantly from the stimulus measures provided by the government of China during the GFC. China's increased relative role in global economic output during the GFC compared to the AFC was therefore a factor as well (Park, Ramayandi, & Shin, 2013).

Relatedly, the analysis of the impact of crises on the functioning of a development bank inevitably brings up the topics of systemic risk and moral hazard. More specifically, it could be argued that the intervention of the ADB in the AFC was an example of moral hazard and the ADB's intervention increased the chances of future policies that would lead to financial crises. I would disagree with this perspective for two reasons. First, the ADB is a development bank, the mandate of which is to promote economic development within the Asia Pacific region. Financial crises have both short-term and long-term impacts on the economy of a region (Reinhart & Rogoff, 2011, 2014, 2016), and therefore the ADB's involvement can certainly be justified from a development perspective. By intervening and helping to stave off a financial crisis from having even more significant long-term implications, a development bank is fulfilling its mandate. Second, the intervention of a development bank could in fact decrease long-term systemic risk, by building up the institutions and capacities for countries to protect themselves from major external shocks. This is, arguably, what happened with the ADB's further focus on the software of RCI after the AFC. This is a unique insight that comes from the analysis presented in this chapter. By intervening in financial crises, a development bank could be fulfilling its developmental mandate by decreasing long-

term, systemic financial risk in a system, thereby improving the prospects for development to be achieved within the region.

Third, although development banks historically have a track record and history as the builders of physical infrastructure, it can be the case that a development bank is most effective in the building of non-physical infrastructure. Non-physical infrastructure is often considered less valuable for a development bank than physical infrastructure for many reasons. First, a development bank is ultimately a financial institution that has a financial balance sheet and income statement. This means that a development bank must make loans and earn a return. This is difficult to do for non-physical infrastructure. Second, there are significant global infrastructure needs and development banks are often approached for these projects given their history and track records. A development bank should find the appropriate balance between its work on physical and non-physical infrastructure development.

Fourth, the insights derived from the analysis in this chapter could have significant implications on the evolution of the AIIB, the China-led regional development bank that was formed in 2016. There are at least three ways in which the conclusions of this chapter could provide additional insights into how the AIIB evolves. The first conclusion is with regards to the concept of "region." The government of the People's Republic of China formed the AIIB and is the major shareholder of the bank. As a result, there is a strong likelihood that the way in which the AIIB approaches regional development programs will be influenced by how the government of China envisions the region of "Asia" and the role of China within it, much in the same way that the ADB was formed and continues to be led by the Government of Japan and the United States. The Belt and Road Initiative (BRI) provides a basis for how the government of the People's Republic

of China may be thinking about the regional dynamics and China's role within it. Second, the AIIB is significantly focused on physical infrastructure. The AIIB has repeatedly made it clear that, like development assistance from China, the Bank will have less political and policy interference than development programs led by Western institutions. Therefore, it is conceivable that the ADB and AIIB play complementary roles with one another, with the ADB playing a more significant role on regional "software" and AIIB playing a more significant role on regional "hardware." Third, although the AIIB was formed in part as a response to the 2008 financial crisis, the bank – and the region – has not undergone a significant crisis since its formation.

It is conceivable, therefore, that the AIIB will undergo a significant shift in its strategy and evolution with regards to promoting the BRI if China and/or the broader region faces a financial or economic crisis. It is not possible to predict how such a crisis will impact the functioning of the AIIB, but it is reasonable to assume that a major exogenous shock will impact the bank's approach to financial regional projects much in the same the AFC did to the ADB. In conclusion, there are many conclusions from the analysis provided in this chapter of the ADB, which may provide insights into the evolution of the AIIB. These issues could be explored in subsequent research emanating from this chapter and the broader thesis.

Chapter Five: The Uganda Development Bank Limited: Consistency of Public Policy and Capability Traps

I. INTRODUCTION

In this chapter, I examine the effectiveness of the Uganda Development Bank Limited (UDBL) through the lens of the internal capacity of the institution. Specifically, I seek to understand what was the internal capacity of the UDBL to deliver on its mandate and what could explain the level of capability of the bank. I chose to analyze the capability of the UDBL given both the importance of internal capability of financial institutions in general and the recurring importance of this topic during the research process.

An institution is in a capability trap when there are insufficient internal capabilities to successfully execute on the goals and mandate of the organization (Lyneis & Sterman, 2016; Repenning & Sterman, 2002). This can be the case for a variety of financial institutions, including pension funds, banks, insurance companies and development banks. Although there have been a significant number of empirical studies on capability traps on a country-wide level (i.e. Adler, Sage, & Woolcock, 2009; Burkitt & Whyman, 1994), a close analysis of this phenomenon has not been undertaken in the context of a national development bank. This chapter seeks to fill this scholarship gap by empirically exploring the relationship of internal capability and effectiveness, within the context of the UDBL.

The UDBL is the national development finance institution in the Republic of Uganda [Uganda]. The mandate of the UDBL is to, "operate as Uganda's development finance institution, particularly through interventions in priority sectors and in line with the

Government of Uganda's development priorities" (*Uganda Development Bank Strategic Plan 2018-2022*, 2018). The UDBL was created in 1972 to support the industrialization efforts of the country (Oloka-Onyango, 1987). Since its formation, the UDBL has undergone significant changes, with a long period of dormancy due to changing policies from the national government. Since the early 2000s, the UDBL has been in the process of significant reform in order to be aligned to Uganda's evolving national development priorities (UDB, 2013).

In this chapter, I make two arguments. First, I suggest that the historical level of consistency of public policy of an institution's environment can impact the level of internal capability of the institution. Second, I suggest that if a development bank is in a capability trap, it may be unable to undertake its intended mandate. This is an occurrence that may impact the long-term viability of the institution. I demonstrate a possible transmission mechanism of inconsistency of public policy to capability traps and then analyze the implications on a development bank's effectiveness. These arguments are illustrated through a detailed examination of the UDBL.

I begin this chapter by presenting the analytical framework for the inquiry. Next, I briefly analyze the UDBL and its contemporary development context. Third, I investigate the inconsistency of Uganda's development policies and draw specific connections between this phenomenon and the contemporary functioning of the UDBL. Fourth, I analyze the lack of internal capabilities of the UDBL and describe its impact on investment performance, regulatory structure, institutional partnerships and the diffusion of knowledge through the economy. Finally, I end the chapter with a set of conclusions regarding the relationship between institutional capability and development banking.

II. ANALYTICAL FRAMEWORK

The analytical framework is based on two areas of scholarship: consistency of public policy and capability traps. In this section, I describe the analytical foundation of this chapter and make explicit linkages to the inquiry of the UDBL. The analytical framework presented in this section is linked to the broader thesis through the topics of institutions and banking, which comprise of sections three and four of the theoretical space in chapter three. With regards to institutions, the analytical framework presented in this chapter summarizes the relevant literature regarding how the consistency of policy of an institution is linked to the consistency of the public policy within which it operates. With regards to banking, the analytical framework presented in this chapter provides an overview of the relevant literature and insights of institutional resources and capabilities that a bank, as a financial institution, may require in order to carry out its mandate.

a. Policy Consistency

The consistency of public policy refers to the general harmony, agreement or coherence of a public policy framework (Grether, 1963). Public policy consistency can be analyzed in one of three ways: the consistency of various government policies – for example, fiscal, monetary, social, developmental – at one period of time, the consistency of public policy versus public opinion, or the consistency of one particular set of public policies over an extended period of time (Cairney, 2013; Howlett & Ramesh, 2009; Monroe, 1979). The perspective used for the analysis of the UDBL in this chapter is under the umbrella of the third category, which is often described as time consistency or dynamic consistency of public policy.

The concept of time consistency of public policy has its foundation in the theory around rational expectations and optimal policy design of economic policy (Calvo, 1978; Chari & Kehoe, 1999; Kydland & Prescott, 1977; Lucas, 1976). This field of study focuses on the implications of changing preferences of economic agents over time. A core concept within this framework is that actors in an economy base their decisions on their expectations of the policy environment in the future (Kydland, 2015). If individuals or businesses are uncertain about government policy, it will impact major capital and entrepreneurial decisions, due to increased variability in outcomes (Carruth, Dickerson, & Henley, 2000).

One significant implication has been the perceived benefits of protecting public policy making from short-term political pressures and variations in approach and ideology (Persson, Persson, & Svensson, 1987). This notion of a 'commitment mechanism' has had significant resonance in monetary policy, whereby central banks operate, to varying degrees, independently of political administrations (Schaumburg & Tambalotti, 2007). The concept of credibility of public policy is central to this theory. It has led to certain scholars to argue that more rigid policy rules in certain domains may be needed to ensure optimal long-term welfare of citizens (Kydland & Prescott, 1977).

Although the theory around time consistency of public policy is well understood, there are challenges and shortcomings in its empirical study to date. First, economies and political systems often go through abrupt changes. Examples of such changes include financial shocks, political transitions, military and social conflict. When such changes occur, public policies of all kinds may also need to change significantly to take into account the new circumstances. In these circumstances, consistent public policy may not be the optimal goal, and finding the optimal balance between flexibility and consistency

is a challenge (Cowen, Glazer, & Zajc, 2000; Goldfeld, 1982; Sauer, 2010; J. Taylor, 1993). Second, most of the focus around optimal policy design has been on monetary and fiscal policy, with a focus on how expectations on variables such as marginal tax rates and interest rates would impact investment behavior. There has not been a focus on the interaction between policy consistency and institutional and organizational structure of an economy.

b. Capability Traps

A capability trap can be defined as a "persistent stagnation of administrative capability" (Woolcock et al., 2010). Capability traps can exist at various scales, ranging from the national level to the institutional level. At the national level, the study of capability traps focuses on how to improve, broadly, the capacity of governments and their bureaucracies to implement and administer public policy (Pritchett & de Weijer, 2011). This field of research seeks to understand why it is the case that despite significant efforts in capacity building from various actors, development programs are not successfully implemented in many developing countries (Ghani & Lockhart, 2009). At the organization/institutional level, the study of capability traps focuses on how and why organizations are unable to deliver results despite the existence of ample strategies and resources to achieve organizational goals (Banerjee, Chattopadhyay, Duflo, Keniston, & Singh, 2012).

Capability traps are generally an understudied aspect of economic development (Andrews, Pritchett, & Woolcock, 2017). There has been significant focus on "poverty traps" over the past few decades (Kraay & Mckenzie, 2014). This line of inquiry focuses mostly on why some countries are stuck in low levels of productivity and others are not.

There are many purported reasons for the existence of poverty traps, ranging from governance to geography to lack of financial access (J. Diamond, 2004; Easterly, 2006b; McKinnon, 1973b; Sachs, 2005). The study of capability traps is related, but distinct. This field of study focuses on the capability of governments to impact the course of events through the successful implementation of policies and programs within its borders. The study of capability traps is based on the notion that the implementation of economic development initiatives requires administrative know-how at the functional level within a country's economy and institutions.

There are many postulated reasons for the existence of capability traps at the national and organizational levels. At the national level, two reasons for capability traps are isomorphic mimicry and premature load bearing (Andrews et al., 2017). Isomorphic mimicry is the confusion of form and function. It refers to the tendency of public organizations to 'look like' successful organizations in other parts of the world, even though the organization may not be functioning like a successful organization (Dimaggio & Powell, 1983; Pritchett & Sandefur, 2014). This concept is highlighted by examples of countries passing high-profile progressive laws in the labor or education domains, but no discernible change on the ground (Watkins & Swidler, 2013). Another reason for the existence of capability traps at the national level is the concept of premature load bearing, whereby countries are expected to take on very broad development objectives with very limited resources. This often occurs with poor and fragile states that often are forced to confront unrealistic expectations from external institutions (Thomas, 2015).

At the organizational level, two potential reasons for the existence of capability traps are the lack of human capital and the lack of credibility from outside stakeholders. Human capital refers to the abilities of individuals that make them productive (G. Becker, 1975).

At the organizational level, this can be understood as skills and knowledge that allow staff to successfully execute on their professional roles (Clark, Caerlewy-Smith, & Marshall, 2006, 2007, Clark & Monk, 2013, 2017). There remains a debate regarding whether resources and capabilities are distinct topics, with capabilities focusing more on execution skills of an institution and resources focusing more on additional information and knowledge not available within the organization itself (Clark & Monk, 2017). If an organization lacks a sufficient number of skilled workers, it is challenging for the organization to be successful. This is true for many types of organizations and financial institutions, and has been documented in various empirical studies (Saba, Kouser, & Azeem, 2012; Waweru & Kalani, 2009). Capability traps can also be caused by the lack of credibility of an organization with its outside stakeholders. Because organizations operate in an ecology of institutions (Lo, 2004), they require credibility for other organizations to partner and cooperate with them. If an organization does not have credibility to perform its intended task, other organizations may not be willing to work together. Credibility is an essential aspect to economic development (Borner, Brunetti, & Weder, 1995).

c. Conceptual Linkage between Policy Consistency, Capability Traps and Sustainable Development

In this chapter, I attempt to link the two concepts of policy consistency and capability traps. I suggest that the Republic of Uganda has had a significantly inconsistent development policy framework since the country received independence in 1961. This inconsistency has been marked by major swings from state-driven development to market-driven development, despite the common thread of the pursuit of industrialization. I suggest that the UDBL has suffered from this broad policy inconsistency through two channels: the lack of evolution of human capital inside the

institution and the lack of credibility amongst many possible partners throughout the government and broader economy. The lack of credibility and lack of human capacity within the UDBL had caused the institution to find itself in a capability trap, where it is unable to deliver on its stated mandate. In this regard, the UDBL suffered from both a lack of internal resources and capabilities.

There are two important conceptual linkages between the topic of this chapter – policy consistency and capability traps– and the role of development banks in promoting sustainable development. First, national efforts around sustainable development could lead to significant shifts in public policy on topics related to specific sectors (i.e. energy, agriculture and/or infrastructure) and specific national systems (i.e. fiscal policy or monetary policy). For example, a country could decide to end future exploration of fossil fuels, despite significant reliance on revenues from fossil fuels for the national budget. These shifts in policy could have many second and third level impacts at the institutional level – for example, on the capabilities of development banks – that should be understood by policymakers while considering the costs and benefits of certain decisions. Second, in order for a development bank to pursue projects related to sustainable development, it may require a bank to have an expanded set of capabilities within the bank. It is therefore important, I argue, to understand the level of internal resources and capabilities within a development bank and how the institution can potentially both understand its level of capabilities and also overcome any potential shortfalls.

III. PLACE AND STRUCTURE OF UDBL

a. UDBL: Contextual Place

The UDBL operates in the context of significant challenges of sustainable development in Uganda. The table below highlights Uganda's development rankings as of 2017 on key development indicators. In addition to the low level of development summarized in Table 5.1 below, there are three particular challenges facing the Government of Uganda's management of the economy: a slowdown in economic growth, large investment needs, and the challenges associated with the discovery of potentially significant amount of natural resource wealth.

Table 5.1: Uganda's Development Indicators in Global Context

SDG Global Rank	129/157
GDP Per Capita	136/153
Environmental Performance Index	121/157
Human Development Index	135/157
Global Peace Index	94/149

Source: (SDSN, 2018; "World Bank Database," 2017)

Uganda has recently experienced a slowdown in economic growth after two decades of significant growth. From 1992-2010, Uganda averaged 8% GDP growth per annum. During this period, the percentage of the population living in poverty decreased from 73% to 32% according to World Bank's poverty definitions. Since 2010, however, the Ugandan economy has slowed down significantly. The GDP growth rate has averaged

4%, and as of 2017, is less than 2% (World Bank Database, 2017). Although there has been a major reduction in poverty, over 40% of the population remains vulnerable to re-enter poverty as formally defined. The economic slowdown, coupled with increased drought in the Horn of Africa, has worried many policymakers that there could be a significant reversal of the past two decades of development gains in the economy (Interview, 2017b).

In addition, Uganda has a large, and growing in some sectors, level of investment needs across the economy. The Government of Uganda has attempted to calculate the investment needs for some of these key sectors in the National Development Plan II, with total financing needs of over $50 billion over the next five years (*Second National Development Plan (NDP II)*, n.d.). This is highlighted in Table 5.2 below. This is the case in core, productive sectors of the economy, including energy and power, transportation, agriculture, as well as social sectors including health and education.

Table 5.2: NDP II Costing Estimates

	2016	2017	2018	2019	2020	Total
Uganda Shilling (Billions)	37,773	38,966	42,966	39,428	37,522	196,655
USD (Billions)	11	11	12	11	11	56

Source: (*Second National Development Plan (NDP II)*, n.d.)

The third major challenge is the potential of the creation of a significant oil and sector based on recent exploration. In Western Uganda, it is estimated that there is over 6.5 billion barrels of oil reserves, with approximately 20% of those reserves being economically recoverable. The Government has granted licenses to three companies: Total of France, China National Offshore Oil Corporation (CNOOC) from China, and Tullow from the United Kingdom to develop these reserves for export(Patey, 2015). The discovery, initially made in 2006, has the potential of significantly changing the structure of the Ugandan economy (Aglionby, 2017). In the short term, this means a significant upfront investment in related infrastructure for the oil and gas sector. The Ugandan political, economic and financial communities are however concerned that the country may not take full advantage of the potential economic opportunities. Many are concerned that Uganda will begin to suffer from issues related to the resource trap as has been the case for other resource-rich countries in Africa (IMF, 2017).

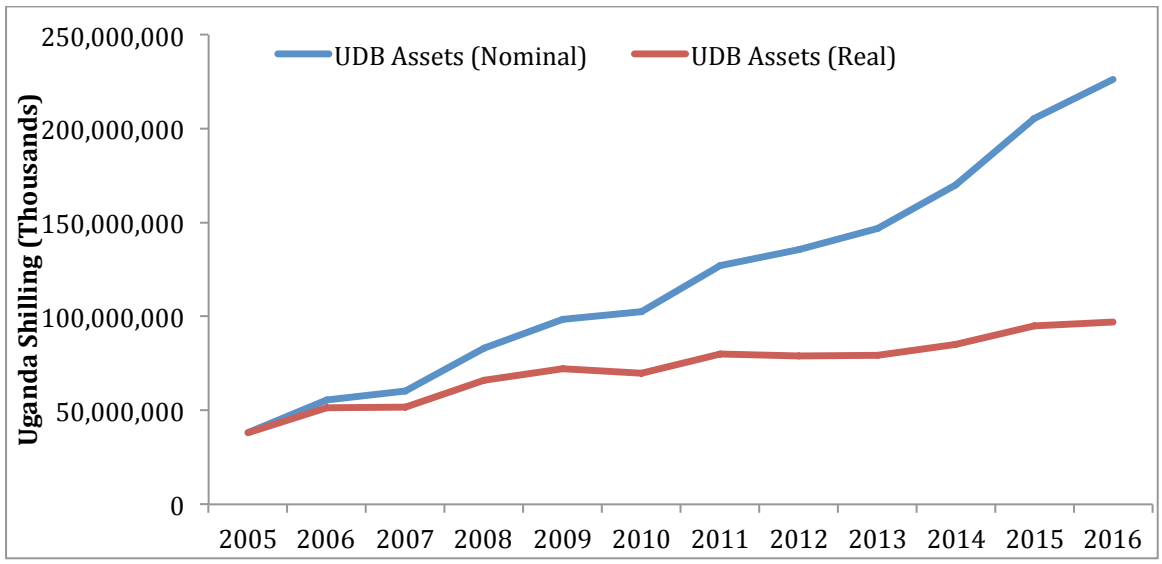
b. UDBL: Structure of Channel

The UDBL is a government-owned, public enterprise that was created in 1972 with the primary objectives to, "facilitate and promote the expansion of the volume of credit; to formulate a suitable approach to development financing and to induce a project-technical appraisal and supervisory capability adequate to development needs" (Oloka-Onyango, 1987). The Bank is fully owned by one shareholder, which is the Government of Uganda, and specifically the Ministry of Finance, Planning and Economic Development and the Minister of State for Privatization. The Bank is governed by a Board of Directors, which is appointed by the Minister of Finance, Planning and Economic Development(UDB, 2018b). The Board has a total of six members who operate on a

four-year rotational basis. The Board of Directors appoints the Chief Executive Officer (CEO), who then manages the staff and implements the strategy agreed to by the Board (UDB, 2018a).

The UDBL has a modest lending size compared to the broader banking sector of Uganda. The evolution of the size of the balance sheet of the UDBL can be seen in Figure 5.1 below, which shows the size of the Bank in Nominal Ugandan Shillings and Real (inflation-adjusted) Ugandan Shillings. As of the end of 2017, the balance sheet of the UDBL was 226 Billion Uganda Shillings. At this size of lending, the UDBL was a modest player in aggregate sums compared to the broader Ugandan banking sector. As of December 2016, the total banking sector of Uganda was 22.6 trillion Ugandan Shilling, making the UDB less than 1% of total lending and the 19th largest bank by overall size (Uganda, 2017). This is outlined in Table 5.3 below, which highlights the total size of the banking sector in Uganda and the proportion of that sector that is comprised by the UDBL.

Figure 5.1: Historical Evolution of Assets of UDB



Source: (UDB, 2017)

Table 5.3: Size of Uganda Banking Sector

	2013	2014	2015	2016
Assets of Uganda Banking Sector (Billions, Uganda Shilling)	15,700	18,700	21,600	22,800
Assets of UDB (Billions)	146	170	205	226
UDB as a % of Total Banking Sector	0.93%	0.91%	0.95%	0.99%

Source: (Association, 2017; UDB, 2017)

Despite the relatively small lending size of the UDBL compared to other banks, the UDBL operates in a different part of the credit market than the commercial banks (Interview, 2017a). This is true in three distinct ways: tenor of loans, interest rate of loans and sectors of the economy. In terms of tenors of the loans, over 70% of UDBL lending is of the duration of over five years, whereas a majority of commercial banking lending is 2-4 year in duration (UDB, 2017). In addition, the UDBL lends capital at lower interest rates than commercial banks. The average rate of lending for the UDBL was 13% p.a., versus 18-20% for the commercial banking sector (Association, 2017). Finally, the UDB operates in sectors of the economy where commercial lenders generally do not. This

includes the agricultural sector, real estate and infrastructure. Table 5.4 below highlights the evolution of the sector exposure of the UDBL's lending portfolio.

