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Achieving the 2030 Agenda:

Can Development Finance Institutions Make the Impossible Possible?

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Empirical Analysis of the Relationship of Rule of Law and the Mobilization of Private Investments through Development Finance Institutions towards the 2030 Agenda

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Preface and Acknowledgements

The motivation to write this thesis came to me during my internship at UNDP and the German Development and Investment Corporation, where I experienced the issues and debates concerning the financing of the Sustainable Development Goals first hand. I realized that many major questions remain unanswered and that much confusion and a lack of cooperation prevails among the relevant agents. Moreover, I encountered an overwhelming research gap and lack of data surrounding the topic of how the 2030 Agenda could be financed. In combination with the conviction that the private sector must be a driver of solutions for development, I immediately knew that I had found a complex but exciting topic that would stay relevant for the years to come.

Firstly, I want to thank my supervisor, Andrés Palacio for his helpful advice and support whenever I had questions or doubted that my thesis was on the right path. Secondly, I wish to thank the Development Finance Statistics Unit from OECD's Development Cooperation Directorate. Without their willingness to provide the relevant dataset and to answer my questions, I would not have been able to carry out this analysis. Knowing of the difficult situation in which confidentiality issues and constraints imposed by partner institutions are counted against maximum transparency, this is something I am especially thankful for. Furthermore, I wish to thank my friends and family for supporting me throughout the process of writing this thesis.

Abstract

According to recent estimates, the implementation of the 2030 Agenda requires additional investments of USD 2.5 trillion USD per year. Development Finance Institutions (DFIs) are designed to be one of the key players in mobilizing the required investments from the private sector. However, too little investment is mobilized in countries where it is most needed. Drawing on previous findings on economic and institutional determinants of investments, this study aims to address potential reasons for the existing investment gaps by exploring the relationship between a country's quality of rule of law and private investments mobilized by DFIs. Multiple linear regression with fixed effects is deployed to analyze compiled panel data based on the most recent information on mobilized private investments (MPIs), covering 45 countries from 2012-2017. The results indicate a strong positive relationship between improvement in the quality of rule law and MPIs in countries with generally weak rule of law. However, limited representativeness of the utilized data curtails the reliability of general inferences. Yet, the study delineates how and in which areas improved data availability could strengthen the explanatory power of the findings and significantly advance the debate on the role of DFIs in financing the 2030 Agenda.

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List of abbreviations

ADB	Asian Development Bank
AAAA	Addis Abeba Action Agenda
CGD	Centre for Global Development
CPI	Corruption Perception Index
DAC	Development Assistance Committee
DEG	German Investment Corporation (Deutsche Investitions- und Entwicklungsgesellschaft)
DFI	Development finance institution
DFID	Department for International Development
EBRD	European Bank for Reconstruction and Development
EDFI	Association of European Development Finance Institutions
FDI	Foreign direct investment
FE	Fixed Effects
FI	Finance Institution
GDP	Gross domestic product
ICRG	International Country Risk Guide
IFC	International Finance Corporation
IFI	International Finance Institution
IMF	International Monetary Fund
MIGA	Multilateral Investment Guarantee Agency
MPIs	Mobilized Private Investments
OECD	Organization for Economic Co-operation and Development
OLS	Ordinary Least Square
PI	Private Investment
RoL	Rule of law
SDGs	Sustainable Development Goals
UN	United Nations
WB	World Bank
WDI	World Development Indicators
WGI	World Governance Indicators

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1. Introduction: Current debate and purpose of research