Table 5.4: Sectoral Breakdown of Percentage of UDB Lending Portfolio

	2013	2014	2015	2016	2017
Primary Sector	33	6	9	9	11
Secondary Sector	23.5	52	34	40	45
Tertiary Sector	33.5	36	50	45	40
Trade	10	6	7	6	5

Note: Primary Sector includes Forestry, Mining and Extractives and Primary Agriculture; Second Sector includes Agro-processing and Manufacturing; Tertiary sector includes Construction, Real Estate, Infrastructure, Education, Financial Services, Health, Hotels and Hospitality; Trade Services includes Trade and Commerce

Source: UDBL

The UDBL is funded through three main channels: equity injections from the Government, retained earnings and external lines of credit. Since 2005, the Government of Uganda has injected 96 billion Uganda Shilling into the Bank. This is the main source of financing for the Bank. There have been on-going discussions since 2015 of the Government of Uganda "capitalizing" the UDB (Muhumuza, 2015) . By this, it is meant that the Government provides a one-time major injection of equity as opposed to annual small injections of equity. In addition, another source of capital for the Bank's operations is the retained earnings of the Bank. The UDBL does not pay dividends back to its shareholder. As a result, its equity size grows as profits are made. The third source of

funding for the UDBL is external lines of credit. The Bank serves as an intermediary of financing from a few external development finance institutions, including the Arab Bank for Economic Development in Africa (BADEA) and the Islamic Development Bank (IDB) (UDB, 2017).

IV. INCONSISTENT DEVELOPMENT POLICY

In this section, I analyze the inconsistent development policy of the Republic of Uganda since independence. I categorize Uganda's development policy in four distinct periods: state-driven development, economic nationalism, market-driven reform and mixed economy approach. I conclude this section with a discussion of how the abrupt changes in development policy impacted the credibility of the UDBL, which has contributed, I suggest, to the institution currently being in a capability trap. The swings in public policy had an especially significant impact on the functioning of the UDBL given the form and function of the institution: a state-owned financial institution with a mandate to finance industrialization.

a. The Four Periods of Uganda's Development Policy

State-driven development policy guided Uganda during the final stages of the colonial period and the early stages of independence, from approximately 1962-1971. During this period, there was a pervasive belief in the role of the state in driving economic development and particularly industrialization (Obwona, Shinyekwa, Kiiza, & Hisali, 2014). This was the case not only in Africa, but also throughout Asia, where governments were adopting import-substitution policies to protect and support nascent

industries during a period of industrialization and manufacturing growth (Reppas & Christopoulos, 2005).

The emphasis of the state in Uganda's development policy is best evidenced by two components: the prevalence of government-driven national development plans and the formation of state institutions to implement these plans through directed credit and investment processes. The Worthington Plan, colonial Uganda's first development plan from 1947-1956, focused on increasing public investments in public infrastructure projects and agricultural extension work (Worthington, 1949). State-driven investments were laid out for other industries as well, including hydro-electricity power, mineral exploration and railway. The First Five Year Development Plan for Uganda, post-independence, focused on the need for agricultural development as a prerequisite for industrial development. The Second Industrial Plan had a much more explicit focus on industrialization, and laid out targets for sectoral contribution to GDP for the following fifteen years. During this period, Uganda also developed state institutions tasked with directing resources, investments and capacity towards development efforts. The Central Planning Authority, the contemporary version of which is called the National Planning Authority, was established in the Second Five Year Plan. The Uganda Development Corporation (UDC), a state-financed investment company, was created in 1952 to attract foreign investors through the provision of state guarantees for risk capital (Obwona et al., n.d.).

The state-driven development approach during the 1960's was leading to significant economic gains in Uganda, but this period came to an abrupt end with a military coup in 1971 and the rise of General Idi Amin. The economic policies of Idi Amin can be characterized as those of economic nationalism, and led to a significant reversal in

economic gains from the prior period. During his rule from 1971-1979, Uganda nationalized hundreds of foreign businesses and expelled over 100,000 Asians from the country, many of whom ran major industrial businesses (Central Intelligence Agency, 1972). Although a full analysis of the impact of Amin's policies is beyond the scope of this chapter, it is important to note the economic impacts of this period. A study from the European Economic Community concluded that from 1971-1979, the monetary economy shrank by 6% and the nonmonetary economy shrank by 27%. The production of three major export crops – coffee, cotton and sugar – fell by 51% during this period, and inflation was well over 200% during much of the 1970s (Honey & Ottaway, 1979).

It was during this period of economic nationalism that the UDBL was formed. The UDBL was formed in 1972 under the auspices of the Third Five Year Development Plan. At inception, the UDBL was tasked with, "…the promotion and provision of short, medium and long-term development finance and to render managerial, technical and administrative advice and services to projects in the agricultural, commercial and industrial sectors of the economy" (Okecho, 1992). This mandate is in line with the function of many other development banks. According to economic historians of the region, however, there was a deeper reason why Amin created the Bank. The expulsion of a large, educated class of business people, the Asian population, led to a significant dearth in human capital running many thousands of businesses in the country. The population that had taken over the businesses of the expelled Asian population was largely unable to receive financing from traditional commercial banks operating in the country. As a result, in the founder Charter, a Credit Guarantee Fund was established to assist the "marginal borrower" and this fund was the most drawn upon during the period of Amin's rule (Oloka-Onyango, 1987). This Credit Guarantee Fund was the precursor to the UDBL.

After the rule of General Amin, Uganda underwent a third period of development policy, characterized by broad-scale privatization efforts and public-sector reform. During the period of Amin's rule, the size of the government, as a percentage of GDP, grew by 68% (Honey & Ottaway, 1979). During this period, corruption and rent seeking by Amin and the government was widespread. As a reaction to the growth of the state in economic affairs, beginning in the colonial period and accelerated during Amin's rule, Uganda's changed direction and embraced broad privatization. Uganda's privatization efforts were guided by three critical government documents, *The Way Forward I: Macro-economic Strategy 1990-1995, The Way Froward II: Medium Term Sectoral Strategy 1991-1995, and The Uganda Industrialization Policy and Framework 1994-1999* (*The Way Forward I: Macroeconomic Strategy 1990-1995*, 1992; *Uganda: Industrialisation Policy and Framework, 1994-1999*, 1994). Underpinning all three of these documents was a belief in liberalization and the state and state institutions playing a smaller role in the economy than in the past.

In 1987, Uganda launched its Economic Recovery Programme (ERP) under the new leadership of President Museveni. A significant aspect of the ERP was the privatization of a large number of public enterprises, many of which were either dormant or severely loss making (Okecho, 1992). In 1991, the Government of Uganda released its Public Enterprise Reform and Divestiture Act, which set out the country's privatization strategy of its over 150 public enterprises. This set off a concerted effort by the government to either fully or partially divest from many institutions that had been created to support the state-driven development model (Bigsten & Kayizz-Mugerwa, 1999). The national government fully divested from the UDBL, which sent the institution into a period of dormancy. Other public institutions that were privatized included the Uganda

Development Corporation (UDC), Uganda Electricity Board and Uganda Railways (*Public Enterprises Reform and Divestiture Act 1993*, 1993).

The period of dormancy of the UDBL lasted from 1987 – 2001, during which time the UDBL was not in operations at all. Based on the scant historical record keeping of the UDBL and government agencies that were involved with the privatization strategy, it is not clear what happened to the Bank during this period, how its assets were dealt with and what specifically led to its rebirth. What is known, however, is that the UDBL began its restructuring process in 1997 and was officially reconstituted in 2001, after a fourteen year period of dormancy (Muhumuza, 2015).

Following this period of deep privatization and public sector reform, Uganda entered a fourth period of approach towards development policy. This period can be characterized as a mixed-economy approach, where the institutions of development planning and state-capitalism are being reconfigured to buttress market-based principles. Although it is not clear what was the impetus for this re-orientation, it has been significant and evidenced in a few ways. The clearest evidence of this is the government's re-engagement with the process of creating national development plans, which began in 2006. The process of national development planning ended during the 1980s during the period of privatization. The National Planning Authority was constituted in 2002 to spearhead governmental efforts on economic planning. In addition, another clear point of evidence for a mixed-economy approach is the government efforts to revive two institutions that are emblematic of state-driven economic development: the UDC and the UDBL. Both the UDC and the UDBL have been explicitly linked to the current National Development Plan.

b. Credibility Implications of Inconsistent Development Policies on the UDBL

Uganda's inconsistent approach towards economic development policy has had significant and long-lasting implications on the UDBL. The main transmission mechanism of the inconsistent approach of development policy to the bank's internal capabilities is the lack of credibility of the UDBL from its broad set of stakeholders. Although most of the Bank's stakeholders agreed on the importance of low-cost and long-term financing for key priority sectors of the economy, many also believed that the UDBL might not be the right organization to execute on this goal. In other words, many agreed on the function of the role of the UDBL, but not on the form of the organization.

The UDBL does not have a consistent track record of performance as an institution. This is a significant challenge to the Bank as it has prevented the institution from proving its success and value addition. The UDBL has been in existence for over forty-five years at the time this research was conducted. Despite this long history, according to many observers, the UDBL does not have a major accomplishment to its name. There is no single major infrastructure project, development priority or policy initiative in the course of recent history of Uganda for which the UDBL can claim credit. Many participants in this study were sympathetic to the UDBL's lack of track record. They did not blame the Bank itself or its staff members, but rather believed that the external environment within which the Bank was operating had not allowed the Bank to develop as an institution. Specifically, the fact that General Idi Amin, a leader who remains highly controversial within and outside Uganda, created the UDBL meant that the Bank would never have a strong footing to develop as a financial institution.

The lack of a track record for the UDBL exists in a backdrop where other organizations and intermediaries have been able to succeed in financing, implementing and administering development projects in the country. The juxtaposition of the UDBL's perceived stagnation with the major increase in Foreign Direct Investment, especially from the People's Republic of China, has made many people question whether the UDBL is needed to finance long-term projects or whether this function should be put in the hands of foreign investors.

The volatility in economy policy has also prevented the UDBL from developing credibility as a public financial institution versus the potential of a private sector driven model for development institutions. Many of the major stakeholders of the Bank question whether the Government should be in the business of banking. They cited, repeatedly, Uganda's own history of public sector reform and President Museveni's reluctance to embrace public development finance institutions when he became President in 1986 and began the pro-market Economic Recovery Programme. The Government has promised, but failed to deliver, on major capitalization initiatives for the UDBL from 2014-2016. There is a belief that this stems from a lack of belief in a public sector institution like the UDBL. This perspective is broadly felt across various stakeholders of the Bank, including Ministries, development partners and other financial institutions. The lack of belief in the need of a government-owned development bank is buttressed by a growing concern that President Museveni will continue to serve as the President of Uganda after the next election in 2019.

It is important to note that despite significant credibility issues as discussed above, there was consensus throughout all interviews and market-research undertaken by the UDBL of the need of the function of the UDBL – that is, the provision of low-cost and long-

term financing to priority sectors of the economy (*Market Survey: A Market Report Identifying Market Gaps to Guide UDB's Strategy Plan*, 2017) . All participants in the study believed that there are major investment needs across the economy and that those needs will not be met in the short term from the traditional sources of public and private development finance, namely direct government expenditure, foreign direct investment and private sector investment.

V. CAPABILITY TRAP

This section provides a detailed analysis of the capabilities of the UDBL. The main argument of this section is that the UDBL suffers from a capability trap that is preventing the institution from playing the role it has been mandated to by the government. In this section, I first analyze where the UDBL fits into the broader context of the national planning process of Uganda, highlighting its significant and singular role as laid out by the Government. Next I describe the state of capabilities of the UDBL and I conclude the section with an analysis of the implication of the poor level of capabilities of the UDBL.

a. UDBL in the Context of National Planning

The UDBL is expected to play a significant role in the national development implementation of Uganda. This is evidenced by the explicit references of the role of the UDBL in the National Development Plan II (NDP II) of Uganda. This section analyzes the linkages between the national development planning process and the UDBL.

The National Planning Authority (NPA) formulates the economic policy of Uganda. The NPA was established in 1995 under the National Planning Authority Act of the 1995 Constitution of Uganda. The NPA was established with the following four objectives:

1) Build the national capacity for visionary and long-term planning;
2) Having in place an institution that will be responsible for integration economic, social and political dimensions of development with spatial and environmental aspects
3) Creating the policy and institutional arrangements that will facilitate systematic integration of district plans into national development plans
4) Establishing a central forum for participatory development planning through sharing of ideas by different stakeholders and agreeing on courses of action

The Authority operates under the governance of five full-time members, who oversee an Executive Director and staff. There are fifteen official bodies, whose Directors automatically become members of the Planning Authority. These bodies include the Ministry of Finance, Planning and Economic Development; the Uganda Chamber of Commerce; the Economic Policy Research Centre and other industrial and academic associations ("National Planning Authority," n.d.).

The NPA has created a Comprehensive National Development Planning Framework (CNDPF), which guides the development planning process of the country. Within this framework, there are three time frames of economic planning: Long Term, Medium Term and Short Term. The Long Term Planning entails the creation of a vision document, the current version of which is Uganda Vision 2040. The Medium Term Planning entails five year National Develop Plans, which have accompanying sectoral plans and strategies. Since the formation of the Uganda Vision 2040, there have been two Five Year Development Plans: National Development Plan I (NDP I) and National

Development Plan 2 (NDP II). The Short Term plans are Annual Plans Budgets, which feed into the national budget planning process undertaken by the Ministry of Finance, Planning and Economic Development.

The NDP II is the guiding development plan for the country between 2015 and 2019. It is important to note a few specific highlights about both the form and substance of this document. Regarding form, the document is 344 pages long and has within it a total of 800 recommendations for action (*Second National Development Plan (NDP II)*, n.d.). In addition, the Plan highlights five priority sectors of investment: agriculture, tourism, minerals, oil and gas, infrastructure and human capital development. Finally, the NPA undertook a detailed costing exercise for the priority sectors, indicating estimates of public and private investment needs for each sector to achieve broader development goals for 2019.

The NPA, and the NDP II specifically, are important institutions with regards to the UDBL because of the explicit linkages between the organizations. This is true in a few important ways. First, the UDBL's explicit mandate is "financing national development priorities" (UDB, 2018b). The priority sectors of the UDBL are the same priority sectors of the NDP II. Second, the NDP II makes explicit reference to the UDBL eight times. The key references are the following:

a) Objectives and Interventions: Recapitalize the Uganda Development Bank Limited

b) Create specialized funds at low interest rates targeting NDP 2 prioritized areas and channeled through Uganda Development Bank Limited (UDBL) and Uganda Development Corporation (UDC).

c) Strengthen the Uganda Development Corporation (UDC): To scale up the pace of industrialization given the weak and poorly capitalized private sector, UDC

> will be strengthened with the view to empower it to take responsibility for fast-tracking the country's industrialization. To this end, the Uganda Development Bank (UDB) will be further capitalized to support the UDC-led industrialization process. The initial focus of UDC and UDB will be on establishing small and medium size industries, particularly agro-based and other manufacturing industries.

The UDBL is explicitly linked to the NDP II of Uganda and the broader development planning process of the country. Given the scope and breadth of the development challenges, process and planned described above, we now have the backdrop to critically analyze the level of internal capabilities of the Bank to deliver on both its mandate as well as its role within the NDP II.

b. State of Capabilities of UDBL

The UDBL has a significant mandate to be a major provider of development finance capital for the Government of Uganda. The UDBL is also explicitly cited on multiple occasions in the current NDP II to serve as an important institution for the achievement of the national development plans. This section focuses on the state of capabilities of the Bank. This section suggests that the institution is in a capability trap which will likely mean that the Bank will not be able to play its intended role in the economy. Although the fundamental cause of the capability trap is the lack of policy consistency, as described in section III of this chapter, the implications of the trap are felt in a few specific ways: poor investment performance, lack of regulatory structure, unclear partnership structures and inability to spread knowledge throughout the economy.

One critical aspect of the lack of capability within the UDBL was the size of the staff. As of January 2018, the total size of the Bank staff was 53. This included all staff, from the Chief Executive Officer to administrative staff. Although the size of staff is not a direct

measure of the internal capabilities of a Bank, a small staff can undertake only a limited amount of work. This is particularly the case in development finance, when there is a significant amount of time-intensive analysis that is needed and technological solutions are not readily available. There were only six staff members responsible for originating, evaluating and recommending lending opportunities for the entire Bank. Given the size and depth of the development needs in priority areas of the NDP II, having only six loan officers was a major limiting factor for the Bank. In addition, the Risk function of the Bank only had three fully dedicated staff officers. Given the challenges of non performing loans of the UDBL, as described later in the chapter, this size of staffing was likely not adequate to properly evaluate the various risk dimensions of the Bank. Through close dialogue with various Bank staff, it became very clear that one of the most significant capability constraints of the Bank is the size of staff.

The second main aspect of the capability of the UDB was the skillset and experience of the staff. The UDBL is a development bank, and not a commercial bank, yet the staff of the UDBL was mostly trained as commercial bankers and not development bankers. There are certainly benefits to this experience, as the individuals – particularly in the lending department – have strong technical capacity in financial analysis and credit rating. At the same, however, the staff had very limited knowledge on the *development* aspect of their work. In discussions with the staff of the UDBL, one of the most recurring challenges expressed was their inability to decipher which development projects were most needed for the UDB to be involved in. The staff was not trained in evaluating projects for their economic and social return, but only for their financial return on investment. The ability to look at projects for their economic and social return is a critical aspect of development finance and will be discussed later in this chapter. The UDBL also did not have staff with skills or experience in other critical areas of

development banking and finance writ-large. This includes bank regulation, loan syndication, institutional partnership development and other critical areas for the UDBL to expand beyond its current scope.

The third main aspect of the capability of the UDBL pertains to data management and historical record keeping. Given the historical volatility of the UDBL and long period of dormancy, there is a very poor level of historical data available inside the Bank. For example, there is no record of Annual Reports, either in soft copy or hard copy, before 2010, although it is the case these reports were written and printed. Most data are kept in physical format with very little organization and categorization. Although this may not be, in and of itself, a problem, there are many implications for poor historical record keeping, one of which is the lack of ability of staff and the broader government to learn from the experiences of the past. In addition, the data management of the current operations of the Bank is effectively non-existent. There exists no centralized method of understanding and engaging with different data across the Bank. Given the importance of both quantitative and qualitative data in development financing, the lack of a centralized approach towards it is a significant shortcoming for the institution.

The lack of capacity within the UDBL has been a well-known challenge for the Bank since at least 2013. In the 2013-2017 Strategic Plan, the following is noted (UDB, 2013):

> "The Bank, for a while now has been characterized by weak systems of internal control, inadequate governance structures, non-existent or inadequate business processes, and non-responsive Informational Technology and Management Information Systems. The Bank, for some time now has not attracted the best skilled personnel to drive growth and performance. Although significant investments were made in training of staff to close the skills gas, the training was not targeted at specific gaps required for increased market competitiveness. The bank has not transformed into a learning organization where innovative initiatives, benchmarking and other actions are geared to improve the quality of the workforce."

In the 2018-2022 Strategic Plan, it is also noted that the Bank still has: "limited research capabilities," "inadequate development outcome reporting framework," and "inadequate IT leverage" (UDB, 2018b). The senior leadership of the UDBL is very much aware that the lack of capabilities of the Bank is a major challenge that prevents the Bank from progressing. The lack of progress in this regard does not come from a lack of awareness of the issue.

c. Implications of Poor Capabilities on the Effectiveness of the UDBL

In this section, I analyze the implications of the low level of capabilities of the UDBL I focus on four critical areas, which I argue constitute the main pillars of the capability trap of the UDBL: poor lending performance, lack of regulatory and oversight structure, increased competition from other development finance institutions (both national and regional) and lack of contribution to broader learning on development and industrialization within the country.

i. Investment and Development Performance

The UDBL has struggled from poor lending performance throughout the organization's history. One indicator of a bank's lending performance is its Non Performing Loans (NPLs), which indicates what proportion of the total lending book is over 60 days past payment due date. The high level of NPLs has caused significant challenges for the bank's progress. The high level of NPLs has caused significant distrust from domestic and foreign partners and stakeholders of the bank, and increases the concern that the

Bank is not being properly run. Table 5.5 below indicates the historical NPLs of the UDBL.

Table 5.5: Non-Performing Loans of UDBL

	2014	2015	2016	2017
NPLs as % of Total Book	30.5%	27.6%	19.1%	17.2%

Source: (UDB, 2017)

There are a few particularly striking aspects of the high NPLs of the UDBL. First, the organization does not have a detailed analysis of the attribution of the NPLs by sector, instrument and project. When I asked various staff members for this information, it became evident that the Bank simply does not have the infrastructure of data management to be able to recall this information. The lack of thorough data analysis around this key challenge is striking, and it indicates that the Bank is likely not undertaking the measures that are needed to improve performance on its NPLs. Second, one of the strategies that the UDBL has been using to decrease its NPL ratio is by increasing its total lending, which in the short term can mask the NPL ratio due to increased assets. The recent decrease in NPLs therefore may not indicate an improvement in loan performance. Finally, the high level of NPLs is preventing an increase in the capitalization of the Bank from both internal and external stakeholders.