In 2015, the 2030 Agenda for Sustainable Development including the Sustainable Development Goals (SDGs) was adopted by more than 150 countries in the 70th General Assembly of the United Nations (General Assembly resolution 70/1, 2015). Replacing the former eight Millennium Development Goals (MDGs), the SDGs encompass 17 development goals and 169 targets which ought to be accomplished by the year 2030 in areas ranging from economic development, social inclusion and health to environmental protection[1] (UNDP 2015; Nam 2015). Through the adoption of the SDGs, a global agenda was set, defining the changes that must be performed within a specific timeframe and by all nations to prevent conflicts, address environmental degradation, eradicate poverty[2] and ensure a healthy and prosperous life for all (United Nations General Assembly, 2015). For the 2030 Agenda to succeed, myriad actors in the economic, political and social spheres need to carry out and coordinate its implementation. These actors include governments, multinational and small corporations, civil society, non-governmental organizations (NGOs) and international organizations, but also development banks, funds and private investors (Addis Ababa Action Agenda, 2015). Considering the ambitious nature of the SDGs, the issue of how to raise the required financial resources has received comparatively little attention. Nonetheless, this is a pivotal factor for ensuring their implementation until 2030 (Lee 2017). Numerous studies have attempted to estimate the total investment needs for the SDGs in their entirety, for single goals or specific regions, countries and sectors (McKinsey 2016; Schmidt-Traub et al. 2015, SDSN 2015; BSDC 2017; UNCTD 2015; BRSDG; Khan 2017). Depending on the focus of the study, different investment needs are estimated: *"Achieving the SDGs requires significant capital flows. It is estimated that a total investment of US $90 trillion is needed by 2030 in order to achieve the SDGs."* (GRI & UNGC 2018: 3) or *"Total investment needs in developing countries in key SDG sectors are estimated at $3.3 to $4.5 trillion per year over the proposed SDG delivery period"* (UNCTAD 2014: 140).

Despite varying estimates of investment needs, one of the most cited numbers are USD 5-7 trillion (UNCTAD 2014). This amount is needed on a global level each year to lay the foundation for the SDGs and accomplish them by 2030 (UNCT 2014: 140). However, the SDG financing problem mainly pertains to developing countries and emerging market economies where the SDGs are most underachieved, and the lack of finance is most persistent[3] (Sachs et al. 2018: 16f; Akenroye et al. 2018). There are several capital flows that are relevant for development beyond official development finance (ODF[4]), ranging

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[1] For a detailed discussion on the content of the Sustainable Development Goals, their sub-indicators and targets, areas, their connection to societal and environmental challenges, reporting mechanisms and more, see Nam, U. V. (2015)

[2] In contrast to the MDGs, which aimed at halving poverty rates, the SDGs aim to reduce poverty rates to zero. For further differences between the MDGs and SDGs, see: Kumar, S., Kumar, N., & Vivekadhish, S. (2016)

[3] However, there is an ongoing debate on the current focus on developing countries with regards to the SDGs and lack of finance, since developed countries also underperform on several SDGs (see Sachs et al. 2018:16). In developed countries, rather than the lack of finance, the issue seems to be a lack of awareness and will to finance certain SDGs

[4] ODF is defined as the sum of bilateral and multilateral resource flows including Official Development Assistance (ODA) (such as grants, concessional loans and technical assistance) as well as Other Official Flows (such as non-concessional debt and equity finance) to developing countries to promote development towards the SDGs.

from remittances to Foreign Direct Investments (FDI) and export credits[5] (OECD, 2015). ODF to developing countries amounted to USD 310 billion in 2016. These are relatively small amounts considering the estimated total annual investment needs. In contrast, external private finance[6] to developing countries amounted to USD 930 billion in 2016, which is triple the amount of ODF[7]. Nevertheless, even when both public and private funding for SDGs are taken into account, Spratt et al. (2019) state a remaining annual SDG funding gap of USD 2.5 trillion for developing countries. In response to these considerable investment needs, development finance institutions (DFIs) have received increasing attention as the "original impact investors" (Lee, 2017: 5) because of their ability to not only invest but also mobilize additional investments from private sector sources for the SDGs. Going beyond actual ODF and other capital flows and looking at approximately USD 300 trillion (UNDP 2017) in financial assets that are currently under management of the global financial system, it becomes clear that the funding issue of the SDGs is not one of *creating* trillions but one of *redirecting* the abundant financial resources that already exist (Hoek 2018: 161; Saldinger 2019; Root 2018). Thus, DFIs with their i) global presence, ii) experience in high-risk markets, iii) widespread network including both private and public actors in developed and developing countries, as well as their iv) pledge to dedicate their work to achieving the SDGs, assume a key role in facilitating this process (OECDa 2018; Lee 2017; IFC 2019a; EBRD, 2018).

However, the anticipated success of DFIs to mobilize the required financial resources towards the SDGs has hitherto been absent. In "Trillions for the SDGs? Time for a Rethink", Lee (2019) postulates that DFIs have underperformed to such an extent that the SDGs may have to be amended due to a lack of funding. Alternatively, DFIs ability to mobilize private finance would have to be thoroughly scrutinized as to the potential reasons for this underperformance in order to introduce immediate readjustments of the SDGs funding strategy (ibid.). Through questionnaires, case studies and surveys among investors and stakeholders, several potential barriers to mobilizing private investments have been identified. These include economic, financial and political factors ranging from dysfunctional legal systems to inflation and market size (Lee 2017: 9ff; OECDa 2018; MIGA-EIU 2013). However, undertaking a comprehensive review of DFIs operations in this area has so far proven to be difficult due to a general lack of transparency, data collection and collaboration among DFIs[8] (Foster 2019; Attridge & Engen 2019, Lee 2019: 4; Xu et al. 2019). This study attempts to contribute to filling this large research gap by analyzing one of the most recent (as of 29.03.2019) and comprehensive datasets on mobilized private investments (MPIs)[9].

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[5] According to the definition of development finance established through the Monterrey Consensus (2002)

[6] External private flows include foreign direct investments, private export credits, securities to multilateral agencies and portfolio investments. For detailed descriptions and explanations of what the specific financial flows entail, see: www.oecd.org/dac/financing-sustainable-development/development-finance-data/dac-glossary.htm.

[7] Own calculation based on OECD stats available at: http://dx.doi.org/10.1787/888933880223

[8] There are several reasons on why the lack of transparency exists, one of the main reasons being that more detailed data on DFI's operations would reveal sensitive information about financial health of certain companies and sectors. For more information on this issue see: Lindenberg (2014)

[9] This dataset was provided by the courtesy of the development finance statistics team at the OECD Development Cooperation Directorate.

Concerning the institutional barriers to mobilizing private investments, the seminal work of scholars such as North (1987, 1991), Stiglitz and Weiss (1981) and Acemoglu et al. (2000, 2001, 2005) have revealed the significance of institutions[10], such as rule of law for the economic and financial development of nation-states. Most notably La Porta et al. (1996) and Pistor et al. (2003, 2009) have demonstrated the interconnectedness of the quality of a country's institutions and financial development. Their findings suggest that a country's rule of law has an equally important relationship with MPI, despite DFIs special mandate to operate in countries that often exhibit deficient institutions and to compensate for barriers that may potentially arise from a weak rule of law. Thus, the purpose of this study is to empirically investigate the relationship between DFIs and the rule of law regarding the mobilization of private investments towards the SDGs, following the research question:

What characterizes the relationship between a country's quality of rule of law and private investments mobilized by DFIs towards the SDGs?

To this end, this paper mainly draws on the methodological approach and determinants of external finance as identified by Schwartz et al. (2015) with a few adaptations. Further, it is important to clarify other potential aspects and relationships which are purposely not considered in this work. The research question does not account for the link between mobilized private investments (MPIs) and actual development impact (as per SDG targets), nor for possible goal conflicts within the SDGs (such as economic growth and environmental protection) [11]. This implies making the central but disputable assumption that more MPIs lead to better development outcome and ultimately, getting closer to achieving the SDGs. Assessing this assumption empirically, however, goes beyond the scope of this paper. Nonetheless, there is sufficient evidence that the assumption is reasonable (see chapter 2 for further details).

It is also important to emphasize that although empirical analysis using econometric tools is a central part of this study, statistical findings are not its main goal. Rather, such tools are used as scientific means to define more closely eventual shortcomings of the currently available data and why these must to be addressed. This approach accepts that such shortcomings inevitably reduce the explanatory power of the analysis. However, imperfect data can still produce important insights and trends that further studies may draw on. For this reason, consequences of imperfect base data will be rendered visible and explicitly integrated throughout the different levels of analysis in this study.