In addition to high levels of NPLs, the UDBL does not have a method to measure its development impact and performance. This is a significant challenge, given the overwhelming development finance needs of Uganda and the relatively low level of resources of the UDBL. Project appraisal is undertaken only through the perspective of

financial returns, and not potential or intended development returns. The UDBL, in short, does not calculate a social or economic rate of return of its projects as a way to gauge which projects may have a more significant impact on the development of the country.

ii. Regulatory and Oversight Structure

There is no universal model for the regulation and supervision of development banks (de Castro, 2018). Most national development banks, globally, are regulated by their Central Banks, although in some countries, a separate regulatory framework for development banks is created given the unique features of development finance.

The UDBL is not regulated or supervised by the Bank of Uganda (BoU). Instead, it is regulated by the Public Enterprise Reform and Divestment Act and has been reporting to the Privatization and Public Enterprises Supervisory Agency (PPESA). The PPESA has not been closely monitoring the performance of the UDBL. This is largely because as an agency it has significantly declined in size and scope since the major privatization process beginning in 1993 came to a conclusion. In addition, although the PPESA can play a role in approving policies of the UDBL, it does not have the expertise in banking supervision or development finance in order to play a decisive role as a regulator.

The BoU had been asking for the UDBL to propose a regulatory framework since 2013 in order for the BoU to become the regulator of the Bank. Various parties – including the Ministry of Finance and possible international lenders to the UDBL – who have made funding contingent on an improved regulatory structure of the Bank, have supported this request. The UDBL has not been able to deliver on this request. Through discussions with various stakeholders, including both the UDBL and the Bank of

Uganda, it became clear that there were two main reasons for this shortcoming. The first reason is that the lack of capacity with the UDBL to propose a regulatory framework. The UDBL does not have the expertise in the legal domain to put together a coherent framework for the BoU to consider as a starting point in the discussions. This has been a source of significant frustration for the BoU, which has been worried about the persistently high level of NPLs of the UDBL. The BoU was eager for the UDBL to initially propose a framework that meets the Bank's dual role as both a financial institution as well as a development agency. This leads to the second reason for the UDBL's inability to propose a regulatory framework. As part of this exercise, the UDBL was asked to articulate how it should measure its own performance and success versus a commercial bank, given that the BoU regulates all commercial banks. The UDBL has been unable to respond to this question. I believe the major reason for this is that the UDBL does not have internal capabilities and expertise in matters related to economic development, and the measurement of impact of development projects, to articulate a vision of performance that could coincide with standard financial metrics.

The lack of a regulatory framework for the UDBL is a significant hindrance in the expansion of the Bank. Many potential external funders of the UDBL are cautious to engage with the Bank due to its lack of a regulatory structure. For external partners, the lack of a regulatory framework fosters a lack of confidence from the broader financial system and coveys the notion that the UDBL is simply a discretionary financing arm of the government.

iii. Competition from other Development Finance Institutions

Although the UDBL is the sole national development finance institution in Uganda, it is not the only development bank operating in the country. The persistent lack of capacity and poor financial performance has caused both regional and global development finance institutions to significantly increase their presence in the country, and has also caused other government financing arms to reconstitute themselves.

The following development finance institutions operate within Uganda: the World Bank, the African Development Bank, the East African Development Bank, the Trade and Development Bank (TDB) and the Development Bank of Southern Africa (DBSA). Although each institute has a distinct form, the function of these institutions has significant overlaps with the UDBL.

In discussions with senior representatives from each of these institutions, there were three common threads of perspective with regards to their operations in the country and their perspective on the UDBL. First, there was a resounding consensus that the UDBL did not have the capacity to play the intended role within the economy. This point was supported in two main ways – total size of lending and internal capacity. Many of the other development banks operating in Uganda had tried to partner with the UDBL on specific projects and initiatives, but were ultimately unsuccessful because in their perspective the UDBL did not have the size of lending that was needed to participate in meaningful projects or the bank did not have the capacity to understand and contribute to the projects. Second, there was a belief that the country had enough development needs for various players to participate. In this regard, if the UDBL was not able to play its intended role, then the other institutions felt that they needed to continue with their

work. Third, there was a common feeling amongst the other development banks that the UDBL was stuck in its capability trap because the government ultimately was not going to support the institution.

Another source of competition for the UDBL is the growing support for the re-establishment of the Uganda Development Corporation (UDC). The UDC was created in 1952 as a state investment corporation whose mandate was to bring foreign investors into Uganda. In the NDP II, the UDC and the UDBL are positioned to be working with one another in order to accelerate the industrialization process. However, there is a strong belief among many stakeholders that the recent capitalization of the UDC means that the government believes that is a more viable approach towards development financing than the UDBL. It is also worth noting that the increased interest in the UDC began approximately five years after the UDBL began its new strategy to reconstruct itself but has been unable to do so in a meaningful way.

iv. Contribution to National Learning and Planning on Development

The final implication of the poor capability and internal capacity of the UDBL is the inability of the institution to be an active contributor to the development planning process of the country. Uganda has had an intention to industrialize throughout its history as both a protectorate of the United Kingdom and as an independent country. During this time, as described earlier in this chapter, the country has embarked upon many different approaches towards development planning. These approaches include a public sector led strategy, a private sector led strategy, and a mixed-economy approach.

There is a strong desire, from many members of the broader ecosystem, for the UDBL to help inform the development process and trajectory of the country. This desire comes from the notion that the UDBL is one of the only institutions of the country that has existed for as long as it has, as an active development finance institution within the country. Many of the challenges that the country faces– agricultural productivity, infrastructure development, small and medium-sized enterprise (SME) financing – were challenges that have existed throughout the country's history and are ones that the UDBL has been engaged on for a long time as well. However, despite this fact, the UDBL is not an active participant in policy formulation for the various line ministries of the government and very importantly for the Economic Planning Commission, the mandate of which is to set the policy framework and budget for the country. In these gatherings, the UDBL is a passive observer and a policy taker as opposed to a policy maker. In other words, the UDBL is not seen as organization that contributes to policy making but rather is seen as an implementer of policies already made by other institutions. This observation had many implications for the effectiveness of the UDBL compared to its peer development banking organizations, particularly the regional development banks operating that were operating in Uganda. The lack of ability of the UDBL to contribute to national planning and prioritization discussions meant that other development finance institutions could conceivably start being seen as more significant development partners to the Government of Uganda. This could put the UDBL further into a capability trap over the long run.

VI. CONCLUSIONS

In this chapter, I suggest that a capability trap can prevent a development bank from being an effective financial institution for sustainable development. I argue that the

inconsistency of development policy of a nation can prevent a development bank from accruing the internal capacities and capabilities that are needed for the institution to be effective. By closely understanding these dynamics within the context of the UDBL and the Ugandan economy, I come to four broader conclusions regarding policy consistency and capability traps for development finance institutions.

First, the independence of a development bank from short-term government policies is critical. Most researchers and policy analysts believe this is important for the appropriate allocation of credit and the prevention of corruption. Although I agree with this conclusion, the reasons for which I believe in it are different than the mainstream. I believe that it is important so that a development bank can develop a track record of successful projects and initiatives that will build the internal capabilities for future work. Ensuring that a development bank is independent from government policies is challenging, given that many of these institutions, such as the UDBL, have the specific mandate to finance government-led industrialization and investment efforts. In this regard, development banks can learn from the experience of many Central Banks during the 20th century and their paths towards independent policy making and setting, while remaining a state institution (Alesina & Summers, 2006; Crowe & Meade, 2008; Nergiz Dincer & Eichengreen, 2014).

One specific way that a development bank can isolate itself from short-term swings in public policy is by becoming a "rules based development bank." Borrowing from concepts in monetary economics, a rules-based development bank would develop rigid rules of how they function, independent of the political administration in charge and the policies set forth by the administration. A rules-based approach could, for example, be regulated in a way that fixes the amount of capital that the bank will deploy by sector and

by region over an extended period of time, and this could be written into the mandate and governing regulation of the institution itself. By codifying specific functions of the bank to a higher degree of specificity, other actors in the economy could potentially see the development bank as a more credible institution. In addition, if the bank does in fact operate as set out by the rules, the chances of the bank having successful development projects increases, thereby improving the chances of the bank having the internal capabilities to grow and develop in the future. This is one possible way for a development bank to exit from a capability trap.

Second, changes in public policy should be made in ways that are mindful of the impacts of underlying institutions. Changes in public policy often focus on short-term perceived benefits of one approach versus another. Public policy makers rarely examine how a change in approach can impact the health, capacity and potential of the organizations and institutions that operate within a setting. Although policy makers may not be incentivized to worry about the long-term health of an institution, there are often other participants in a system that have longer-term horizons and should understand these impacts.

Third, capacity building programs and approaches at the institutional level should focus on ensuring broad stability in policy outside of the institution itself. Most capacity building programs – undertaken by institutions such as the World Bank, the United Nations, International Monetary Fund – focus on building technical capacity of staff members of organizations. This includes seminars, teach-ins and other such tools to impart knowledge from experts. However, these capacity building programs often do not deal with a major underlying reason for why the program is needed – the abrupt changes in policy that prevents capabilities and capacities to be formed in the first place. There

has been significant critique of the ineffectiveness of capacity training programs, but very few solutions offered to change how capacity programs are undertaken. A focus on broader stability of policy could be one potential change that may impact long-term internal capabilities.

Fourth, development banks should take a more concerted effort in ensuring that the organization has a broad set of skills that together can contribute to understanding and effecting change with regards to development. The diversity of skills and backgrounds relates to both the staff and the board of a development bank. The diversity of skillset of an organization can have a significant impact on its functioning and performance (Clark, 2014b). The training and background of the UDBL staff is homogenous, with most staff coming from commercial banking backgrounds and the staff having very few sector-level development practitioners or corporate managers.

Chapter Six: The New York Green Bank and Connecticut Green Bank: Institutional Positioning and Flexibility

I. INTRODUCTION

In this chapter, I examine the effectiveness of the New York Green Bank (NYGB) and Connecticut Green Bank (CGB) through the perspective of public policy alignment. Specifically, I seek to examine the evolution of the NYGB and CGB in response to national and state-level public policy in the United States regarding climate change and low carbon energy transition. By choosing this perspective, my analysis focuses on how these two state-level green banks were formed and why they evolved in the way that the did since their respective inceptions.

Institutions are formed, and evolve, for a wide range of reasons and through a wide range of trajectories (North, 2012; O. Williamson, 1985a). The study of the formation and development of institutions has been a topic of theoretical and empirical analysis in the fields of economics, political science, sociology and geography for many decades.

Climate change is a major global policy challenge that has encouraged the creation of new financial institutions (New Climate Economy, 2014). The institutions that have been formed as a response to the threats of climate change include both new financial "rules of the game," including fiscal and monetary policies to reflect the unpriced externalities of environmental degradation and redirect financial capital to environmental solutions (Parry, 2016), as well as new financial organizations, including investment organizations, instruments and government bodies (Kaminker et al., 2012; Meltzer, 2018). The development of new institutions to respond to climate change is understandable given

the complexity of solving climate change as well as the scale of the needed response (Nordhaus, 2015; Stern, 2007). The sheer magnitude of the financing needs for climate change mitigation and adaptation has spurred significant innovation in the financial institutions.

One important institutional innovation that has been created in response to the environmental threats of climate change is the development of green banks. A green bank is a, "publicly capitalized entity established specifically to facilitate private investment into domestic low carbon, climate resilient infrastructure and other green sectors such as water and waste management" (Network, 2018). Green banks exist at the national, state, county and city levels around the world. The United States has seen a rise of green banks at the state and local levels, with six states, including two of the largest (California and New York) having developed green banks since 2011. The evolution of state level green banks provides an important lens into the successes and challenges of institutional development in the face of global imperatives such as climate change.

In this chapter, I make two arguments. First, I suggest that development banks are influenced significantly by the context within which they are formed and operate. Specifically, the success of a development bank is often contingent upon the structure, credibility and persistence of the organizations, institutions and fiscal conditions with which they are affiliated, as opposed to by merely the operations of the development bank in and of itself. Second, I maintain that development banks, particularly newly formed institutions, can benefit from institutional flexibility and experimentation. The need for flexibility is particularly significant for development banks that are operating in sectors that are evolving technologically, financially and politically. These arguments are

illustrated through a detailed examination of US climate policy, the green bank architecture, and the evolution of the NYGB and CGB since their respective inceptions.

I begin this chapter by presenting an analytical framework for the chapter, focusing specifically on the concepts of institutional context and institutional flexibility. Then, I analyze the context of the evolution of the NYGB and CGB. In this analysis, I focus on clean energy finance policy in the US and then the evolution of the green bank model both globally and in the US. Next, I examine the NYGB and CGB from the perspective of their institutional contexts, where I highlight the importance of understanding the institutional context and environment within which they operate and the impact that other institutions have had on the evolution of these two organizations. Fourth, I discuss the importance of institutional flexibility for both NYGB and CGB, as two development banks that are very early in their organizational lives, and that are operating in a sector that is early in its evolution. I end the chapter with a set of conclusions that reflect upon the implications of context and flexibility for the study and evaluation of the effectiveness of green banks as policy instruments for the green energy transition.

II. ANALYTICAL FRAMEWORK

The analytical framework for this chapter is based on academic literature in the field of institutional and financial economics. Specifically, the framework is inspired by inquiry into the concepts of institutional context and institutional evolution. The analytical framework and insights developed in this section are linked to the broader thesis through the concepts of the role of the state in development and institutions, sections two and three of the four-part framework developed in chapter three. With regards to the role of the state, the analytical insights in this section are linked to the broader thesis by

examining how the political and governance context within which an institution exists can have a significant impact on the performance of the institution itself. With regards to institutions, this section summarizes the relevant literature focused on institutional evolution and flexibility, two important aspects of the broader debates and literature around the role of institutions in development matters.

a. Institutional Context

A central challenge in the study of economic development is the difficulty of understanding and appreciating the context within which certain phenomena occur (Bukenya, Hickey, & King, 2012). The social sciences vary significantly in their belief of the importance of context in understanding human phenomena, ranging from a focus on specificity versus generalizable conclusions. Economic geography has placed significant emphasis on context and specificity, from both a methodological and analytical perspective (Gertler, 2003).

Context is particularly important when studying institutions, particularly newly formed institutions. Institutions – both as "rules of the game" and as "organizations" – do not operate in a vacuum. They are influenced by many sets of actors, including other pre-existing institutions, cultural norms, historical trajectories, financial conditions, government structures and other variables (Acemoglu & Johnson, 2004; Acemoglu & Robinson, 2010; Engerman & Sokoloff, 2008). Understanding context is particularly important when trying to understand the effectiveness of a particular institution, since it may be the case that the institution itself is effective but it is being driven by outside influences. Therefore, studying the performance of an organization in and of itself may not be a useful approach to analysis to begin with.

From a functional perspective, the study of context for institutional development is important for at least two reasons. The first reason is for understanding what role the institution sees itself playing within the broader ecology. An understanding of the context within which a new organization is being formed helps the organization appreciate what may be missing and therefore what role it needs to play (Cleaver, 2012). This is particularly important in the financial sector, given the existence of hundreds of thousands of financial institutions, regulations, funds, initiatives and programs that are already in place. For a new institution to be formed, it is critical to understand what is the broader context and why a new entity is needed versus reforming or evolving an entity that already may exist.

The second reason that understanding institutional context is important relates to the relative position of an institution to other bodies within a government. Financial institutions are vulnerable to interference and influence by political actors (Shen & Lin, 2012) . This can be the case for both public sector financial institutions, such as development banks, as well as private sector financial institutions, such as publicly traded commercial and investment banks. Political interference can happen in many different ways, including budget allocation decisions, favoring of specific investment projects over others for political considerations and the ensuing volatility for an institution when there is a change in political leadership, among others. Given the inextricable ties between political forces and public-sector financial institutions' trajectories, it is important to understand how an institution's relative position with a government can impact its viability and sustainability.

b. Institutional Evolution and Flexibility

The evolution of institutions is an important topic to consider when evaluating the effectiveness of an institution. This is the case for a variety of reasons. First, institutions are not static for a variety of reasons: the evolving economic and political conditions within which they operate, change of leadership and change of mandate, for example (Cleaver, 2012). Given this, it is important for researchers and practitioners to constantly appreciate that their single-point-of-time analysis of an institution may not give the appropriate picture of the effectiveness of an institution.

There has been a considerable debate within the literature of economic development regarding optimal versus second best institutions (Rodrik, 2000). Some argue for the existence of "blueprint" institutions. In other words, there are models of optimally-designed sets of laws, regulations, approaches and organizations that can be brought over from one part of the world to another, and moderately adapted for local conditions (Sachs & Woo, 2001). Many development organizations, such as the UN Development Program and the World Bank, provide advice to governments with this framework. For others, however, there is no ideal set of economic institutions. Instead, local-knowledge, adaptability and experimentation are critical for governments and their citizens to form a set of laws and structures that operate best for them (Qian, Roland, & Xu, 2006).

The ability of an institution to evolve and be flexible, and the pace at which it does, is an important concept in the study of institutional economics, particularly for institutions that are operating in evolving sectors (Rodrik, 2008). Economic systems are not static (Arthur, 1995, 1999). Given the constantly evolving nature of economies, the institutions

that operate within them evolve over time as well. For topics such as climate change, where the underpinning technology, politics and financial mechanisms for confronting the problems are in their early stages of development, the importance of flexibility for institutions that operate within that space is particularly important.

The flexibility of an institution can be understood in two ways: the first is the rules with which they operate and conduct policy and the second is the mandate with which they operate. The discussion surrounding the rigidity of rules of a financial institution are particularly relevant for monetary policy and central banking, but certainly have relevance for development banking as well. For development banks, rule-adaptability would relate to a bank's lending guidelines, including size of transaction, sector of operations, duration of financing and other related topics. With regards to mandate-adaptability, this would mean an economic institution being able to significantly alter the mandate with which they are operating. For a development bank, that would mean changing the fundamental function that the organization is serving.

Economic geographers have highlighted the theoretical and empirical shortcomings in addressing institutional change (Peck & Theodore, 2007). Gertler argued that there are "very real and practical implications" of institutional change, as without it, economies may lose an important "foundation for economic success" when confronted with new technologies or competition (Gertler, 2018). In an important review of the relevant literature on institutional change (Gertler, 2018), Gertler highlighted the work of Thelen, Streeck and Hall, whose work has focused on pathways of institutional change. Importantly for this chapter, Thelen et al. argued that institutional change can be instigated both endogenously and exogenously from the institution and its government context (Hall & Thelen, 2009; Thelen & Streeck, 2005).

The study of institutions can be improved significantly by understanding the conceptualizations of the ecology of finance and financial markets (Lo, 2004). There is a growing appreciation among scholars and practitioners of finance that financial markets behave like living organisms. Instead of being efficient and rational, a growing set of literature postulates that financial markets are more like complex systems, which adapt and evolve over time through learning and innovation (Martin & Sunley, 2015). This same logic can be applied to the study of financial institutions and their role in economic development, with many implications for how institutions would be studied by researchers and evaluated by policy makers.

c. The Conceptual Linkages Between Institutional Context/Flexibility, Green Banks and Sustainable Development

In this chapter, I argue that the context within which a development bank operates has a significant impact on the performance of the bank itself. I observe, through close dialogue with practitioners at the NYGB and CGB, that the trajectories of these organizations were significantly influenced not only by their own functioning, but also by contextual decisions of how these organizations viewed their role with respect to other financial institutions and where within their respective state governments they were positioned. I further argue that adaptability and experimentation are critical characteristics of both the NYGB and CGB. Both organizations have had to experiment given changes in technology, finance and politics regarding climate policy in their respective geographies. The concepts of context and flexibility are therefore highly linked to one another, since a variation of external context can provide additional reasons for an organization to need to experiment and adapt.

There are at least two important conceptual linkages between the topic of this chapter – institutional context and flexibility – and the efforts of a development bank in supporting and promoting sustainable development. First, with regards to institutional context, it is important for researchers and policy makers to appreciate and understand how where an institution sits can impact its effectiveness and ability to execute on its mandate. As development banks seek to re-examine their mandates with regards to sustainable development and/or new development banks become formed, one important and often under-examined question is regarding the institutional context and its importance on the performance of a development bank. Second, with regards to institutional flexibility, the agenda for sustainable development may require development banks to be given a broader ability to experiment new programs and initiatives. The trade-offs of flexibility versus rigidity for institutions, and specifically newly formed institutions, is a topic that, I argue, is relevant to the efforts of financial organizations operating in the policy framework of sustainable development.

III. PLACE AND STRUCTURE OF NYGB AND CGB

In this section, I provide a contextual backdrop for the NYGB and CGB. I begin this section with an analysis of US climate policy and renewable energy finance policy at the federal and local levels. Next I discuss the formation and evolution of the green bank model. I conclude the section with overviews of the NYGB and CGB, focusing on fundamental characteristics of both organizations pertaining to their origins, financial structures and governance models. Through this section, I observe that the broader context of climate policy and finance, within which US state green banks is operating, is

complex, uneven and constantly evolving. The oscillations of approaches regarding climate change in the US have made institutional formation a major challenge.

a. Place: NYGB and CGB

i. US Climate and Renewable Energy Finance Policy

The US has a complex role with regards to the history of climate change and contemporary climate change policy. The complexity comes from three main sources: historical contributions to climate change, oscillations in US political commitment and the importance of the US in global finance.

From the perspective of historical contributions, the US is the largest historical emitter of CO2, a principle driver of climate change. The US contribution has been disproportionately higher than the country's share of global population and global economic output. The historical contribution of the US to climate change has caused a significant debate in international climate policy negotiations regarding how the US, and other high historical emitters, should compensate low-income countries (Page, 2008). From the perspective of political commitment, the US has seen a significant shift since the early 1970s in bi-partisan support regarding climate policy. As of 2018, one of the two major political parties, the Republican Party, systematically votes against climate policy and supported the withdrawal of the US from the Paris Climate Agreement (Rich, 2018). Lastly, from the perspective of financial markets, the US, as of 2018, remains one of the major financial centers of the world. The US dollar is the world's reserve currency (Prasad, 2013), and has the largest saving pool in the world and is home to many of the world's largest banks, insurance companies and asset management firms. As a result,

many observers see the US financial markets as an important lever for mobilizing additional public and private capital for climate change mitigation.

From a public policy perspective, the US has developed a plethora of policies broadly related to climate change mitigation, particularly renewable/low carbon energy, at both the federal and state levels. Here I provide a brief overview of major financial and legislative policies with this focus.

From a financial policy perspective, the main policy drivers for renewable energy are the Investment Tax Credit (ITC), the Production Tax Credit (PTC), the Modified Accelerated Cost Recovery System (MACRS) and the Department of Energy (DoE) Loan Program. The Energy Policy Act of 2005 created an investment tax credit for residential and commercial investment into solar energy (ITC) and significant incentives for the development and deployment of wind energy (PTC). Both the ITC and PTC, however, have been extended for only short-term purposes since their rollout began, and this has led to significant uncertainty and a "boom-bust" nature of solar and wind investments in the US.

The MACRS, which is the tax depreciation system of the US tax code, was given a "bonus depreciation" for eligible projects in the renewable energy space. This allowed for an accelerated depreciation schedule of five years, which reduced taxes for project developers in renewable energy. Finally, the DoE Loan Guarantee Program is a development finance innovation that also originated in the 2005 Energy Policy Act. This program allows the DoE to issue loan guarantees for projects with high technology risks that, "avoid, reduce or sequester air pollutants or anthropogenic emissions of greenhouse

gases; and employ new or significantly improved technologies as compared to commercial technologies in service in the United States at the time the guarantee is issued." Since its creation, the DoE Loan Guarantee Program has guaranteed commitments or final loans for 30 projects valued at more than $30 billion (Finance, 2014; Zhou, 2015).

From a legislative perspective, the US has a complex climate policy landscape. The complexity of US legislation for climate-related issues is driven by the both political oscillations/ideologies and the multi-tiered system of legislation, from federal to state to local governments. The most significant domestic policy related to climate change was the 2015 Clean Power Plan. The aim of this plan was to decrease US carbon-dioxide emissions from power plants by 32% by 2030, compared to 2005 levels, by mandating states to meet specific standards based on their geographical position, size, population and economic indicators (NRDC, 2017). In 2016, however, the legality and constitutionality of the Plan was appealed and the US Supreme Court decided to stay the regulation before a judgment by the Court of Appeals.

Despite the oscillations of federal climate policy, there is a significant amount of climate change related legislation and policy happening at the state and local level in the United States. In 2017, the US Climate Alliance was created. This is an organization, comprised of states and cities in the US, who are pledging to maintain their commitments to the Paris Climate Agreement. As of 2018, 29 states, Washington DC and three territories have Renewable Portfolio Standards (RPS), which regulate a certain percentage of electricity generation to happen from renewable sources. In addition, US states have adopted a series of other policy measures, including developing state-level carbon markets, state-level tax credits, property assessed clean energy (PACE) programs, and the

creation of state-level green banks, the topic of this chapter. Although climate policy at the Federal level in the United States has reversed in 2017 and 2018, the ability for state and local governments to continue to move forward is an important aspect to understand of the US system (Alliance, n.d.; Solutions, 2018).

ii. The Evolution of the Green Bank Model

The green bank model is a relatively new financial institution for channeling public and private investments into low-carbon and renewable energies. One commonly accepted definition of a green bank is:

> "a public or quasi-public institution that finances the deployment of renewable energy, energy efficiency, and other clean energy projects in partnership with private lenders. Green Banks are capitalized with public funds, which are then used to offer loans, leases, credit enhancements and other financing services to close gaps in the private capital markets for clean energy projects. Green Banks invest in the project deployment of mature, commercially viable technologies – not in the early stage tech or in clean energy companies" (Network, 2018)

Although modeled after regional and national development banks, similar to the Asian Development Bank and the Uganda Development Bank discussed earlier in this thesis, green banks do have a few defining features. First, green banks are focused specifically on the deployment of renewable energy and other clean energy projects, as opposed to a broad mandate around "infrastructure" or "development," which is the case for most development banks. Secondly, green banks are generally much smaller in size and scale than development banks.

Although global activity around climate change mitigation has increased significantly since the 2015 Paris Climate Agreement, the first green banks were conceptualized and

created well before 2015. Coincidentally, the US played a significant role in the conceptualization of a green bank. In 2009, the United States Congress debated its most significant domestic climate legislation, known as the American Clean Energy and Security Act. The proposed legislation set out to create a national emissions trading plan as a tool to decrease carbon emissions in the economy. As part of the bill, a Clean Energy Deployment Administration (CEDA) was proposed to be built to provide low-cost financing to renewable energy projects across the country. There were various proposals about where CEDA would sit within the Federal government, with some advocating for the institution to sit within the Department of Energy and others recommending for it to be an independent institution with representatives from various relevant Departments (Podesta, Gordon, Hendricks, & Goldstein, 2009). The American Clean Energy and Security Act passed the US House of Representatives, but did not get voted on by the US Senate, and therefore didn't become in effect.

Contemporaneous to the discussions of CEDA in the US, there began a policy discussion in the United Kingdom about the establishment of a Green Investment Bank. In 2009, Climate Change Capital, an investment management firm, and E3G, an infrastructure advisory firm, laid out a set of proposals regarding the merits of the UK government creating a Green Investment Bank (GIB) to accelerate green infrastructure financing(Climate Change Capital & E3G, 2009). In addition, a group of academics and policy advisors wrote a report in 2009 on "Delivering a 21st Century Infrastructure for Britain" (Helm, Wardlaw, & Caldecott, 2009). Three years later, the UK Green Investment Bank was formed as an institution to channel private capital into low-carbon energy solutions. The UK GIB was the first national green investment bank to be formed, and was later sold to Macquarie in 2017.

Given the challenges of enacting federal-level policy in the United State to develop a national green bank, individual states became engaged on the concept of state-level green banks for a few reasons(Berlin, Hundt, Muro, & Saha, 2012). First, there was a widespread belief that the low-carbon and renewable energy sector would be a long term growing industry for employment and corporate profits, and therefore creating financial institutions that could help spur this sector may be a good idea for government. Second, there was a fundamental view that if states could show the success of the renewable energy space, it may, over time, influence federal lawmakers to continue with the proposed plans of a national green energy institution. In 2011, the state of Connecticut launched the nation's first state green bank, with bi-partisan support. As of 2018, six US states had green banks – these include Connecticut, California, Hawaii, New Jersey, New York and Rhode Island (OECD, 2017).

For US states that are considering the creation of a green bank, the decision matrix is not a simple one. The goal of increasing investment into renewable energy at the state-level has many potential institutional and instrumental possibilities. From an institutional perspective, a state government can decide, for example, to create/expand upon a public infrastructure bank with a ring-fenced division focusing on clean energy or build out financing authorities within specific departments of the government, as opposed to building a stand-alone green bank. From a financial instrument perspective, a state government could issue green bonds, environment impact bonds, develop PACE mechanisms and utilize many other such instruments to increase private investment in clean and renewable energy. The expansion of green banks at the US state level must be understood as the by product of decision making by state legislators who fundamentally believe in the long-term trajectory and importance for their states to be active in this market and for the government to help facilitate investments, but also appreciate that

there are many ways to expand private investments and a stand-alone green bank is one such way (EDF, 2017).

Green banks utilize both financial and non-financial techniques to expand private investment into clean and renewable energy. From a financial technique perspective, green banks generally operate in three particular spaces: credit enhancement, co-investments and warehousing/securitization. Credit enhancement refers to a green bank's ability to provide loan guarantees and loan loss reserves to private lenders to improve the credit profile of their loans. Co-investment refers to a green bank's ability to invest alongside a private investor, which can either increase the confidence of private investors in a specific project or complement the financing with certain terms/duration that the private lender is unable to provide. Warehousing/securitization refers to a green bank's ability to pool many small loans into larger investments and sell them to investors. From a non-financial perspective, green banks are often involved significantly in market development through providing technical training on renewable energy projects to clients and other lenders and by providing guidance to legislators on recommended policy interventions (C. for G. Capital, 2015).

As of 2018, there were fifteen green banks operating around the world. One particularly noteworthy aspect is that these institutions exist at all geographical levels. Green banks exist at the national level (i.e. UK and Australia), state-level (i.e. US states including New York and Connecticut), county level (i.e. Montgomery County in Virginia) and city-level (i.e. Masdar, UAE). Given the complexity and variation of forms of green banks, a global Green Bank Network was launched in 2015, chaired by the OECD and Natural Resources Defense Council (NRDC), to provide guidance and technical support to these

institutions as they themselves expand and their models are taken up in more locations around the world (OECD, 2017).

b. Structure of Channels: NYGB and CGB

In this sub-section, I provide an overview of the key characteristics of the NYGB and CGB. Each short profile highlights three main characteristics of each institution: its Origin, Financial Structure and Instruments and Governance.

i. Origins of NYGB

The NYGB was established in 2014 as a public-private partnership. Its official designation is a, "state sponsored specialized financial entity designed to address gaps in clean energy financing to transform those markets as part of an integrated strategic statewide energy plan" ("NY Green Bank: Agrent for Greater Private Sector Investment in Sustainable Infrastructure," n.d.). The idea to create a state green bank came out of the state of New York's "Reforming Energy Vision" (REV) initiative. The REV initiative is a strategy, with accompanying set of programs and initiatives, in order for the state of New York to achieve the following energy goals by 2030: a 40% reduction in Greenhouse Gas (GHG) emission from 1990 levels, 50% electricity to come from renewable energy sources, and 600 trillion Btu increase in energy efficiency from 2012 levels(State, 2015). To help finance this transition, Governor Andrew Cuomo announced, in 2013, the idea of a, "$1 billion New York Green Bank offers a cost-effective market mechanism to capitalize on this opportunity, unleashing green technologies and the many benefits that will come with them."(Cuomo, 2013)

In order to establish the NYGB, the state of New York undertook a formal research and consultation process before beginning operations of the Bank. In June 2013, Booz & Co. was retained to conduct a market assessment of the clean energy market in the state. The main conclusions of this study were the following: 1) the establishment of NYGB will add significant value to the State's clean energy portfolio, 2) the Bank must be flexible, develop strategic partnerships, ensure sustainability and have supporting policy and 3) there remain risks, including financial, market and organizational that need to be mitigated (Co., 2013). The Booz & Co. report was highly influential in the establishment of the Bank. The initial capitalization of the Bank was approved in December 2013, and it opened for business in February 2014.

ii. Financial Structure and Instruments of NYGB

The NYGB is financed through multiple public sources that are administered through the New York State Energy Research and Development Authority (NYSERDA) and New York's investor-owned utilities. The various sources of financing include the Energy Efficiency Portfolio Standard, the Renewable Portfolio Standard, the Systems Benefit Charge, auction sales from the Regional Greenhouse Gas Initiative (RGGI) and NYSERDA itself. At the time of inception, the NYGB was capitalized with $165.6 million of ratepayer funds and $52.9 from sales of credits from the RGGI. The balance of the capitalization had been done annually with the goal of reaching $1 billion by the end of the 2018.

It is important to note two main aspects of the sources of funding for the NYGB. The first main aspect is that the funding sources are not budgetary allocations from annual budgets of the state government. Instead, the NYGB is funded through, mainly, a

surcharge that is placed on energy bills for residents of the state of New York, as well as through the sales of carbon credits for a regional program for the Northeast of the United States. This independent funding stream of the NYGB has provided a level of flexibility and experimentation – concepts that will be addressed later in this chapter. The second main aspect of the funding sources is the importance placed on financial self-sufficiency. At the moment of its inception, the NYGB was now allowed to spend more than 8% of its initial capital on start-up and initial operating costs. By early 2017, the Bank was profitable and self-sufficient.

The NYGB has a well-defined set of criteria and instruments that guide the deployment of its capital. The NYGB deploys its capital through with the following three main investment criteria: market rate returns, contribution to market transformation and contribution to energy savings and/or clean energy generation. The NYGB is not in the business of providing subsidized lending rates for projects, but rather to fill gaps in the market. The NYGB deploys its capital through the following financial instruments: credit enhancements, warehousing/aggregation, asset loans and investments, and composite products.

iii. Governance and Organizational Structure of NYGB

The NYGB sits within NYSERDA, which is a public-benefit corporation. This refers to institutions that are quasi-public, quasi-private in their operations and structure. NYSERDA was created in 1975 as a way of reconstituting the New York State Atomic and Space Development Authority in order to increase research and development into renewable energy during the energy crisis of the 1970s (New York State, n.d.). NYSERDA is one of forty-seven state authorities in the state of New York. Since the

NYGB sits within NYSERDA, the President of the NYGB reports to the President and CEO of NYSERDA, who reports to the Board. The NYSERDA Board is comprised of thirteen members and the Board composition is well-defined by both position and expertise. The thirteen members of the Board include the Commissioner of the Department of Transportation, the Commissioner of the Department of Environmental Conservation, the Chair of the Public Service Commission, the President of the Power Authority, and nine other members who are appointed by the Governor with the advice and consent of the Senate.

iv. Origins of CGB

The CGB was established in 2011 as the first green bank in the United States. At the time of its formation, the CGB was called the Clean Energy Finance and Investment Authority (CEFIA), and it was renamed Connecticut Green Bank in 2015. The Governor of Connecticut established the CGB with support from both parties in the state legislature, through Public Act 11-80 on July 1, 2011. The CGB was established off the basis of a pre-existing institution, the Connecticut Clean Energy Fund (CCEF), and at the time of inception, the Board of the CCEF was removed and a new Board was established (Berlin et al., 2012).

The CGB was formed with clear statutory purposes. The three stated purposes of the CGB are:

1) To develop programs to finance and otherwise support clean energy investment in residential, municipal, small business and larger commercial projects and such other programs as the Green Bank may determine,

2) To support financing or other expenditures that promote investment in clean energy sources to foster the growth, development and commercialization of clean energy sources and related enterprises and

3) To stimulate demand for clean energy and the deployment of clean energy sources within the state that serves end-use customers in the state("CT Green Bank: Comprehensive Plan 2017 and 2018," 2016).

v. Financial Structure and Instruments of the CGB

The CGB was formed out of a consolidation of various, pre-existing funding sources. The driving intuition was that instead of having many, sub-scaled, mostly grant-making financing programs at the state-level for Connecticut, the state would be better served by the establishment of a single institution that made commercial loans. The main sources of funding for the CGB include a system benefit charge for clean energy that is levied to ratepayers in the state of Connecticut and credits from the RGGI. The legislation that that established the CGB, however, allowed for the institution to receive funding from others sources. The CGB is allowed to receive federal funding, and did so through the American Recovery and Reinvestment Act, the Clean Water State Revolving Fund, and Loan Guarantees through the Department of Energy. In addition, the CGB has bonding authority and is therefore able to access the bond markets to fund the bank. Finally, the CGB has the ability to accept private and philanthropic capital, through private investment and foundations.

The CGB operates as both a retail and wholesale lender, thereby lending capital to both end-customers as well as other lending institutions who then on-lend capital to end-customers. The CGB participates in the clean energy market through offering "incentives, co-investment, credit support, warehouse, marketing and other market-based solutions"("CT Green Bank: Comprehensive Plan 2017 and 2018," 2016). The CGB engages with clients of all kinds, ranging from home, building and multifamily property owners to residential and commercial contracts to towns and cities as clients. The two main programs/sectors within which the CGB operates are the distributed solar and building efficiency programs. One of the main initiatives of the CGB is the administration of Connecticut's Commercial Property Assessed Clean Energy (C-PACE) program, which offers low-cost capital to fund energy efficiency and renewable energy projects that are paid back through energy cost savings.

vi. Governance and Organizational Structure of CGB

A Board of Directors comprising of eleven voting and two non-voting members governs the CGB. The Board members of the CGB are mandated to represent different specializations and areas of expertise. According to the General Statutes of Connecticut, the CGB Board must contain representation from a wide variety of backgrounds and domain knowledge, including investment fund management, financing of renewable energy, labor organizations and research and development of clean energy. Board members are appointed from both the Governor's office and state legislature (*Connecticut Green Bank Comprehensive Annual Financial Report 2018*, 2018).

The Organizational Structure comprises of three main divisions: Investment, Program and Corporate. The Investment Division is responsible for investing and allocating

capital in line with the Bank's mandate, the Program Division is focused on ensuring alignment of investments with public policy and programmatic priorities and the Corporate Division is responsible for administrative and operational support (*Connecticut Green Bank Comprehensive Annual Financial Report 2018*, 2018).

c. Common Origins and Divergent Paths for NYGB and CGB

The short profiles are critical to understand the subsequent analysis of institutional context and flexibility of the NYGB and CGB. It is important to observe the various areas of commonality between the two institutions. Specifically, I see five areas of commonality between these two institutions. First, both the NYGB and CGB are state-level green banks. They are operating at the same scale of decision making within the broader federal structure of the United States. Second, both organizations are "green banks" in-and-of themselves. They are not infrastructure banks, with a green finance division, or a clean energy arm of their respective state Departments of Energy. Third, both institutions have been operating for roughly the same amount of time, with the CGB having been formed in 2011 and the NYGB in 201. Fourth, Governors of the same political party created both organizations. Fifth, both banks are funded through similar sources of financing – assessments on energy rate payers and sales of credits of the RGGI. There are therefore many aspects of both the form and function of these two institutions that lend themselves to a comparative analysis.

I note the commonalities above because despite the various common aspects, the banks were on highly divergent paths at the time of conducting this research. The NYGB was operating in a period of financial sustainability and growth. The NYGB was financially self-sufficient, and considering avenues for expansion beyond the state of New York

("Governor Cuomo Announces Major Milestone Reached by NY Green Bank with $2.7 Million in Profits," 2017). The CGB, on the other hand, was operating in a period of financial stress and major levels of uncertainty about its future. The CGB had lost over fifty percent of its operating budget from decisions made by the state legislature and was significantly decreasing the size of its operations to respond to a major exogenous political shock (Pilon, 2018). The subsequent analysis regarding the institutional context and flexibility of these two organizations provides important insights into why these two institutions may be on divergent paths despite common origins.

IV. INSTITUTIONAL CONTEXT MATTERS

In this section, I observe the importance of institutional context for the functioning of a state-level green bank. Specifically, I make the following arguments. First, I argue that the relative position of a green/development bank within the broader government structure can matter significantly for the long-term viability of the organization. Second, I argue that a green bank's understanding of its role in the market versus the role of other financial institutions in the market can provide a subtle guiding direction that provides increased resilience to the institution through periods of uncertainty. Third, I argue that the financial context – specifically the fiscal strength of one region versus another - of a development bank will significantly impact its effectiveness. These observations and arguments are examined through an analysis of the NYGB and CGB.

a. Context Within Government Structure

A defining characteristic of the NYGB is its existence within NYSERDA. The fact that the NYGB was created and housed within NYSERDA has, according to many

interviews with senior executives both within NYGB and outside, been the single most important factor that has led to the persistence and success of the institution since its inception. NYSERDA is a public-benefit corporation that was founded in 1975. As a public-benefit corporation, NYSERDA has oversight from the state of New York government, but operates as a quasi-independent authority. The Governor of New York appoints the Board of Directors of NYSERDA, with consent from the state legislature. Although initially formed as a research and development organization to decrease the reliance of the state of New York from fossil fuels, the Authority has evolved to be a leading organization focused on various aspects of the Energy Sector within NY. The mission statement of NYSERDA is to "advance innovative energy solutions in ways that improve New York's economy and environment" and its vision statement is to "serve as a catalyst – advancing energy innovation, technology and investment; transforming New York's economy; and empowering people to choose clean and efficient energy as part of their daily lives"(State, n.d.) NYSERDA's work focuses specifically on the following three areas, in partnership with a broad set of stakeholders across the state which include residents, business owners, developers, community leaders, local government officials, university researchers, utility representatives, investors and entrepreneurs:

a) Attract the private sector capital investment needed to expand New York's Clean energy economy

b) Overcome barriers to using clean energy at a large-scale in New York

c) Enable New York's communities and residents to benefit from energy efficiency and renewable energy

There are two key attributes of NYSERDA that have had a significant implication on the path of the NYGB since its inception.

The first attribute is the funding structure of NYSERDA. The Authority is mainly funded through the Systems Benefit Charge (SBC) on participating utility bills, as well as proceeds from auctions through the RGGI. This means that the NYSERDA is funded independently of the state budget for on-going state-level expenditures. Although the state legislature could, possibly, change the mechanism by which NYSERDA is funded, this is highly unlikely. The fact that NYSERDA is financially independent of the state government's on-going expenditures has given the Authority a level of independence in its decision-making and budget allocation that has given the NYGB security in its operations. It is also important to note that NYSERDA has the ability to issue its own debt independent of the debt limits of the state of New York. This gives the institution, and its subsidiaries like NYGB, a level of confidence regarding the financial structure and future of the organization.

The second key attribute of NYSERDA is the deep technical expertise that exists within the organization. NYSERDA is a statewide institution that, as of November 2018, employed 330 staff. The technical expertise within NYSERDA includes professionals with backgrounds in science, engineering, project finance and other key disciplines for issues related to clean energy deployment in New York. As a result of this internal knowledge-pool, NYSERDA is involved in dozens of technical projects and initiatives focusing on, among others: electric vehicles, battery storage, and smart grids. One important example of NYSERDA's technical expertise is their development of Technological Roadmaps in key technologies in green energy – including Battery Storage

and Solar Energy – that have served as important inputs to staff of the NYGB as they think through different sectors to finance.