In chapter 2, the general context of the research is elaborated by introducing the current debate, basic concepts of DFIs, the private sector and their interaction. In chapter 3, the relevant literature and main concepts are reviewed and summarized. The research design, methods and results are presented in

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[10] The definition of institutions applied in this thesis follows North (1991), which will be laid out in further detail in section 3.3
[11] For example, see Mawdsley (2018) "From billions to trillions: Financing the SDGs in a world beyond aid". See also "The contradiction of the sustainable development goals: Growth versus ecology on a finite planet" by Hickel (2019) for a critic of the focus on the private sector as regards the financing and implementation of SDGs as well as potential contradictions between SDGs

chapter 5 and discussed in chapter 6. The last chapter summarizes and reconnects the main findings to the current debate and lays out prospects for further research.

2. Background

This chapter presents the relevant context, taxonomy and definitions. The concept of sustainable development underlying this thesis is broadly defined, as well as the general structure of the development finance community. The ensuing sections specify the roles of DFIs and the private sector within the larger development system.

2.1. The development finance community and sustainable development

The concept of development applied in this thesis is defined as the process of reaching the goals and targets defined in the 2030 Agenda. As the name of the SDGs indicate, they refer to the theory of sustainable development (SD), which builds on three pillars of society, economy and environment (O'Conner 2007: 287; Mensah 2019). SD is generally understood as a multifaceted and simultaneous process which combines scientific research from natural science (regarding the earth-ecosystems), social science (economics, politics and further social sciences) and humanities (such as law and ethics) (Mensah 2019: 2f; Basnett & Bhattacharya 2015; Sachs 2013). Hence, the SDGs refer to a multitude of theories relevant for SD, such as Amartya Sen's concept of human development as freedom (1999), the concept of "planetary boundaries" (Rockström et al. 2009) or the sustainable livelihoods framework (DFID, 1999). Without going into detail regarding the single theories[12], the overarching aim of the SDGs is to promote human development and stability of ecosystems on a global level (Mensah 2019: 15; Nagan et al. 2017: 46). Accordingly, SD aims to redirect human action towards a state in which civilization "meets the needs of the present generation without compromising the ability of future generations to meet their own needs" (Brundtland 1987: 16) and without "undermining the integrity and stability of the natural system" (Rees 1998: 5). Hence, this dynamic state would be achieved should the SDGs be met.

Applying this understanding of SD to the role of DFIs and the private sector means that all potential implications of DFIs operations are set to contribute to one or multiple SDGs, without having a detrimental effect on another SDG (Attridge et al. 2019: 12). Various documents exist that convert the SDGs into specific strategies. However, two key documents[13] are particularly important for this thesis since they translate the SDGs into an action plan for the development finance system.

This action plan and its underlying vision were captured in a joint report called "From Billions to Trillions: Transforming Development Finance" (2015) as well as in the "Addis Ababa Action Agenda"

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[12] For an overview of development theories and how they connect to the SDGs, see "Sustainable Development: Meaning, history, principles, pillars, and implications for human action: Literature review" by Mensah (2019)

[13] The Paris Climate Agreement (2015) can be seen as a third document that lay the foundation for the direction of the financial system. However, due to its thematic restriction to climate finance, it is left out in this study.

(AAAA) (2015). Both are closely tied to the SDGs since shareholders of DFIs are equally member states of the UN General Assembly, which adopted the 2030 Agenda. Hence, these documents formally link DFIs and the SDGs by reiterating that DFIs ought to use internal monitoring mechanisms[14] to ensure that their operations contribute towards achieving the SDGs. This link is the foundation for the assumption that more mobilized private investments translate into closing the funding gap and ultimately getting closer to achieving the SDGs[15]. To better understand DFIs activities and how they relate to the private sector within the framework of the SDGs, the roles of both actors will be outlined in the following sections.