The institutional context of the CGB differs significantly from that of NYGB. Most importantly, the CGB does not exist within an independent authority like NYSERDA. This is a critical distinction because of the two main benefits that NYSERDA described above. Although the sources of financing for the CGB are similar to the NYGB – mostly through energy ratepayers within their state – the CGB did not have the structural independence that was provided to NYGB through NYSERDA. This had a significant impact on the CGB. In 2017, the state of Connecticut voted to defund the CGB in significant measure in order to fill structural financial budget gaps (Ahn, 2017). Although this technically would be possibly to happen within NYSERDA, the fact that NYSERDA is an independent authority makes it much less likely to happen. The CGB's institutional and situational context with regards to state financing increased the vulnerability of the institution. Second, the CGB did not benefit from all of the network and knowledge effects of being part of a broader technical body such as NYSERDA. In many of my discussions with staff of CGB and participants of the clean energy industry in Connecticut, it became clear that the CGB would have benefited from being a part of a larger technical group that could build and expand the clean energy market in the way that the NYGB was able to by being part of NYSERDA. The perceived and functional role of the CGB and the NYGB in their respective geographies is a topic that will receive further attention in the following section.

In conclusion, the situational context of where a green bank or a development bank sits with the government can have a significant impact on the long-term effectiveness of the organization. The existence of NYSERDA has provided not just a financial buffer for

the NYGB in comparison to the CGB, but it has also given the NYGB a set of technical experts that are able to work with the Bank to build out projects.

b. Context within the Clean Energy Market

Organizationally, the NYGB and CGB both see themselves as having a similar role in the development and expansion of the clean energy market within their respective geographies. Both institutions see themselves as playing a role in "market transformation." This is an important concept to underline, because it underscores a subtle aspect of the additionality of the green banks. These institutions do not see themselves solely in the business of financing projects, but rather with a broader goal of transforming a market in and of itself. Despite their commonality in seeing themselves as playing a role in "market transformation," their approach to this topic differs in a subtle but important way, with the NYGB being much more responsive to market needs while the CGB was more programmatic in nature. This distinction is a by-product of their respective perceptions of their position within the clean energy market in their states.

The NYGB has a stated goal to "transform the market" of clean energy. This exists in both the foundational documents of the institution, its annual business plan and in discussions with key stakeholders inside and outside the Bank. In the original planning documents, the NYGB's approach to market transformation was the following: "the Green Bank is expected to increase investor confidence in clean energy financing by improving understanding of the value of clean energy and reducing perceived risk" (Co., 2013). Subsequently, the Bank assesses each individual investment's contribution to market transformation using the following three-part framework:

1) Type and amount of capital applied to total market project costs
2) Ability to scale or replicate the transaction to drive larger volumes of clean energy and sustainable infrastructure finance
3) Increased awareness of and confidence in clean energy and sustainable infrastructure investments (NY Green Bank, 2018)

The CGB also has a stated goal to "finance market transformation" of clean energy in Connecticut. In its Comprehensive Plan, the CGB states, "the efforts of the Green Bank are exemplified through the financing market transformation process, which focuses on accelerating the deployment of clean energy – more customers and "deeper" more comprehensive measures being undertaken – by securing increasingly affordable and attractive private capital" ("CT Green Bank: Comprehensive Plan 2017 and 2018," 2016). The CGB assesses its contribution to financing market transformation in the following way:

1) Supply of Capital: Financing programs aim to increase the supply of affordable and attractive capital available to support energy savings and clean energy production in the market place.
2) Consumer Demand: In combination with a comprehensive set of clean energy programs under the Energize CT initiative, the Green Bank drives demand for clean energy by marketing financing programs and increasing awareness of the potential benefits stemming from clean energy projects.
3) Financing Performance Data: The Green Bank gathers and communicates the performance of clean energy financing either through its own programs or for other financing options in the market place.

4) Financing Risk Profile: The Green Bank can help reduce clean energy financing risk profiles in a number of ways. ("CT Green Bank: Comprehensive Plan 2017 and 2018," 2016)

Despite the fact that both organizations see themselves as market transformers, the way in which they have gone about being market transformers is different in a subtle way. The NYGB did not enter the market in order to finance specific products and programs. Instead, the market itself has driven the projects that the NYGB decided to finance. The projects that the NYGB finances are initially brought to the Bank through a Request for Proposals (RFPs), which are then filtered by a set of investment criteria, which includes market transformation. The NYGB looks to the market to understand what financing is needed. The NYGB sees itself as a "private investment firm operating within a government" and not as a tool of specific public policy.

The CGB, on the other hand, is much more driven by policy programs than the NYGB. This is demonstrated in a few specific ways. First, the CGB explicitly states that its role is, "to support the implementation of public policy on clean energy in Connecticut by attracting and deploying capital to finance the achievement of those goals. Over the course of the legislative history on clean energy in Connecticut and specifically the last decade, there have been significant public policies passed that guide the programs of the Green Bank…" ("CT Green Bank: Comprehensive Plan 2017 and 2018," 2016) Second, unlike the NYBG, the CGB has major flagship investment programs by sector – specifically energy efficiency in buildings and distributed solar – that drive a majority of the investments of the Bank. Third, the CGB has a dedicated staff structure to support the linkages between state energy policy and their investments. This division, the

"Program Division," is "responsible for deploying capital to meet the clean energy policy goals for Connecticut."

The NYGB and CGB are both self-described "market transformers" within their states, but the NYGB sees itself as responding to the market needs while the CGB sees itself much more as a vehicle of the state government. This distinction, although subtle, had a significant implication on how the organizations are viewed by many external stakeholders. It also had an impact on the ability – or lack thereof – of the CGB to operate independently of the state government's financial and political oscillations.

c. Context of Fiscal Position of the State

A third important point of institutional context for the effectiveness and sustainability of a sub-national green bank is the public financial position of the state in which the bank operates. The fiscal context of a state green bank matters significantly because politicians can transfer capital away from long-term initiatives, such as the green energy transition, to short-term current expenditures in order to balance the budget.

In 2017, the state government of Connecticut was struggling with a significant budget shortfall. This provoked state legislators to defund the CGB in order to fund other programs and balance the budget before the end of the year. This decision had a significant impact on the CGB, which had to decrease the size of its staff by 40% and its programmatic activities by 50% as a result of this fiscal decision. According to the Mercatus Center, Connecticut has a rank of 49 out of 50 with regards to state-level fiscal health. Although the state of New York is not much better, ranked 41 out of 50, the very poor health of Connecticut's fiscal condition is noteworthy (Center, n.d.). Table 6.1

below highlights key metrics of the fiscal health of New York and Connecticut. It is important therefore to appreciate that the effectiveness and long-term sustainability of a development bank is, in many significant ways, not in its own financial control. The CGB was revenue-positive in 2017, and therefore was able to pay its expenses as an institution through the operating revenues of the Bank (*Connecticut Green Bank Comprehensive Annual Financial Report 2018*, 2018). However, with the decision of the legislature to defund the Bank at a significant level because of the state's financial situation, the Bank's long-term effectiveness was put in jeopardy.

Table 6.1: Fiscal Health of New York and Connecticut – Rankings

	Service-Level Solvency	Trust Fund Solvency	Budget Solvency	Cash Solvency	Long Run Solvency	Overall
New York	38th	23rd	35th	44th	39th	41st
Connecticut	27th	36th	48th	50th	47th	49th

Source: (Center, n.d.)

V. INSTITUTIONAL FLEXIBILITY MATTERS

In this section, I observe the importance of institutional flexibility for green banks. Specifically, I argue that institutional flexibility is important for green banks given the nature that green banks are relatively new institutions and the nature of new markets – for example, the green energy market – that are inherently less predictable than pre-established markets. I observe that both the NYGB and CGB have had to develop a level of flexibility in their approach towards fulfilling their respective mandates. The

question of how an institution ensures that it remains flexible as it grows and develops is an important topic facing many green banks around the world.

The NYGB demonstrated its flexibility as an organization in three critical ways: its approach towards market transformation, as articulated above, its interest in attracting private sector capital and its approach towards expanding its geographic mandate to becoming national. To begin, the approach that the NYGB took towards market transformation was inherently one that espoused the importance of flexibility. The Bank did not come to the market with a set of specific programs or projects that it wanted to finance, but it let the demand of possible clients guide its work. This approach, from the onset and formation of the NYGB, has imbued a level of flexibility and innovation in the Bank that is understood and appreciated by stakeholders both within and outside the Bank. The external approach of flexibility of financing programs and structures has encouraged a level of innovation inside the Bank.

One critical area of innovation and flexibility of the NYGB has been the institution's decision to raise at least $1 billion in private investments to invest alongside the NYGB and, while doing so, expand the geographic scope of the Bank to finance projects around the country. In October 2017, Governor Andrew Cuomo announced the Bank's intention to raise at least $1 billion in private capital for the following stated purpose:

> "As the federal government turns its back on solutions to climate change while denying reality, New York is doubling down on our efforts to act on the clean energy future. This expansion of the New York Green Bank will combat climate change while creating good-paying clean energy jobs across the state, helping to secure a cleaner and greener tomorrow…" (Cuomo, 2017)

The plans for NYGB to raise private capital and go national is important to understand, within the context of institutional flexibility, for three reasons. First, the announcement demonstrates a desire for state-level leadership on climate-related issues in the absence of national-level leadership. The NYGB saw itself as an institution that could flexibility adapt to a change in national policy around climate change and play a role at the national level. Second, the NYGB was aware of the growing level of interest amongst private investors to invest in the clean energy market, and the institution adapted its policies to allow third-party private capital. Although public finance is quite limited, private finance availability is significant and under-utilized when it comes to green energy investments. Third, the NYGB understood that although the institution operates at a state-level, and is funded by the energy rate-payers at the state level, that to truly transform the green energy market, the Bank needs to be able to finance projects and companies around the country.

The CGB had also demonstrated a high level of institutional flexibility after the announcement of the major defunding of the institution by the state legislature through the creation of a spinout financial institution that would continue a large part of the work of the CGB. In August 2018, a spinout of the CGB, called Inclusive Prosperity Capital (IPC), began its operations. It was registered as a non-profit organization that would carry out a portion of the investment programs that the CGB had been working on, with a focus on solar projects programs. Seven staff members from the CGB joined IPC. The CGB would provide an initial $6.5 million capital injection and $10 million of full operation support for the first six years of operations of IPC. Other initial investors in IPC include an impact investment fund, Calvert Impact Capital, which injected $14m in debt financing to IPC at its inception, as well as $10 million guaranty from the Kresge Foundation (I. P. Capital, 2018).

The creation of IPC is noteworthy, within the context of institutional flexibility, for three significant reasons. First, it demonstrated a level of flexibility of the state government of Connecticut to try to maintain the strong track record of the investment programs of the CGB, just through a separate organization. The creation of an independent non-profit organization, which has seed investments and operational support from a government entity, is not a straightforward task and it was a process that required a significant amount of approvals from various stakeholders in the Connecticut government. This is particularly the case given the fact it was the same government that decided to defund the CGB to begin with. Second, the flexibility of the CGB was demonstrated by the ability to partner with impact investment firms and foundations in order to establish the organization. Developing a new financial institution with funding from institutions as diverse as state government and impact investors is a process that requires a significant amount of innovation and flexibility from all parties involved. Third, the creation of IPC now serves as a model for many state and sub-state entities in the US who are considering developing their own green banks or similar organizations. The challenges of the CGB to remain an institution, despite its many successes, have made many other state governments and city governments wary of developing a government-owned green bank, despite the success of the model.

VI. CONCLUSIONS

In this chapter, I observe that development banks are significantly influenced by the broader institutional context within which they operate. The institutional context of a development bank includes many specific issues, including where within a government structure it resides, its perception of its role within the energy market and the fiscal

condition of its region. I further argue that institutional flexibility is critical for development banks, particularly those that are operating in new markets such as the green energy market. By understanding these dynamics through a detailed examination of the NYGB and CGB, I come to three broader conclusions regarding the linkages between institutional context and flexibility and green/development banks.

First, the effectiveness or success of a development bank in pursuing and delivering on its mandate cannot simply be understood by the indicators of the institution itself, but rather must be understood within a broader context of actors and dynamics. The CGB, for instance, had been delivering on its intended mandate to transform the green energy market in the state of Connecticut. The institution was revenue neutral, it had mobilized private capital to leverage its public capital and had received many national and global awards for institutional innovation. Despite these many successes, the institution still suffered from a significant setback for reasons that were independent of the success and effectiveness of the institution itself, and these setbacks changed the trajectory of the organization.

Second, the design of a development bank, particularly one that is operating in a new sector or industry, should take into account the various linkages of the institution and its context and the need for flexibility of mandate, operational structure and funding mechanisms. The design of a development bank should ensure that the institution is as insulated from political or financial oscillations as possible. The design of a development bank should also ensure that the institution has the ability to adapt to changing circumstances, which will inevitably occur given the changing nature of financial markets, political environments and technologies.

Third, subtle differences can have a significant impact on the long-term trajectory of comparative institutions. In many ways, the NYGB and CGB were very similar organizations. The similarities of the institutions included the approximate time of their inception, funding sources, identification of the challenges of the green energy market, geographic location within the country and the political party in charge during inception and evolution. Despite these commonalities, the two organizations have gone down very different paths, with the NYGB being on the path to becoming a national financing entity with a significant amount of private sector co-financing capital, and the CGB having to significantly decrease the size of its program and create a spinout organization. As outlined in the chapter, the differences between the organizations were subtle – location within the government, approach towards markets transformation – but these subtle differences proved to have a major influence on the respective trajectories of the institutions.

Chapter Seven: Conclusions, Contribution to Literature, Further Research and Policy Implications

I. INTRODUCTION

In this chapter, I aim to achieve five objectives. First, I provide a summary of the thesis. Second, I offer conclusions based on the research findings and process. Third, I highlight contributions of the thesis to the literature. Fourth, I suggest areas of further research that scholars and practitioners may consider to enhance the understanding of development banks' effectiveness for sustainable development. Finally, I end the chapter with a set of implications of this research for policy makers and policy institutions.

II. SUMMARY OF THESIS

The thesis was presented in seven chapters.

Chapter one presented the introduction of the thesis. In this chapter, I began with an articulation of the two research questions of the thesis:

a) Are development banks effective financial institutions for sustainable development?
b) What impact does the spatial scale of a development bank have on its effectiveness?

In this chapter, I provided an analysis of the constituents of the topic of research – economic geography, development banking and sustainable development. I highlighted that economic geography is at the intersection of economics and geography, and is supported by the concepts of difference and heterogeneity. I articulated the motivations

and possible significance of the research, highlighting the academic and policy relevance of this topic. I ended the chapter with an examination of the limitations of the research project itself.

Chapter two presented the conceptual framework and methodology of the thesis. The conceptual framework consists of four components: space, place, channels and flows. The space refers to the theoretical space of the topic, which consists of developing an understanding of the theoretical pillars on which development banking and sustainable development rest. The place refers to the contextual place within which a development bank operates, underscoring the importance of political, economic and social context. The channel refers to the structure of the channels, which examines the structure of a development bank, including its sources of capital, uses of capital and institutional governance. The flow of a development refers to the organizational flow. This refers to one specific aspect of the development bank, which is analyzed for each case study.

The methodology presented is a mixed-methods approach, leaning heavily on interviews with practitioners involved in development banking. My research consisted of close dialogue with practitioners operating within the development-banking ecosystem. I proposed a case-study format of the research, with four case studies of development banks operating at various spatial scales and heterogeneity in terms of size and context.

Chapter three presented the theoretical space of the topic of development banking for sustainable development. In this chapter, I analyzed the academic and empirical debates regarding four broad categories of topics related to development banking: the topic of development, the role of the state versus the role of the market in economic affairs,

institutions and banking. I concluded the chapter with a set of insights for each of the four topics that guided the subsequent empirical research.

Chapter four presented a case study of the Asian Development Bank (ADB). The ADB was analyzed through the perspective of additionality, and specifically its role as the largest regional development bank in the Asia Pacific region focused on regional cooperation and integration (RCI). In this chapter, I outlined the ADB's efforts in RCI initiatives since its formation in 1966. Through a close examination of the ADB's efforts in this space, I made two arguments. First, I argued that the RCI efforts of a development bank are constrained by ambiguities around what constitutes the region within which they operate. Secondly, I argued that short-term crises could have a significant implication on the long-term strategy and efforts of a development bank.

Chapter five presented a case study of the Uganda Development Bank (UDBL). The UDBL was analyzed through the perspective of human capacity. In this chapter, I argued that the consistency of public policy has a significant impact on the internal capabilities and capacity of a development bank. I further observed that if a development bank is in a capability trap, it might be unable to deliver on its mandate. The internal capabilities and capacities of a development bank are important elements of the institution's ability to perform.

Chapter six presented a comparative case study of the New York Green Bank (NYGB) and the Connecticut Green Bank (CGB). The NYGB and CGB were analyzed through the perspective of policy alignment. The existence of the NYGB and CGB invite themselves for a comparative case study, given the many similarities in terms of structure, geography and mandate of the two institutions on the one hand, and the

divergence in outcomes of the institutions on the other hand. Through this comparative case study, I concluded that the effectiveness of a development bank can be significantly influenced by the institutional context within which they operate and secondly that flexibility and experimentation are important attributes for development banks in terms of their mandate and means of functioning.

In the subsequent sections of this chapter, I offer conclusions, new topics of research and policy implications based on the research process.

III. CONCLUSIONS

In this section, I present the conclusions of my research. I categorize the conclusions in three groups. The first group refers to conclusions regarding the effectiveness of development banks. The second group refers to the spatial scale of development banks. The third group refers to the conceptual underpinnings and methodologies used in assessing the effectiveness of development banks.

a. Effectiveness of Development Banks

The first conclusion is that development banks are institutions that satisfice their mandates to support development outcomes in regions within which they operate. The conclusion that development banks are satisficing institutions was borne out of both the literature review (theoretical space) and the empirical research (contextual places, structure of channels, organizational flows) of the thesis. The concept of satisficing refers to the notion that individuals, and organizations, are not utility maximizing entities because of the various constraints within which they operate (March & Simon, 1958). As

a result of these constraints, individuals and organizations do not act in a way that is optimal from a utility maximization perspective, but rather in a way that satisfices the objectives that they are embarking upon.

From the perspective of theory, I conclude that development banks are satisficers because there still exists no common definition or language around the concept of development – both in regards to what it is and how it is achieved. For each of the four institutions that I studied, it was clear that each of them was attempting to make investments that support "development" in their region in a way that they believed was ultimately useful and beneficial. But none of these institutions approached the choice of investments by trying to understand what is the most productive investment that they can make for whichever sector or development outcome they had in mind. For each of the four banks, there was a pervasive sense of practicality over purism, and I argue that the starting point for this is the challenge of having a definitive and shared understanding of what the end goal of these institutions are.

From the perspective of practice, there were significant and real constraints on the actions of development banks. These constraints included financial shocks (ADB), human capacity (UDBL) and significant changes in policy support (CGB). As a result of these constraints, development banks are operating in a way that they believe are supportive for broader goals of development (but without, necessarily, a clear definition of what that means) but not necessarily ones that are the "most effective" in a stylized or constraint-free model.

The second conclusion is that short-term shocks – political, economic and financial – can have a significant impact on the strategy and direction of a development bank and

potentially its ability to focus on long term issues such as sustainable development. One of the common characteristics of the four development banks that I studied in this project is that exogenous shocks had significant impacts on the strategy and direction of these institutions. In the case of the ADB, the advent of a regional financial crisis had a positive impact on the urgency with which the bank approach regional cooperation and integration matters. In the case of the CGB, however, a one-year budget shortfall for the state of Connecticut led to the institution losing a significant source of capital for its lending activities and operations. It is important to juxtapose the impacts of short-term shocks on development banks with the long-term investment needs for issues related to sustainable development. Given the sensitivities to short term shocks, development banks may have a vulnerability and fragility that needs to be appreciated and understood by policy makers who view these institutions as important actors for financing sustainable development outcomes.

This conclusion highlights a fundamental tension that became apparent in my empirical research. The effectiveness of a development bank can potentially be increased by both consistency and flexibility. With regards to consistency, I observed very clearly how the UDBL was negatively impacted by the inconsistency of public policy in Uganda. I concluded that chapter with a suggestion that development banks could benefit from some elements of rules-based decision making, similar to how many independent central banks operate around the world. With regards to flexibility, however, I observed that the NYGB and CGB both benefited significantly from being flexible organizations, and being able to respond to shifts in their environments given the quickly evolving nature of climate change related technology and public policy.

The third conclusion is that development banks are significantly impacted by their contexts and environment. One clear conclusion from the four case studies is that the context and environment within which a development bank operates can have a major impact on how the bank operates. For the ADB, for example, the existence of a regional financial crisis contributed significantly to the bank taking a more proactive role on regional cooperation and integration initiatives. For the UDBL, the significant political transitions and accompanying changes in ideology around how an economy should be run and managed contributed to long-lasting capability constraints within the bank. For the NYGB and CGB, the divergent paths of the two institutions could be understood by appreciating the institutional context within which they operated and the divergent fiscal health and approach of the local governments.

The importance of context and environment is an important conclusion for this research project because it means that a development bank may not be able to be understood and assessed by merely its own functioning but also by the environment within which they operate. This leads to an important set of questions regarding how researchers and policy makers should understand and assess contextual factors when trying to understand the effectiveness of a development bank itself. For national and subnational development banks, the environmental factors are particularly important because there isn't significant geographical diversification of the bank's operations (in other words, by mandate they are operating within one geographical region with arguably less diversity in outcomes than a regional development bank that is lending to various countries).