2.2. Location of DFIs in the development finance landscape

This paper follows OECD's (2016) and European Development Finance Institutions' (EDFI) (2016) definition of the different entities in the development finance system. While financial institution (FI) is a generic term for organizations that provide services (such as debt and equity financing) in financial markets as an intermediary[16], International Financial Institutions (IFIs) are FIs that provide these services in i) more than one country for ii) developmental purposes beyond profit (which implies that operations predominantly occur in developing countries and emerging markets) and have iii) one (bilateral IFIs) or multiple (multilateral IFIs) public institutions as majority shareholders[17] (OECD 2017; EDFI, 2016). These public institutions are most commonly country governments, whereas some DFIs also have enterprises or NGOs as shareholders (Pereira & Simonetti 2016: 15). Many countries in the developed world operate their own, bilateral International Financial Institution (IFI) while at the same time being member to a multilateral IFI along with several other countries. The term IFI includes a range of actors such as development banks, specialized funds and specialized multilateral financing organizations, whereby their common characteristic is financing for development, while differing in the use of financial instruments and expertise (OECD 2017; Levere et al, 2006). Next to conventional aid and humanitarian development assistance, IFIs form the second pillar of international development policy (Dalberg 2010). IFIs mainly focus on working with public actors such as governments and local authorities. However, the focus of this thesis is on Development Finance Institutions (DFIs), constituting

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[14] DFIs monitoring mechanisms are usually conducted from an environmental, social and governance (ESG) perspectives. For examples of these monitoring mechanisms and guiding principles see:
www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC/Policies-Standards/Performance-Standards

[15] Despite official pledges of DFIs to link operations to measurable development impact as per SDGs, real impact may deviate. This may be rooted in stark differences of DFIs preference of certain SDGs over others. However, the link between operations and development impact needs to be investigated by further studies that focus on monitoring systems and compliance - current transparency issues and compartmentalization of monitoring systems leave no other choice for this study but to assume that this link is given. For more information on transparency issues among DFIs, see IFC (2019: 23), Saldinger (2019) or Lindenberg (2014). For country level monitoring of its individual SDG score see https://databank.worldbank.org/source/environment-social-and-governance or https://unstats.un.org/sdgs/unct-toolkit/. It is important to note that these publicly available databases still lack a unified tracking of funding sources showing the impact of DFIs. DFIs contribution towards SDGs are mainly presented in separate annual reports of the individual banks and the only aggregate statistics known to the author are made available by the OECD or the Association of European Development Finance Institutions (EDFI)

[16] For the basic concepts of financial intermediaries, see "Financial Markets and Institutions" by F. Mishkin (2014). For further definitions of basic financial concepts such as "investment" and "risk" see Appendix A8

[17] Example for multilateral IFIs are: the World Bank's International Bank for Reconstruction and Development (IBRD), European Investment Bank, Asian Development Bank or the European Commission. Examples for bilateral IFIs include: the French Development Agency or the German KfW Development Bank.

the third pillar of complementary international development policy. DFIs are a subcategory of IFIs with a special mandate to engage directly with the private sector[18]. While larger development banks like the International Bank for Reconstruction and Development (IBRD) or the Development Bank of the Kreditanstalt für Wiederaufbau (KfW) focus more on the macroeconomic level and predominantly work with governments, state agencies or NGOs, DFIs engage directly with the private sector (Bruck 1998; IFC, 2011; EDFI 2016). In other words, IFIs work with governments on large-scale projects and aim at improving the macro-environment of a country, for example the general conditions and rules, the investment environment or health related indicators (such as the decreasing the infant mortality rate through loans to the public health sector), whereas DFIs engage peer-to-peer with private actors within the market of a country. DFIs can be separate entities within a family of public institutions, such as the International Finance Corporation (IFC), or departments that are integrated into larger IFIs. The latter is the case with the European Investment Bank (EIB), which doesn't have a separate DFI body but only a private sector department within the larger IFI body that carries out the role of a DFI (OECDc, 2018). A further important distinction is that IFIs which work with state agencies mainly use concessional finance, such as loans with interest rates below market average or grants. Contrastingly, DFIs deploy a broad range of mainly non-concessional financial instruments similar to private financial institutions (Te Veld & Warner 2007: 7-9). Thus, they act as quasi-commercial actors that also have a public interest and are indirectly subsidized by having governments as shareholders. This allows them to obtain a higher credit rating because public shareholders could potentially step in if financial adversities arise and thus borrow capital at a lower interest rates from global capital markets (OECDc 2018; Levere et al. 2006; KfW 2016). Another form of how DFIs are subsidized is that they usually don't pay dividends to their shareholders and most of them are exempt from corporate tax (Te Veld & Warner 2007: 8).