The fourth conclusion is that it is challenging to make a general statement regarding the effectiveness of development banks for sustainable development, given the heterogeneity of the institutions within this category. One of the main conclusions of this research

project is that the term "development bank" may not be a useful term for academic or policy reasons, as the term includes institutions that are highly diverse in every way that an institution can be classified. From a spatial perspective, development banks include regional, national and sub-national institutions. From an ownership perspective, development banks include fully government-owned entities and privately owned entities. From a source of capital perspective, development banks raise capital from governments through budget transfers, other development finance institutions, capital markets and energy ratepayers, among other sources. From a use of capital perspective, development banks both lend and make equity investments to a wide variety of sectors and through a wide variety of intermediaries.

As I outlined in chapter two, I purposely chose four development banks for case studies that represented heterogeneity from geographical, developmental and financial perspectives. By understanding each of these institutions, I began to question whether there is more that separates them than that unites them. Given the major disparities in practically every dimension, I came to the conclusion that is highly challenging to make a universal statement about the effectiveness of development banks for sustainable development, beyond the fact that they are satisficing institutions that are all operating within both theoretical and practical constraints.

b. Spatial Scales of Development Banks

The fifth conclusion is that the optimal spatial scale of a development bank is a function of the optimal spatial scale of the interventions that the institutions seek to undertake for development. Development banking architecture can be designed to map the spatial scale

of a sustainable development challenge with banks that are operating at a similar spatial scale.

This may not always work, but can be a useful rule of thumb. For example, the ADB, as a *regional* development bank, was uniquely situated to support the Asia Pacific region during the *regional* financial crisis. It is hard to believe that any set of national or sub-national development banks would have been able to make the concerted efforts that the ADB made during this episode. Equally importantly, the ADB played a role in the financial crisis that even the IMF couldn't play, despite the fact that dealing with short term financial crises is much more related to the IMF mission than the ADB's mission. This remains true for both the software and hardware of regional cooperation and integration that the ADB is promoting. Similarly, the UDBL is uniquely situated to make the national level investments that can support the national development strategy of the Government of Uganda. The UDBL is not focused on regional investment projects of East Africa, in a way that the African Development Bank or the East African Development Bank is. Finally, the NYGB and CGB are two institutions that are operating at the state level in the United States, which is the level at which a significant amount of climate-related policy and therefore investments are being made.

This conclusion is not universal, however. Regional development banks do play an important role to fund national development strategies of recipient countries. National development banks finance projects that indirectly support regional integration efforts and sub-national development. Similarly, sub-national development banks are influenced significantly by national and global public policy regimes. This conclusion is not meant to imply that the spatial scale of a development bank restrains the interventions of the institution to initiatives and challenges of the same spatial scale. It does imply, however,

that there can be a matching of the efforts of a development bank to the spatial scale of the challenges and interventions that they seek to address.

The sixth conclusion of the research is that there exists a tension between the project-by-project nature of individual development banks and the broader policy and systemic changes that may be needed for sustainable development outcomes to be achieved. Development banks functionally operate, for the most part, on a project-by-project basis. They lend to specific businesses and/or infrastructure projects that they believe have a development impact, broadly defined. What I observed from my research though is that often times development banks can be effective in promoting the right public policies and financial policies that support long-term development outcomes, such as what the ADB did during the Asian Financial Crisis. Development banks are not regularly involved explicitly in the creation of public policy or broader programs that could affect many individual projects at the same time. There is an argument that sustainable development can only be achieved through significant policy intervention by government, including carbon pricing for climate change and changes in tax policies for inequality, for example (Nair, 2018). If one subscribes to those arguments, then that would mean that development banks should shift their focus more to policy advisory work compared to their traditional focus on individual projects.

c. Conceptual Underpinnings and Methodology of Analyzing Development Banks

The seventh set of conclusions is with regards to the four conceptual propositions that I put forward in chapter one of the thesis and that were analyzed as the building blocks of

chapter three. In this section, I analyze how the empirical research corresponds with the conceptual propositions upon which development banks exist.

a) Proposition 1: Development is a desired outcome and can be achieved through increased investments.

The first proposition was supported by the empirical research. Even though the terms "development" and "sustainable development" were not necessarily clearly defined by any of the development banks that I studied, each of them were operating in environments where there was strong interest for an improvement of living standards and sustainability outcomes. This strong interest was demonstrated by both the participants in the research, through the interviews and close dialogue sessions that I conducted, as well as through the background research that I undertook by examining annual reports and other publications related to the research topic. More specifically, contemporary international development frameworks such as the Sustainable Development Goals (SDGs) and the Paris Climate Agreement were also being utilized, to some extent, in order to shape the function and the priorities for each of the banks. In addition, the four development banks that I studied all operated in environments where there was broad acceptance that development could only be achieved if additional investments were made in sectors and projects that were deemed necessary for sustainable development. There was no data – quantitative or qualitative – or beliefs expressed that the desired developed outcomes could be achieved without additional investments.

b) Proposition 2: The state is needed to make certain investments that the private sector will not make.

The second proposition was supported by the empirical research. Although there is significant theoretical debate around the optimal role of the state versus the role of the market in economic affairs, my empirical research did not lead to any data that the state-owned developments banks were not needed for sustainable development or that they were impeding upon the private sector. For example, the work of the ADB on regional integration and cooperation, from both a policy and an infrastructure perspective, is work that would be very difficult for any private sector institution to emulate at rates of return that would justify their participation. In Uganda, the private sector institutions that I spoke with were all very supportive of the UDB and in fact were generally advocates of the UDB playing a larger, not smaller, role in credit allocation. In New York and Connecticut, the commercial banks and project developers with whom I spoke were supportive of the NYGB and CGB and hoped that their role in the green energy market would increase.

c) Proposition 3: Dedicated institutions are needed to make the required state-driven investments for sustainable development.

The third proposition was neither confirmed nor disproven by the empirical research. Development banks are one possible mechanism through which the state can direct investments, but there are many other mechanisms as well that can accomplish similar goals. These other mechanisms include other types of financial institutions (see below), directed credit policies and regulations for commercial banks and fiscal policies that adjust the relative prices of desired versus undesired products. Development banks therefore serve a certain function, but there are many forms through which that function can be achieved. My research focused specifically on development banks, and therefore there was a structural bias in that I was intending to study these institutions and not the

broader question of how government can direct investments. However, through my research, I encountered both empirical studies and individual participants who questioned whether the ultimate goal that development banks had in financing development outcomes could be achieved through other governmental instruments and mechanisms. These data led me to conclude that the proposition that dedicated institutions are needed to make state-driven investments is neither confirmed nor disproven from the empirical research of this thesis.

d) Proposition 4: Banks in general, and development banks specifically, are one specific type of institution that is needed for state-driven investments in sustainable development.

The fourth proposition is neither confirmed nor disproved by the empirical research. The main reason that this proposition is neither confirmed nor disproven is the heterogeneity of institutions that are called "development banks." Within the category of development banks, there exist institutions that are fundamentally different from both a sources and uses of capital perspective. The ADB is owned by a group of sixty-eight countries and is financed by the capital markets. The UDB is owned by one country and is financed by annual budgetary transfers from the Government of Uganda. The NYGB and CGB are funded through surcharges on energy ratepayers and resembles a fund structure more than a bank structure. Without a clearer definition of what constitutes a "development bank" from a financial perspective, I do not believe that we can confirm this proposition categorically.

The eighth conclusion of the thesis as a whole is that analyzing the effectiveness of a development bank by examining the institution through a fine-grained analysis is a

productive way to understand a specific aspect of the institution but it does not capture a full picture of how the institution operates. In this thesis, I approached the analysis of the effectiveness of development banks using two approaches – the strategic constituents approach and fine-grained analysis. With regards to the strategic constituents approach, I undertook semi-structured interviews and close dialogue to identify significant topics that they believed impacted the effectiveness of the development bank in question. With regards to fine-grained analysis, I then chose one particular aspect of the bank to research in detail. The decision to examine development banks through one specific attribute was influenced significantly by empirical work of economic geographers on the topic of sovereign wealth funds.

The approach that I used had both successes and shortcomings. The main positive attribute of this approach was that it limited the scope of the study of specific institutions in a manner that allowed for deeper analysis. For the ADB, I investigated the institution through the prism of institutional additionality and specifically how the institution evolved its approach towards regional cooperation and integration. For the UDBL, I examined the institution's capacity as a bank and found linkages between public policy changes and the internal capacity of the institution. For the NYGB and the CGB, I studied how these development banks attempted to align themselves with their state's policy frameworks, and this research underscored the importance of institutional flexibility.

The shortcoming of the methodology though is that it does not allow for a full examination of any specific development banks. During the research process for each individual institution, I became aware of many other important topics that impacted the banks' effectiveness for sustainable development. The fine-grained analysis certainly

allows for focused research for an institution, but it also leads to a limiting of the scope which can provide an incomplete picture of the bank's full efforts for sustainable development. This research process made this dynamic between focus and completeness clear to me.

IV. CONTRIBUTIONS TO LITERATURE

The research presented in this thesis is inter-disciplinary in its scope. The topic of the research – the economic geography of development banking for sustainable development – touches on various academic disciplines, including geography, economics, finance, political science and sociology. The topic of this research is also public policy relevant, as it focuses on how public financial institutions have responded, and potentially could respond, to the challenges and opportunities brought about by sustainable development. Therefore, the contributions of this thesis relate to both a variety of academic disciplines and public policy questions. Specifically, I argue that this thesis contributes to the broader academic and policy literature in three discrete ways.

First, this thesis is an economic geography analysis of development banking. The economic geography approach is distinct from previous analyses of development banks from both a substantive and methodological perspective. From a substantive perspective, this thesis examined the spatial orientation of development banking. By even asking the question of how spatial orientation impacts effectiveness, this thesis has provided an additional perspective on the topic of development banking. From a methodological perspective, this thesis unabashedly makes the case that qualitative, case study and mixed-methods approaches can provide important insights into economic and financial

questions. The methodological heterogeneity of economic geography allowed me to approach the topic with a broader set of tools than what is allowed in most pure economics, finance and development studies analyses.

Second, this thesis utilizes a conceptual framework for the analysis of specific organizations functioning in the realm of sustainable development – space, place, channels and flows. This four-part framework is inspired significantly from conceptual and empirical work of economic geographers working on topics related to urban development, institutional investment and green finance. This four-part conceptual framework is, I argue, an important contribution to the field of sustainable development for two reasons. First, it links theory (theoretical space), to context (contextual place) to organizational behavior (structure of channel and organizational flow). This linkage is important, I argue, since the study of how organizations function in practice is linked to both the context within which they operate and the theoretical debates that informed why they exist to begin with. This framework could be a useful contribution to both academic and policy analyses of other types of organizations operating in sustainable development.

Third, from a conclusions perspective, this thesis brings together an influential field of thinking in the economics of institutions and organization to the realm of how development-oriented organizations operate. Herbert Simon's work on bounded rationality had a significant influence on how economists and sociologists think about rationality of human behavior and organizational decision-making. His work, as demonstrated through this thesis, has a potentially profound impact on how researchers and policy makers should think about the role of specific organizations in responding to

the challenges of sustainable development. Given both the internal and external constraints of development banks and the inherent challenges in defining "development," my research suggests that development banks can merely satisfice their broad mandates regarding promoting development outcomes. This conclusion could potentially spark a new sub-field of research in development studies regarding how the organizations of development function given the limits to their abilities.

V. FURTHER RESEARCH

In this section, I present topics of further research that will advance our academic and policy-relevant understanding of the effectiveness of development banks for sustainable development. There are many possible research topics on the topic of development banking, given the relatively understudied nature of this form of financial institution. I suggest topics that, based on my research, would be most beneficial for broadening our understanding of development banks for sustainable development. I categorize possible further research topics into two sub-categories: the form/function of development banks and the performance of development banks.

a. Form and Function of Development Banks

The first proposed research topic is to analyze the decision making of governments to create a new institution, in the form of a development bank, versus to direct credit from the formal, pre-existing banking system through other means, such as quotas and subsidies. Governments have many tools by which they can direct capital to sectors that are deemed necessary for sustainable development. These tools include the creation of

dedicated institutions such as a development bank as well as creating incentives or regulation for pre-existing financial institutions to provide capital to specific sectors. The topic of development banking for sustainable development would be significantly enhanced, I argue, by developing a deeper understanding of what decision making processes lead to one outcome versus the other.

The second proposed topic of research is an analysis of how development banks coordinate their activities with one another and with other state/government investment vehicles. On the topic of development bank coordination with one another, there are important linkages between development banks, which I uncovered in my research that are underexplored in academic and policy research. First, development banks often fund one another, with large, regional development banks offering low-cost lines of credit to national development banks that then on lend this capital for projects. This was the case, for example, for the UDB, which received significant lines of credit from the Islamic Development Bank, the Export-Import Bank of India and the African Development Bank (UDB, 2017). Within countries themselves, development banks often coordinate activities, but to different levels of success in terms of project achievements. The study of the effectiveness of development banking for sustainable development would be significantly enhanced by understanding the various linkages of development banks to one another and proposing models for improved coordination.

On the topic of development bank coordination with other state driven investment vehicles, I would be interested in exploring how development banks can and do coordinate with institutions such as sovereign development banks and sovereign wealth funds, both of which are institutional mechanisms that are increasingly in popularity. Development banks often have overlapping mandates with development funds and some

times with sovereign wealth funds too. By studying how development banks interact with these other types of institutions with similar mandates, I argue that the research and policy community would have a clearer sense of what type of institution is needed for what types of problems.

The third proposed research topic is to develop a more systematic understanding of the different mechanisms by which development banks can leverage their public capital to "crowd in" private capital. The reason I argue that this is an important topic for development banks is that there are both explicit and implicit mechanisms through which development banks interact with private capital. From an explicit perspective, development banks such as the World Bank and the ADB access international bond markets as a source of funding which is then used for development financing. From an implicit perspective, development banks can de-risk projects that then allows private capital to be invested in the projects. There are therefore many interaction points between development banks and private capital and the relative merits and track records of these interaction points are not well understood by either academics or policy makers. Given that the sustainable development agenda presents a multi-trillion dollar per year investment challenge, this proposed research topic could lead to significant implications on policy.

The fourth proposed research topic is to understand how development banks contribute to "knowledge" about development and to public policy. For both topics, I am interested in the role of development banks as institutions that influence knowledge and public policy as opposed to their role as institutions that are influenced by knowledge and public policy. On the topic of knowledge, development banks are institutions whose operations provide a wealth of information on the practical challenges and successes of

economic and sustainable development. Given that development banks finance hundreds/thousands of development projects, I would be interested in charting how the lessons learned from these projects influence the development bank itself, the broader financial community, government ministries and academia. On the topic of policy, I am interested in understanding how development banks impact policy decision making at the more macroeconomic and macro political levels. I am interested in knowing how the project and sector level outcomes of development bank interventions influence larger policy decisions that occur at the international, national and subnational levels. Development banks are often considered "policy banks," in so far as they are financial institutions that are guided by public policy, but I am interested in charting the flow of information in the opposite direction.

b. Performance of Development Banks

In this section, I propose research topics with regards to various aspects of the performance of development banks. These topics relate to issues regarding the performance and effectiveness of specific types and aspects of development banks that I was not able to research in the thesis.

With regards to the performance of development banks, the first proposed topic for further research would be to study the effectiveness of community level development banks on sustainable development, examining in particular community development finance institutions (CDFI) architecture within the United States and other similar financial institutions globally (Appleyard, 2011; Benjamin et al., 2004; Brau & Woller, 2004). These types of financial institutions are heterogeneous in form and function. This research could be helpful for the broader academic efforts on studying development

banking and development finance for a few reasons. First, this proposed research would complete the spatial analysis that has been started in this thesis, which has examined the effectiveness of development banks at the global/regional, national and sub-national levels. Although community development banks can be considered sub-national, I argue that they can be viewed as a separate group of financial institutions, given the fact that most CDFIs are not directly owned or managed by government actors. Second, by understanding CDFIs in more detail, we can develop a more full conceptual picture about how development banks at various spatial scales can interact with one another.

The second proposed topic of research is on the impact of politics on the effectiveness of development banks. The research presented in this thesis intentionally did not focus on the implications of politics on how development banks operate. I did not focus on this topic, as I believe that such an analysis is worthy of its own dedicated research efforts. The study of the effectiveness of development banks for sustainable development would benefit significantly from a formalization of the study of how political influences impact the strategy and direction of these types of financial institutions. To date, most of the discussions of this topic have been anecdotal, alluding to the fact that development banks are vulnerable to political influence given that governments generally own them. From my research for this thesis, I observed the impacts of politics on the effectiveness of development banks, particularly with the CGB and the impact of the state legislature in significantly decreasing the size of the bank. Specifically, the study of the impact of politics on development banks would benefit from the presentation of a conceptual and theoretical framework of how political influences can be both beneficial and detrimental to the effectiveness of development banks.

The third proposed research topic would be to study the effectiveness of development banking for sustainable development from the bottom-up, which would mean understanding the project-level and company-level impact of development bank lending and investments. One way of understanding the impact of development bank financing on projects would be to do a comparative case study between a development bank funded project and a non-development bank funded project in the same sector and in the same geography. For example, I believe it would be enlightening to understanding in detail the project level outcomes of an infrastructure project in Kampala, Uganda that was financed by the UDBL a private sector financial institution versus an impact investment fund. By controlling for as many variables as possible – sector and region – we could try to understand how the intervention of a development bank changes the outcomes of a project compared to other types of financing. This type of project-level research would be a significant contribution to both the collective understanding of development banking for sustainable development and also to the methodology and conceptual frameworks that are used to assess development banks.

The fourth proposed research topic is to improve the understanding of the geographical attributes of development bank financing. The geographical attributes of development bank financing are determined by various factors, including mandates, needs and behavioral biases. With regards to mandates, some development banks have quantitative and regulatory mandates that determine how they allocate capital on a geographic basis. With regards to needs, development banks can determine their geographical allocation of capital based on a needs assessment. With regards to behavioral biases, it is possible that development banks have behavioral biases that cause capital to be allocated in clusters due to behavioral biases, similar to home biases of investors (Coval & Moskowitz, 1999; K. Lewis, 1999). Given the geographical unevenness of development outcomes, it is

important for scholars and practitioners to understand whether there is a similar geographical unevenness in the capital allocation of development banks.

The fifth proposed research topic is to study how the existence of development banks impacts the economic behavior of other economic agents operating in a specific geography. In an important 2004 study, Gertler demonstrated how divergent manufacturing processes and technologies between Germany and North America could be understood from divergent national institutional structures regarding labor laws and financial flows and architecture (Gertler, 2004). The existence (or lack thereof) of certain institutions can have a significant impact on other aspects of an economy (Gertler, 2018), often times unbeknownst to the economic actors themselves. This framework could be applied to the topic of development banks or development finance institutions more broadly by investigating, in a comparative manner, how the existence of development-oriented financial institutions changes the behavior of other economic actors.

VI. POLICY IMPLICATIONS

In this section, I present the policy implications of the research presented in this thesis.

The first policy implication of my research is the suggestion for a recalibration – at the global level – of the role of development banks in the sustainable development transition. The international development system, in particular the United Nations' official processes regarding sustainable development, have placed a significant emphasis on the role of development banks in financing the multi-trillion dollar investment gap for the SDGs. As I outlined in chapter one, the role of development banks in financing economic and sustainable development has been central to all three international

development financing frameworks and policy documents – the Monterrey Consensus (2002), Doha Agreement (2008) and the Addis Ababa Action Agenda (2015), within which there were thirty three references to development banks' role in various aspects of filling the investment gaps for the sustainable development agenda (*Addis Ababa Action Agenda*, 2015; *Doha Declaration on Financing for Development*, 2008; *Report of the International Conference on Financing for Development*, 2002).

The research presented in this thesis however gives reason for a more cautious approach, given the institutional challenges that development banks face, regardless of their geographic position and spatial size. In this thesis, I analyzed in detail four significant development banks in their respective regions and geographies. I concluded that these development banks are satisficing institutions with regards to their role in supporting 'development' initiatives in their respective regions. The satisficing nature of development banks is understandable, given the theoretical and practical challenges of financing projects that support 'development,' a term which in and of itself is not well defined. From this perspective, I believe that development banks will likely not be the primary drivers for financing the sustainable development transition, but will rather contribute to the agenda given the significant constraints and the bounded nature of their decision-making.

One possible way for development banks to overcome the challenges is through a re-examination of their mandates. Development banks, in general, have broad mandates, which are linked to the broadness and ambiguity regarding the concept of development. One could argue that the mandates and aspirations of most development banks are impossible to fulfill. The conclusion of my research points to the fact that development banks can only satisfice these aspirations, making the effectiveness of a development

bank minimal compared to what they are intended for. One possible way to adjust for this is for development banks to write mandates, mission statements, measures of performance and metrics that are less aspirational and much more concrete, perhaps even by removing the term "development" in order to clarify what the intended goal of the bank is. The process by which a development bank re-examines its mandate will differ for each individual organization. I believe that more focused mandates, with clear links between mandates and measures of performance, could increase the likelihood of development banks playing a more decisive role in financing sustainable development than they currently are.