In summary, this paper looks at DFIs and functionally similar specialized organizations that i) engage directly with the private sector, ii) are financially self-sustainable and seek profit and iii) invest for the overall purpose of achieving the SDGs. In order to understand the role of DFIs, their instruments and special mandate to mobilize further investments from the private sector, the role of the private sector and the types of organizations it includes are presented in the following section.

2.3. The role of the private sector in achieving the SDGs

The private sector has several key roles to play for achieving the SDGs, as a lender as well as a borrower and implementer (IFC 2011: 4). While the public sector and civil society[19] play crucial roles in achieving the 2030 Agenda, it is the private sector which provides the jobs as well as the products and services that create wealth (Frey & Sabbatino 2018: 196-204; IFC 2013: 4ff). Thus, the private sector is vital for eradicating poverty before 2030 and finalize the endeavors the MDGs initiated (Barbier & Burgess 2017;

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[18] These are often subsidiaries of larger IFIs as is the case with the International Finance Corporation (IFC), which is a subsidiary of the World Bank (WB) or the Deutsche Investitions- und Entwicklungsgesellschaft (DEG) and the Kreditanstalt für Wiederaufbau (KfW).
[19] For a definition of the private and public sector and civil society, see Warner & Sullivan 2017

Scheyvens et al. 2016). With regards to available financial resources, only the private financial sector has the means to finance the SDGs (Lee, 2017; OECD 2018a; Saldinger 2019). For this reason, both the real and financial private sector will be shortly summarized in the following.

In a broader sense, the role of the real private sector is to allocate resources (Porter & Kramer 2011). An increase in productivity enhances the private sector's role and maximizes welfare of market participants as more goods can be supplied and demanded. For instance, an affluent private sector leads to more affordable and varied goods and services that are available to a growing number of consumers (ibid.). While some SDGs are more closely linked to the private sector's activities, such as SDG 8 (Decent work and economic growth), SDG 9 (Industry, innovation and infrastructure), SDG 12 (Responsible consumption and production) and SDG 7 (Ensuring access to affordable and sustainable energy for all), other SDGs have a more complex relationship with the private sector and may require more coordination with public and civil society actors, such as SDG 2 (Zero hunger) or SDG 13 (Combatting climate change and its impact) (Frey & Sabbatino 2018: 196; Abshagen et al. 2018:8; Scheyvens et al. 2016). Generally, all 17 goals are relevant for the real private sector, whereas some goals may be less relevant for certain private actors. Irrespective of the specific goals, the private sector's role in providing jobs and income is central for meeting the SDGs[20] (Sachs 2012: 2211). Employment does not only provide income and raise individual standard of living, it also promotes a sense of social inclusion (Dalberg 2010: 5) and social cohesion within societies (IFC 2013: 5). Further, economic activities provide tax income to states which is linked to the provision and improvement of education, income equality, healthcare, social services and infrastructure (IFC 2011: 10). Moreover, the private sector itself provides essential services like ICT, infrastructure, transport, energy, water, healthcare and education if profitable and is in some cases able to deliver services more efficiently and of higher quality (ibid: 11; OECD 2015).

Moving away from the real private sector as an immediate implementer of the SDGs, the financial private sector plays a crucial role in achieving the 2030 Agenda as a source of finance (Doumbia & Lauridsen 2019; Salazar & Katigbak, 2016; AAAA 2015: 17ff; DC 2015: 12ff). As was laid out in the introduction, the private financial sector has vast financial resources available that can be mobilized towards achieving the SDGs. In this regard, a BSDC report (2017) estimates that the SDGs create an investment opportunity for private investors of approximately 12 trillion USD each year (p. 12).