The second policy implication of my research is the need to create a global platform for development banks, at various spatial scales, to systemize the data, the challenges and opportunities that development banks face. During the research process, it became very clear that the global development banking community does not have the type of institutional support that other aspects of the financial system, such as central banks, sovereign wealth funds and pension funds, do. The World Federation of Development Finance Institutions (WFDFI) is a loose association of regional associations of development finance institutions, which are quite small from a staffing perspective and face significant challenges in raising funds for their own operations. The lack of a systematic effort for understanding the size, scale and challenges of development banks can be understood by examining the recent World Bank Survey on National Development Banks, which had only one hundred responses and didn't include seven out of the ten largest national development banks (Martinez, 2017). Since there is no official organization that has truly taken up the topic of development banking for sustainable development, there remains no central platform for quantitative data of development banks or a research agenda created by a group of organizations.

One of the most important contributions of a global platform for development banks would be the creation of best practices for development banking at various spatial scales – regional, national and sub-national. The design of best practices for development banks, however, should be borne out of detailed case studies of the functional performance of developments, much in the same way has been done in the field of institutional investors and pension fund specifically (Clark & Urwin, 2008).

Given that development banks are plentiful in number and are considered to be an important institutional tool for sustainable development, I believe that there would be a significant benefit for one or two research and policy institutions to come together to build a global platform for development banks. The Organization for Economic Cooperation and Development (OECD) is a strong contender, given its mandate and pre-existing research efforts for various topics that are already in line with the development-banking topic.

In chapter one of this thesis, I presented a definition of a development bank as "a financial institution, directly owned by the state, that has an explicit development mandate." I presented this definition after highlighting the heterogeneity of definitions used by scholars and practitioners in the field of development finance. The definition that I presented is admittedly broad and open to many interpretations and critiques. For example, what does it mean to have a "development mandate"? Also, with regards to state ownership, does that mean a development bank has to be fully owned by the state or could it be partially owned? The research process for this thesis proved, however, that the broader umbrella of "development banks" might not be a useful description of the broad set of organizations that currently fall under the category. There are no simple

ways to further classify these institutions given their heterogeneity. As noted throughout this thesis, the sources of capital, uses of capital, regulatory structures, governance frameworks and mandates of institutions currently classified as "development banks" vary significantly.

One of the key goals of such a global platform would be to disaggregate the broad umbrella of "development banks" into at least the following sub-categories: function, geography, size, spatial dimensions and ownership. This disaggregation exercise would directly respond to the second concluding proposition of my research, which alludes to the fact that the category of "development banks" may be too broad and include institutions that are too dissimilar from one another in order for any general conclusions to be made about their effectiveness. I believe that one way for this challenge to be addressed is by the creation of clearer analytical categorizations that are then backed by research efforts. Once these analytical categorizations are done by an independent research and policy organization, it may be possible to delve deeper into a systematic analysis – quantitative and qualitative – of the various forms of development banks that exist around the world. This would be a significant step forward in deepening the collective analytical understanding of the broad set of organizations that currently operate under the umbrella of development banks. I also believe that this would be a more useful approach towards furthering the collective understanding of development banks compared to attempting to develop a very strict definition of a development bank which will, inevitably, leave many important institutions outside of its domain and therefore potentially limit research and policy focus on the institutions themselves.

The third policy implication of my research is that development banks should ensure that their mandates and strategies are resilient to short term shocks. For each development

bank, this exercise will be different, as the particular environment and therefore shocks that they may deal with differ from one another. However, what is crosscutting is the realization that development banks operate with a fundamental tension between their long term objectives and their vulnerability to short term shocks. In some instances, a short-term shock such as the Asian Financial Crisis was productive for the ADB in that it forced the institution to play a definitive role on regional affairs. In other instances, a short-term shock, such as a change in government or in the financial health of a region, can have deleterious impacts for a development bank. The implication though is that development banks should each develop their own strategies for how they would respond to different exogenous shocks to the institution so that their long-term goals are not compromised, and if anything, can be enhanced.

The fourth policy implication of my research is regarding the spatial orientation of development banks. The effectiveness of the entire development banking for sustainable development may benefit from an attempt to map the spatial levels of the main impediments/challenges regarding the financing of sustainable development to the spatial levels of the banks. For example, regional development banks could be tasked with focusing predominantly on the regional challenges in Asia and Pacific, Africa, Latin America, Europe and North America. Similarly, the national development banks could be tasked with focusing on the issues pertaining to sustainable development that are "best addressed" at the national level. Finally, sub-national development banks could focus their efforts on aspects of sustainable development that require very close proximity to the end client, which is possible through smaller but more common sub-national development banks. This type of mapping would require the development of a methodology to clearly understand the spatial orientation of the "binding constraints" to the financing of sustainable development. This type of analysis has not yet been done in

the public policy domain, but could be a very helpful starting point to a more efficient and effective use of development finance institutions for sustainable development.

The fifth policy implication is that at the national level, institutional assessments to understand the current and future role of development finance institutions for the sustainable development agenda should be carried out. Very few countries have undertaken a "financial sector planning" exercise with a specific lens to the institutional architecture needed for sustainable development. The United Nations Development Program (UNDP), the development-funding arm of the United Nations, has recently created a methodology for undertaking "Development Financing Assessments" of their member countries (*Development Finance Assessment and Integrated Financing Solutions*, n.d.). These assessments examine the historical sources and trends of development financing (domestic public, domestic private, international public and international private) and provide recommendations for national governments to increase and improve the quality of development financing for their respective needs for sustainable development initiatives. However, these assessments do not take an institutional approach in their analysis, ignoring for the most part the organizational and institutional dynamics of development finance institutions that this thesis sought to analyze.

National governments would be well served by undertaking country-level assessments of the various "development" oriented financial institutions and operations that are already in existence. This would include understanding the role of regional, national and sub-national development banks operating within their regions, directed credit programs as well as the efforts of the private sector financial institutions in development related themes and topics. This institutional analysis could cover both the quantitative aspects of

these financial institutions as well as the qualitative/organizational elements of their effectiveness and behavior.

The sixth policy implication of my research is that development banks can consider adopting the conceptual framework that I used for this thesis. Effectiveness evaluations of development banks vary significantly. The large multi-lateral development banks undertake periodic effectiveness assessments. These assessments focus primarily on trying to quantify the impact of development bank financing on the real economy, through key performance indicators such as number of jobs created, number of miles of roads built, amount of energy production financed and other such indicators.

Based on the research presented in this thesis, I argue that the effectiveness assessments of development banks could benefit significantly from adopting the perspectives, places, channels and flows framework that I utilized. I would also recommend that effectiveness assessments take on a detailed case study approach. This would be a welcome addition to current effectiveness assessments in three ways. First, the effectiveness evaluations would force the development bank to reassess the theoretical underpinnings of the bank's function through the first part of the framework (theoretical space). This exercise could be quite useful for the leadership of a development bank to examine whether there remains agreement on why the development is in existence. Second, the effectiveness evaluations would put a stronger emphasis on the contextual place. As of now, most effectiveness assessments are geographic and context agnostic. This is a significant shortcoming on how development banks are officially assessed. Third, the conceptual framework that I used focuses on one aspect of the organizational flows of the development bank. This form of assessment requires a deep examination of one aspect

of a bank's operations for development. This approach may improve and enhance the current efforts of undertaking effectiveness assessments of development banks.

Appendix I: CUREC Application

CENTRAL UNIVERSITY RESEARCH ETHICS COMMITTEE (CUREC)

Form CUREC 1A Checklist for the Social Sciences and Humanities

The University of Oxford places a high value on the knowledge, expertise, and integrity of its members and their ability to conduct research to high standards of scholarship and ethics. The research ethics clearance procedures have been established to ensure that the University is meeting its obligations as a responsible institution.

They start from the presumption that all members of the University will take their responsibilities and obligations seriously and will ensure that their research on human subjects is conducted according to the established principles and good practice in their fields and in accordance, where appropriate, with legal requirements. Since the requirements of research ethics review will vary from field to field and from project to project, the University accepts that different guidelines and procedures will be appropriate.

- Please check the **CUREC flowchart and NHS flowchart** first to see if you need ethics approval.
- Please complete this form using a word processor and email it, together with your supporting documents, to your **Departmental Research Ethics Committee (DREC)** (**if applicable**). If you don't have a DREC please email this form to **ethics@socsci.ox.ac.uk** using your official **ox.ac.uk email** address. **Only emailed applications will be accepted.**

WHAT THIS CHECKLIST IS DESIGNED FOR

This **CUREC 1A checklist** is designed largely for research that falls within the Divisions of Social Sciences and Humanities where ethical issues are relatively few and straightforward. Interviews, field work and oral history are also included in the CUREC process.

The **full CUREC 2 application** is only required where certain project characteristics (e.g. type of participants, or procedures) result in a more complex set of ethical issues. It is expected that only in a limited number of cases will it be necessary for researchers to complete a CUREC 2 application. The checklist below will direct you to a CUREC 2 application if needed.

WHAT THIS CHECKLIST WILL NOT ASSESS

This checklist does not cover research governance, satisfactory methodology, or compliance with the requirements of publishers when administering their tests or questionnaires. As principal researcher, it is your responsibility to ensure that requirements in these areas are met.

CUREC does not review studies classed as **audit** (see Glossary and Decision Flowchart for CUREC on our website).

If your study involves **NHS patients, NHS staff / data / facilities, or human tissue**, please check the Decision Flowchart for NHS approval and contact the Clinical Trials and Research Governance (CTRG) team in the first instance.

Further information on the University's research ethics procedures is available from the CUREC website: www.admin.ox.ac.uk/curec.

SECTION A: Filter for CUREC2 application

This section determines whether your study raises more complex issues which require the completion of a full application for ethical review, known as the CUREC 2 application.

(Please mark 'X' in the Yes/No column as appropriate to indicate your response.)

1.	Are research participants classed as **people whose ability to give free and informed consent is in question**? (This may include those under 18 (though see "competent youths" in **FAQ C12**), prisoners, or adults "at risk".) Your attention is drawn to the University's **Safeguarding Code of Practice** and its implications for researchers involving children or adults at risk, including the need for the work to be risk assessed and for researchers to undertake related training. (**Note**: If any of your participants are aged 16 or under, please answer 'Yes' here **and** also answer question 5 below.)	Yes	No **X**
2.	By taking part in the research, will participants be at serious risk of criminal prosecution (e.g. by providing information on drug abuse or child abuse)?	Yes	No **X**
3.	Does the research involve the **deception** of participants?	Yes	No **X**
4.	Does your research raise issues relevant to the **Counter-Terrorism and Security Act (the Prevent duty)**, which seeks to prevent people from being drawn into terrorism? Please see advice on this on our **Best Practice Guidance web page**.	Yes	No **X**

If you have answered 'No' to all of the questions above please go to **Section B**. If you have answered 'Yes' to any question above continue to question 5 below.

5.	Is your project covered by a CUREC **approved procedure** (formerly known as "CUREC Protocols")?	Yes	No

If yes, please give research procedure number(s):

If you answered '**Yes'** to **ANY** of questions **1-4**, **and** answered '**No'** to question **5**, **please stop completing this checklist and do not submit it for ethical review**. Instead, please complete the CUREC 2 application form from the CUREC website. Then submit the CUREC 2 form for ethical review.
If you answered 'Yes' to ANY of questions 1-3, **and** answered 'Yes' to question 5, please go on to **Section B**.

SECTION B: Contact details and project description (NB: must be typed not handwritten)

Contact details:

1. **Principal researcher**/supervisor (title and name) (if student research):	Professor Gordon Clark
2. Name of student (if student research):	Aniket Shah
3. Degree programme, e.g. DPhil, BA, MPhil, BSc, MSc (if student research):	D Phil
4. Department or Institute name:	Geography and Environment
5. Address for correspondence (if different from above):	62 Woodstock Road, Oxford OX2 6EY
6. University e-mail (**not** private email) and telephone:	aniket.shah@sant.ox.ac.uk
7. Name and status of others taking part in the project, e.g. third year undergraduate; postdoctoral research assistant:	N/A

SECTION B continued	
Project description:	
8. Title of research project:	Economic Geography of Development Banking for Sustainable Development
9. List of location(s) where project will be conducted:	New York City, USA, potentially with travel to the Philippines, India, and Rwanda
10. If your research involves overseas travel or fieldwork, by the time the research starts, will you have completed and returned a travel risk assessment form? (This has to be approved by your department before you travel. If you are travelling overseas, you are strongly advised to take out University travel insurance.)	Yes **X** No N/A
11. Anticipated duration of research project overall:	24 months or 2 years (maximum 5)
12. Anticipated start and end dates of the research project involving human participants:	From: 01/08/2017 To: 01/08/2019 Please note that you will need ethics approval **before** you start your research. CUREC1As may take up to 30 days to process.
13. External organisation funding the research (if applicable):	**N/A**
14. Title and very brief and simple lay description of **research** (about 150 words), plus description (about 200 words) of the nature of participants.	
a) Title, brief lay description of research (150 words). When describing the research, please include your methodology, how you are applying professional guidelines, and the use to which results/data will be put. **Please also declare any conflicts of interest here.**	

Title: The Economic Geography of Development Banking for Sustainable Development

Description: My research will seek to answer two fundamental questions. First, are development banks effective financial institutions for sustainable development? Second, at what geographic scale – global, regional, national or local – are development banks most effective?

The methodology for my research is qualitative and quantiative. For the qualitative aspect, I will be undertaking a series of interviews and also conducting an online expert opinion survey for each of the four development banks that I am studying.

I will be applying the ethical guidelines laid out in the Association of American Geographers Statement on Professional Ethics, the Royal Geographical Society's Research Ethics and Code of Practice and the Social Research Association's Ethical Guidelines.

The restuls/data will be used for my doctoral thesis. The results are not to be used for commercial use.

There are no conflicts of interest to report.

SECTION B continued

b) Description of participants and **obtaining informed consent** (200 words). When describing participants, please include

- criteria for inclusion/exclusion
- method of recruitment
- processes for consent to participate

Please ensure you attach as separate documents (if applicable, in English translation):

- your recruitment and advertisement material e.g. a poster or brief invitation letter/ email
- information for participants to read (or hear) before they agree to take part e.g. written information sheets or (only if applicable) oral information scripts.
- a document to record informed consent. Templates for written consent forms and/or oral consent scripts (in case of an oral consent process) are available from the CUREC website
- a guide to interview questions (this may be a list of questions to be asked, or a preliminary scope of questions), or a sample of other instruments (such as a sample questionnaire)
- (if relevant) debriefing document after participants have taken part

The participants of my research will be development finance professionals that are involved with the development banks that I am studying. These professionals include, but are not limited to: government officials, economists, project developrs, commercial and investment bankers and members of academia and civil society.

For each of my four case studies, I plan to interview 10-15 people and conduct an online expert opinion survey with 50-60 people. I will identify the relevant subjects through a detailed stakeholder mapping exercise for each development bank that I am studying. Through this exercise, I will identify the key actors with whom I would like to engage in order to better understanding the functioning of the development bank with regards to sustainable development.

The criteria for inclusion/exclusion will center on the people's relevance and expert knowledge with regards to the research questions that are driving my doctoral research. I will determine this on a case by case study, after deep research into the questions and the people that I am reaching out to.

The method of recruitment will be by phone and email. I will endeavor to call and/or write to the people that I want to interview. For the survey, I will do that by email/internet, as it will be an electronic survey.

The process of consent will be written. For those that are unable to do written consent, I will undertake oral consent.

15. What are the ethical issues connected with your research and what steps have you taken to address them? Please do not answer 'none'. The committee needs to see evidence that you have identified potential ethical issues with respect to your research and have taken steps to address them. These issues could relate to:

- your own physical and psychological safety as a researcher (please see the University's and Social Science Division's Safety in Fieldwork guidance
- participant burdens and/or risks, and
- data protection/ confidentiality.

For more guidance on ethical issues, please see www.admin.ox.ac.uk/curec/resources/.

Overall, there are not many ethical issues connected with my research, which focuses primarily on getting expert opinions and perspectives through interviews and surveys with professionals who are involved with development banks around the world. I will not collecting private, sensitive data from any of the participants of my research.

The main potential ethical issue with my research revolve are the burdens for the participants of the interviews and surveys that I will be conducting. Some of the participants may be worried about the anonymity of the answers that they provide to my questions and the implications for their jobs and careers. To mitigate this, I will make it clear in the written consent form that the information collected will remain anonymous. Also, I will not record the conversations, but rather will take notes, to mitigate the risk of the recordings being hacked. Finally, I will also ensure that I undertake all best-practices in data management to ensure that the data collected cannot be accessed by anyone else.

Section B continued

16. Will you obtain informed consent according to CUREC guidelines and good practice in your discipline before participation?	Yes **X**	No
If you have marked '**No**', please give a brief explanation and justification for this decision here:		
17. Will your research involve discussing sensitive issues? This could be information relating to race or ethnic origin, political opinions, religious beliefs, physical/mental health, trade union membership, sexual life or criminal activities.	Yes	No **X**
If you have marked '**Yes**', please make sure that you have included some **supporting information** (as directed in question 14 of this section) showing the range of questions covering these issues.		
18. Will you ensure that **personal data** collected directly from participants or via a **third party** is held and processed in accordance with the provisions of the Data Protection Act?	Yes X	No
19. How will you ensure that any personal and/or sensitive data are captured, transferred and stored securely? In particular if data are to be captured electronically, please consult with the University's research data team (**researchdata@ox.ac.uk**) and your local IT department and, with respect to University IT security policies, please comment on how you will capture such data in the first instance, how you will transfer them over networks or via portable media and how, where and how long data will be stored. For more information please see the University's web pages on research data management: http://researchdata.ox.ac.uk/university-of-oxford-policy-on-the-management-of-research-data-and-records/		

I will ensure that I closely follow the University Policy on Data Protection, which I have read carefully. This Policy provides very clear guidelines about personal and sensitive data, which I will follow in the collection of my data.

First, I will ensure that there is official written and/or oral consent for any interview and survey response.

Second, I am not planning to collect any sensitive data from my interviews or surveys. In other words, I will not be asking or collecting any of the following information: racial or ethnic origins; political beliefs; religious or other beliefs; trade union membership; health; sex life; criminal allegations, proceedings or convictions.

Third, despite my intentions as stated above, there is the chance that I will be collecting sensitive data through my interviews and surveys. As a result, I will take every possible effort to secure the data storage. This includes, but is not limited to, the following provisions:

1) Password Protection: I will password protect all files related to this research project and all folders within which they reside. I will also keep these documents on a password protected computer.

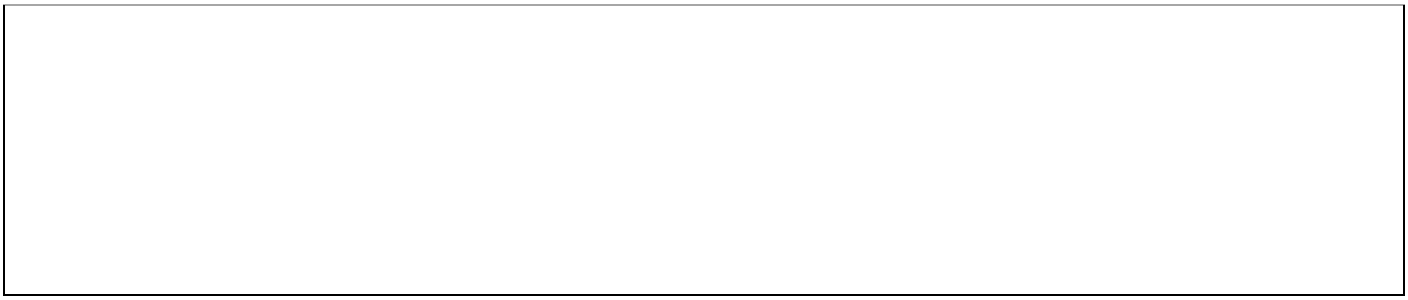
2) Encryption: I will use a high-quality encryption software to ensure the confidentiality and security of the information that I have in my files. As of now, I am planning to use the AxCrypt Premium software which is

highly rated.

3) Limiting Where the Data Are: I will be very conscious about where the data are kept. I will not keep the files on any computers that others (even friends or family) can use or will have access to. Regardless, all the relevant files will be encrypted and password protected.

SECTION C: Methods and procedures to be used

Method used: Please ensure you have addressed any potential ethical issues related to these methods in Section 14 and in your Participant Information Sheet	**Please mark 'X'**
1. Analysis of existing records	
2. Snowball sampling (recruiting through contacts of existing participants)	
3. Use of casual or local workers e.g. interpreters	
4. Participant observation	
5. Covert observation	
6. Observation of specific organisational practices	
7. Participant completes questionnaire in hard copy	
8. Participant completes online questionnaire or other online task	X
9. Using social media	
10. Participant performs paper and pencil task	
11. Participant performs verbal or aural task (e.g. for linguistic study)	
12. Focus group	
13. Interview	X
14. Audio recording of participant (you will generally need specific consent from participants for this)	
15. Video recording of participant (you will generally need specific consent from participants for this)	
16. Photography of participant (you will generally need specific consent from participants for this)	
17. Others (please specify):	



SECTION D: Professional guidelines and training		
In this section, please mark 'X' against at least one of the following professional guidelines you aim to adhere to. You should use the principles listed in your chosen guideline(s) in conducting your own research. **Note**: this is not an exhaustive list.		**Please mark 'X'**
Research specialism/ methodology	**Association and guidance document**	
Anthropology	Association of Social Anthropologists of the UK and Commonwealth	
Criminology	British Society of Criminology: Code of Ethics for Researchers in the Field of Criminology	
Education	British Educational Research Association Ethical Guidelines for Educational Research	
Geography	Association of American Geographers Statement on Professional Ethics Royal Geographical Society: Research Ethics and Code of Practice	X
History	Oral History Society of the UK Ethical Guidelines	
Internet-based Research	British Psychological Society: Conducting Research on the Internet Association of Internet Researchers Ethics Guide Also see our Best Practice Guidance on internet-based research	
Law (Socio-Legal)	Socio-Legal Studies Association: Statement of Principles of Ethical Research	
Management	Academy of Management's Professional Code of Ethics	
Political Science	American Political Science Association (APSA) Guide to Professional Ethics in Political Science	
Politics	Political Studies Association. Guidelines for Good Professional Conduct	
Psychology	British Psychological Society Code of Ethics and Conduct British Psychological Society: Conducting Research on the Internet Also see "Internet-based Research" guidance above	
Social Research	Social Research Association: Ethical Guidelines	X
Sociology	The British Sociological Association: Statement of Ethical Practice	
Visual Research	ESRC National Centre for Research Methods Review Paper: Visual Ethics: Ethical Issues in Visual Research	
Other professional guidelines. Please specify the other guidelines used here*:*		
Please indicate what training in research ethics the researchers involved with this study have received, e.g. the title of the course and date completed (online training available at www.admin.ox.ac.uk/curec/training). If no formal training has been undertaken, please indicate any discussions of research methodology between researchers and supervisors here.		
I have undertaken the following online courses on research ethics: Research Integrity Training for Social and Behavioral Sciences. I finished the course on Feb 16, 2017		

SECTION E: Signatures

- 'Electronic signatures' sent as email confirmations from a University of Oxford email address can be accepted. Separate emails should come from each of the relevant signatories as outlined below, indicating acceptance of the relevant responsibilities.
- If you have obtained handwritten (wet-ink) signatures, please scan them and the rest of the checklist pages to create a single PDF document and email through.

Please ensure this checklist is signed by:

For staff research:	**For student research**:
1. **Principal researcher**	1. **Principal researcher (project supervisor)**
2. **Head of Department (or nominee)**	2. **Head of Department (or nominee)**
	3. **Student researcher**

1. Principal researcher signature/supervisor signature (if student research)

I understand my responsibilities as **principal researcher** as outlined in the CUREC glossary and guidance on the CUREC website.

I declare that the answers above accurately describe the research as presently designed, and that a new checklist will be submitted should the research design change in a way which would alter any of the above responses so as to require completion of CUREC 2 (involving full scrutiny by an IDREC). I will inform the relevant IDREC if I cease to be the principal researcher on this project and supply the name and contact details of my successor if appropriate.

Signature: ……..

Print name (block capitals): …….. **Date**: ……...

2. Departmental endorsement signature

I have read the research project application named above. On the basis of the information available to me, I:

(i) consider the principal researcher to be aware of her/his ethical responsibilities in regard to this research;
(ii) consider that any ethical issues raised have been satisfactorily resolved or are covered by relevant professional guidelines and/or CUREC approved procedures, and that it is appropriate for the research to proceed (noting the principal researcher's obligation to report should the design of the research change in a way which would alter any of the above responses so as to require completion of a CUREC 2 full application);
(iii) am satisfied that: the proposed project design and scientific methodology is sound; the project has been/will be subject to appropriate **peer review**; and is likely to contribute to existing knowledge and/or to the education and training of the researcher(s) and that it is in the **public interest**.

Signed by Head of Department or nominee *(example nominees for student research include the Director of Graduate Studies/ Director of Undergraduate Studies)*:

Signature: ……..

Print name (block capitals): ……..... **Date**: ……...

3. Student signature (if student research)

I understand the questions and answers that have been entered above describing the research, and I will ensure that my practice in this research complies with these answers, subject to any modifications made by the principal researcher properly authorised by the CUREC system.

Signed by student: ……

Date: ……...

Print name (block capitals): ……..

SECTION F: SUBMITTING THE COMPLETED CHECKLIST	Please mark 'X'
1. Check you have completed all sections (A-E) 2. Ensure your application is signed by you, your supervisor (if student) and department 3. **Please attach all supporting documents (see section B, question 14b for details).** If the appropriate supporting documentation is not included with your application, you will then be asked to provide this separately. **This may well delay the ethical review process, and thus the start of your research.** 4. Ensure you have declared conflicts of interest (if any) in Section B, question 14a. 5. If your department has a Departmental Research Ethics Committee (DREC), submit this checklist and supporting information to the appropriate departmental officer. 6. If your department does not have a DREC, submit the checklist and supporting information to the SSH IDREC (email ethics@socsci.ox.ac.uk). 7. Applications must be sent by email from your official ox.ac.uk email account. Please do not send applications by post.	

Economic Geography of Development Banking for Sustainable Development

PARTICIPANT INFORMATION SHEET

1. *Background and aims of the study*

This study hopes to answer the following questions: 1) Are development banks effective financing institutions for sustainable development? And 2) At which geographic scale – global, regional, national or local – are development banks most effective?

This study is self-funded.

2. *Why have I been invited to take part?*

You have been invited because you are an expert in the area of development finance and development banking.

The exclusion / inclusion criteria are:
Professional or Academic Experience in Development Finance

3. *Do I have to take part?*

No. You can ask questions about the study before deciding whether or not to participate. If you do agree to participate, you may withdraw yourself [and your data] from the study at any time, without giving a reason and without penalty, by advising the researchers of this decision.

4. *What will happen in the study?*

If you are happy to take part in the study, you will be asked to answer a series of questions with Aniket Shah, the researcher for this project.

This should take approximately 45 minutes.

The study will take place either on the phone or in person.

There will not be any follow-up visits.

The study will not include any audio or video taping.

5. ***Are there any potential risks in taking part?***

The following risks are involved in taking part of this project relate to the burden of the interview on you, and a potential concern you may have about the use of this data.

In order to mitigate any potential risks, the researchers will anonymise all data and will store the write-ups from the interviews in secured storage devices.

There are specific preparatory requirements for the interview.

6. ***Are there any benefits in taking part?***

There will be no direct benefit to you from taking part in this research.

7. **Expenses and payments**

There will be no payment for taking part in this study.

8. ***What happens to the data provided?***

The research data will be stored confidentially using secured storage devices.

Your responses will be anonymised.

There will be no personal data gathered.

We will ask all participants for their permission to use direct quotes.

All research data and records will be stored for a minimum retention period of 3 years after publication or public release of the work of the research.

9. ***Will the research be published?***

The University of Oxford is committed to the dissemination of its research for the benefit of society and the economy and, in support of this commitment, has established an online archive of research materials. This archive includes digital copies of student theses successfully submitted as part of a University of Oxford postgraduate degree programme. Holding the archive online gives easy access for researchers to the full text of freely available theses, thereby increasing the likely impact and use of that research.

If you agree to participate in this study, the research will be written up as a thesis. On successful submission of the thesis, it will be deposited both in print and online in the University archives, to facilitate its use in future research. The thesis will be published open access.

10. *Who has reviewed this study?*

This study has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee (reference number: xxx).

11. *Who do I contact if I have a concern about the study or I wish to complain?*

a) For studies reviewed by a University research ethics committee only:

If you have a concern about any aspect of this study, please speak to the relevant researcher Aniket Shah at +447873903630 or their supervisor Professor Gordon Clark +44 1865 285197, who will do their best to answer your query. The researcher should acknowledge your concern within 10 working days and give you an indication of how they intend to deal with it. If you remain unhappy or wish to make a formal complaint, please contact the relevant chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter in a reasonably expeditious manner:

Chair, **Social Sciences & Humanities Inter-Divisional Research Ethics Committee**; Email: ethics@socsci.ox.ac.uk; Address: Research Services, University of Oxford, Wellington Square, Oxford OX1 2JD

12. *Further Information and Contact Details*

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

Aniket Shah
School of Geography and Environment
South Parks Road | Oxford, OX1 3QY
United Kingdom

Tel: +44 (0)1865 614963

Email: enquiries@smithschool.ox.ac.uk

Aniket Shah

CUREC Application

Draft of Interview Questions and Survey Questions

This short document provides an overview of the a) Interview Questions and b) Expert Opinion Survey Questions, which I plan to use for my doctoral research.

I. Research Overview

Qualitative analysis and methods will be central to my research approach. Specifically, I plan to employ the close dialogue approach) and conduct expert opinion surveys.

The close dialogue approach will consist of conducting formal and informal interviews with key individuals in the development banking eco-system for each of the four chosen case studies. I will approach the selection of interviewees systematically to ensure a comprehensive understanding of the institution. This will be done after undertaking an internal and external stakeholder mapping exercise of each development bank. Below is an initial list of key individuals within the development bank eco-system whom I plan to engage in close dialogue:

1) Development Bank (Internal)
    a. President/CEO and Senior Leadership
    b. Ex-Presidents and Senior Leadership
    c. Policy and Strategy Team
    d. Transactions and Execution Team
    e. Fundraising and Investor Relations Team
2) Government Employees Engaged with Development Bank (External):
    a. Economic Planning Commissions and Team
    b. Finance Ministries
    c. Central Banks
    d. Environment and Energy Ministries
3) Financial Sector Eco-System:
    a. Leaders of Commercial and Investment Banks in same region
    b. Leaders of Institutional Investors and Intermediaries in the same region
4) "Demand-Side": Users of Capital
    a. Infrastructure developers
    b. Small and Middle Sized Enterprises (SMEs)

In addition to close dialogue, I plan to conduct expert opinion surveys for each of the four case studies. This is a specific type of survey design that targets experts, based on professional and academic experience relevant to the questions underpinning the research. The results of these surveys will be a unique contribution to the field, as expert opinion surveys have never been conducted in the inquiry of

development banking. It will also provide some quantitative results that can be used for comparisons between case studies. I argue that experts do have a differentiated role in economic development, given the historical linkages between knowledge and economic growth. I do not ascribe to the growing "anti-expert" sentiment in the understanding and practice of economic development. Rather I believe that the definition of "expert" should be expanded beyond academics, and this sentiment will be reflected in the recipients of my survey.

II. Interview Questions

The following is a sample of the questions that I will be asking in my interviews. The questions will vary for each participant, given their different relationships with the development bank that I will be studying.

i) **Scope:** What is the scope of your role in the organization that you work for? What are your responsibilities?

ii) **Interaction**: What is your interaction with the development bank?

iii) **Form of Interaction:** What is the form of your interaction with the development bank? How frequently do you interact with the development bank?

iv) **Project**: Describe one project, in detail, that best illustrates your engagement with the development bank. What was the context of the project? Do you believe it was a success or failure? Why?

v) **Beneficial Attributes:** What are the most beneficial attributes of the development bank that you interact with? Why do you think the development bank is able to have those attributes?

vi) **Least Beneficial:** What are the least beneficial attributes of the development bank that you interact with? Why do you think that development bank has those attributes?

vii) **Definition of Sustainable Development:** How would you define sustainable development?

viii) **Role of Development Bank in SD:** Do you believe that the development bank is a positive or negative contributor to sustainable development?

ix) **Size:** Do you believe that the development bank operates at the adequate size to be a significant contributor to sustainable development?

x) **Instrument**: What are the most effective financial instruments of the development bank that you engage with? Do those instruments support the bank's engagement with sustainable development?

xi) **Innovation**: How would you judge the innovativeness of the development bank that you work with? Is it able to adapt with the times?

xii) **Scale**: Do you think that the development bank should be scaled up or scaled down? If scaled up, what should it be doing that it currently isn't? If scaled down, do you believe other financial institutions will take over whatever it withdraws from?

III. Expert Opinion Survey

I will be conducting an expert opinion survey of 50-60 experts of development banking for each of the four development banks that I am studying. The purpose of the survey will be to gather people's perspectives on the development banks across five areas of analysis: Size and Instrument, Additionality, Alignment, Internal Resources and Capabilities, and Concentration and Risk Management.

For each of the five areas of analysis, I will ask 2-3 questions.

I. Area 1: Size and Instrument

What is the optimal size of the Development Bank? Should it be larger, smaller or the same size as it is today?

What are the most effective financial instruments of the Development Bank?

What are the least effective financial instruments of the Development Bank?

II. Area 2: Additionality

Do you believe that the Development Bank crowds in private capital? If so, what leads you to that belief? If not, why not?

What are the right ways to measure the additionality of the Development Bank?

If the Development Bank did not exist, do you believe other financial institutions could take over what they are doing?

III. Area 3: Alignment

How do you define sustainable development?

Do you believe that the Development Bank is aligned with the concept of sustainable development? Why or why not?

Do you believe that the Development Bank should be more/less/equally aligned with the government's economic plans and priorities?

IV. Area 4: Internal Resources and Capabilities

What are the defining internal/human resources and capabilities of the Development Bank? Do you believe this gives the Development an advantage in its work?

Do you think that the development bank effectively translates its knowledge into impact? Why or why not?

What do you think is the biggest knowledge strength of the development bank? What do you think is the biggest knowledge weakness of the development bank?

V. Area 5: Concentration and Risk Management

Does the Development Bank do an effective job in risk management? Why or why not?

Does the Development Bank effectively consider the challenges of financial clustering and make a concerted impact to finance projects and companies outside of these clusters?

Aniket Shah

CUREC Application

Recruitment and Advertisement Material – Sample Email

Below please find a sample email that I will use to engage with my potential interviewees:

From: Aniket Shah

To:

Subject: Interview for Study of Economic Geography of Development Banking for Sustainable Development

Dear Sir/Madame

My name is Aniket Shah, and I am a doctoral researcher at the University of Oxford's School of Geography and the Environment. It is a pleasure to be in touch with you.

I am conducting my research on the economic geography of development banking for sustainable development. I am seeking to understand two related questions. First, are development banks effective financial institutions for sustainable development? Second, at what geographic scale are development banks most effective?

Given your professional experience and expertise in this area, I would like to conduct an interview as part of my data collection. The interview will take roughly 45 minutes and can happen over the phone or in person. I am attaching here a Participant Information Sheet with more information about the study.

Thank you very much for your consideration and I look forward to hearing from you.

Best wishes

Aniket Shah

Appendix II: Interview List for Chapter Four

Interview Number	Organization Label	Interlocutor Position	Interview Location
1	Asian Development Bank	Former President	New York, USA
2	Asian Development Bank	Chief Economist	Manila, Philippines
3	Asian Development Bank	Special Advisor to the President	Manila, Philippines
4	Asian Development Bank Institute	Dean	Manila, Philippines
5	Asian Development Bank	Vice President, Operations 1	Manila, Philippines
6	Asian Development Bank	Vice President, Operations 2	Manila, Philippines
7	Asian Development Bank	Director General, Private Sector	Manila, Philippines
8	Asian Development Bank	Director, Regional Cooperation and Integration	Manila, Philippines
9	Asian Development Bank	Economist, RCI	Manila, Philippines
10	Asian Development Bank	Economist, RCI	Manila, Philippines
11	Asian Development Bank	Senior Economist	Manila, Philippines
12	Asian Development Bank	Senior Health Specialist	Manila, Philippines
13	Asian Development Bank	Senior Agriculture Specialist	Manila, Philippines
14	Asian Development Bank	Senior Financial Sector Specialist	Manila, Philippines
15	Asian Development Bank	Director, Office of Cofinancing Operations	Manila, Philippines

16	Asian Development Bank	Director, Results Managements and Effectiveness	Manila, Philippines
17	Asian Development Bank	Country Director	Dhaka, Bangladesh
18	Asian Development Bank	Principal Country Specialist	Dhaka, Bangladesh
19	Asian Development Bank	Senior Project Officer, Finance Sector	Dhaka, Bangladesh
20	Asian Development Bank	Economist	Dhaka, Bangladesh
21	Asian Development Bank	Country Director	Astana, Kazakhstan
22	Asian Development Bank	Regional Cooperation Specialists	Astana, Kazakhstan
23	Asian Development Bank	Principal Economist	Kathmandu, Nepal
24	Asian Development Bank	Urban Development Specialist	Kathmandu, Nepal
25	Asian Development Bank	Senior Environment Officer	Kathmandu, Nepal
26	Asian Development Bank	Economics Officer	Kathmandu, Nepal
27	Association of DFIs in Asia Pacific	Director	Manila, Philipinnes
28	Columbia University	Former US Treasury Secretary	New York, USA
29	Government of Nepal	Member, National Planning Commission	Kathmandu, Nepal
30	Government of Nepal	Secretary, Ministry of Urban Development	Kathmandu, Nepal
31	Government of Nepal	Joint Secretary, National Planning Commission	Kathmandu, Nepal

32	Government of Kazakhstan	Deputy Director, Ministry of Finance	Astana, Kazakhstan
33	Government of Kazakhstan	National Analytical Center	Astana, Kazakhstan
34	Government of Kazakhstan	Managing Director, Astana International Financial Center	Astana, Kazakhstan
35	United Nations	Resident Coordinator	Astana, Kazakhstan
36	Government of Bangladesh	Member, Planning Commission	Dhaka, Bangladesh
37	Government of Bangladesh	Executive Chairman, BIDA	Dhaka, Bangladesh
38	Government of Bangladesh	Joint Secretary, Ministry of Finance	Dhaka, Bangladesh
39	Government of Bangladesh	Joint Secretary, Ministry of Infrastructure	Dhaka, Bangladesh
40	Bangladesh Bank	General Manager	Dhaka, Bangladesh
41	Bangladesh Bank	Joint Director	Dhaka, Bangladesh
42	Center for Policy Dialogue	Executive Director	Dhaka, Bangladesh
43	UNDP	Country Director	Dhaka, Bangladesh
44	Nazarbayev University	President	Astana, Kazakhstan
45	EBRD	Associate Director	Astana, Kazakhstan

Appendix III: Interview List for Chapter Five

Interview Number	Organization Label	Interlocutor Position	Interview Location
1	Uganda Development Bank	Chairman of the Board	Kampala, Uganda
2	Uganda Development Bank	Chief Executive Officer	Kampala, Uganda
3	Uganda Development Bank	Head of Risk	Kampala, Uganda
4	Uganda Development Bank	Head of Development Finance	Kampala, Uganda
5	Uganda Development Bank	Director of Human Resources and Administration	Kampala, Uganda
6	Uganda Development Bank	Chief Economist	Kampala, Uganda
7	Uganda Development Bank	Principal Project Analyst	Kampala, Uganda
8	Uganda Development Bank	Risk Manager	Kampala, Uganda
9	Uganda Development Bank	Senior Business Development Officer	Kampala, Uganda
10	Uganda Development Bank	Manager of Development Finance	Kampala, Uganda
11	East African Development	Senior Economist	Kampala, Uganda
12	East African Development	Economist, Officer of the Director General	Kampala, Uganda
13	East African Development	Financial Analyst	Kampala, Uganda
14	East African Development	Senior Economist	Kampala, Uganda
15	World Bank Group	Senior Economist	Kampala, Uganda
16	World Bank Group	Senior Agronomist	Kampala, Uganda
17	World Bank Group	Senior Financial Sector Expert	Kampala, Uganda
18	International Monetary Fund	Head of Mission	Kampala, Uganda
19	Uganda Bankers Authority	Executive Director	Kampala, Uganda
20	Uganda Capital Markets Authority	Research and Market Development Officer	Kampala, Uganda
21	Uganda National Planning Authority	Executive Director	Kampala, Uganda

22	Economic Policy Research Center	Executive Director	Kampala, Uganda
23	Economic Policy Research Center	Senior Researcher	Kampala, Uganda
24	Stanbic Bank	Chief Financial Officer	Kampala, Uganda
25	Uganda Ministry of Trade, Industry and Co-operatives	Minister	Kampala, Uganda
26	Uganda Ministry of Trade, Industry and Co-operatives	Senior Commercial Officer	Kampala, Uganda
27	Uganda Ministry of Trade, Industry and Co-operatives	Principal Officer	Kampala, Uganda
28	Uganda Ministry of Works and Transport	Senior Research Officer	Kampala, Uganda
29	SDG Center for Africa	Director-General	Kigali, Rwanda
30	SDG Center for Africa	General Counsel	Kigali, Rwanda
31	Bank of Uganda	Deputy Director	Kampala, Uganda
32	Bank of Uganda	Advisor, Financial Markets Development	Kampala, Uganda
33	National Social Security Fund	Managing Director	Kampala, Uganda
34	Uganda Investment Authority	Member, Board of Directors	Kampala, Uganda
35	Association of African Development Finance Institutions	Executive Director	Kampala, Uganda
36	Association of African Development Finance Institutions	Head of Program	Kampala, Uganda
37	Investec Asset Management	Chief Executive Officer	Kampala, Uganda
38	Uganda Manufacturers Association	Executive Director	Kampala, Uganda
39	Banque de Developpement Des Etat Des Grands Lacs	Director General	Goma, DR Congo
40	Banque de Developpement Des Etat Des Grands Lacs	Direcor of Operations	Goma, DR Congo
41	Bank of Uganda	Chair of Committee	Kampala, Uganda

Appendix IV: Interview List for Chapter Six

Interview Number	Organization Label	Interlocutor Position	Interview Location
1	New York Green Bank	President	New York, NY
2	New York Green Bank	Chief Operating Officer	New York, NY
3	New York Green Bank	General Counsel	New York, NY
4	New York Green Bank	Head of Communications	New York, NY
5	New York Green Bank	Senior Investment Officer	New York, NY
6	New York Green Bank	Senior Investment Officer	New York, NY
7	NY State Energy Research and Development Agency	Head of Research	Albany, NY
8	Connecticut Green Bank	President and CEO	New York, NY
9	Connecticut Green Bank	Associate Director	New York, NY
10	Connecticut Green Bank	Managing Director	New York, NY
11	Connecticut Green Bank	Manager	New York, NY
12	Inclusive Prosperity Capital	Chief Investment Officer	New York, NY
13	Coalition for Green Capital	Executive Director	New York, NY
14	US Investment Bank	Head of Infrastructure	New York, NY
15	US Investment bank	Infrastructure Analyst	New York, NY
16	Clean Energy Works	Chief Executive Officer	Berlin, Germany

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