Private sources of finance theoretically include domestic entities such as commercial or investment banks, insurance companies, foundations, regional private equity funds, stock markets, wealthy individuals or global investment corporations such as BlackRock, or the Norwegian sovereign wealth fund[21] (Bhattacharya et al. 2015: 14; Convergence: 2018: 4f). Thus, the types of capital flows that can

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[20] The strategy of focusing on the private sector as an implementing agent of the SDGs does not come without critic, particularly on the topics of social equality, global power imbalances, structural causes of poverty and strategy coherence. For an overview of the critic see Scheyvens 2016: 376-381

[21] For a detailed explanation of the different private financial institutions, see: "Who is the private sector" by Convergence (2018). Even though sovereign wealth funds are public entities, they are seen as private entity as they primarily invest on a commercial basis. This classification follows the reference guide issued by joint MDFBs and EDFIs (2018: 3. E.g. the Norwegian sovereign wealth fund is capitalized with 1,09 trillion USD (as of 10/2019) and BlackRock manages approx..6,84 trillion USD in financial assets (as of 07/2019)

be dedicated to finance the SDGs can potentially include all types of major domestic and international capital flows, including portfolio investment, direct investment and bank related investment[22] (IFC 2011; Convergence 2018). Irrespective of the specific business model of private FIs or the type of capital flow, all private FIs seek profit and determine whether they invest or not based on their risk-return profile[23]. This common characteristic is relevant for the focus of this thesis, as risk-return profiles can be improved by DFIs involvement (Calderón et al. 2003; UNEP 2012, 9; IFC 2011). By seeking profit, private FIs provide liquidity to domestic and global financial markets, reduce costs for obtaining information[24] and assume risk so that savers and borrowers can interact and allocate capital to the real economy in the most efficient, productive and profitable way (Cechetti & Schoenholtz 2015: 55).

Despite the wide range of potential sources of private finance, DFIs most commonly mobilize private investments from domestic or regional commercial banks or private equity funds since the most commonly used DFI instruments are direct debt and equity (IFC 2019; OECD 2017; OVE 2017). However, the types and sources of investments mobilized by the private sector towards the SDGs have not been made transparent on an aggregate and structured level.

In all their private sector operations, DFIs aim at not crowding out private finance and at following the principles of sustainability and additionality in order to increase development impact with limited financial resources (IFC 2011: 30ff; Smallridge 2017: 3). These principles and what they mean in connection to DFIs roles are explained in the next section.

2.4. The role of DFIs

In this section, a modern view on the conceptual roles of DFIs will be laid out in consideration of the overall research purpose of this study. Modern insofar, as the theories and respective mandates of DFIs have evolved over time and have moved from single explanations and tasks (such as merely distributing credit from developed countries to projects in developing countries requiring capital) to multifaceted operations (Bruck 1998: 67f; Mazzucato & Penna 2016; IFC 2011; Xu et al. 2019). In order to provide a comprehensive yet concise description of DFIs, the following section combines the summary of specific roles of DFIs derived from several policy papers (ODI 2019; IFC 2011; IFC 2013; OECD, 2018; EDFI 2017) with the general conceptual roles of public development banks developed by Mazzucato and Penna (2015, 2016) and Bruck (1998) as well as the principle of additionality and mobilization that should frame any DFI activity. In this way, an understanding of DFIs will be developed that allows for different interpretations of the findings in the empirical section of this thesis.

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[22] Portfolio Investment (PI), Direct Investment (DI), Bank related investment refer to FDI, FPI and international Bank related debt and equity investments when looking at international capital flow and domestic PI, DI and Bank investments at the domestic level. For further theory on financial markets, types of capital flows and types of financial intermediaries see: "Money, Banking and Financial Markets" by Cechetti & Schoenholtz 2015

[23] Risk-and return profiles refer to the profit that an investment promises and that is contrasted to the risk that this return implies with regards to losing the complete or part of the investment. The risk-return profile is defined by the individual risk appetite (which is defined internally) and the risk that the investment entails. For further details see "Understanding Risk and Return" by Campbell (1996) and "On the meaning and use of the risk appetite concept" by Aven (2013)

[24] The concept of information costs is related to the concept of transaction costs, which is briefly explained in chapter 3

In a narrow sense, DFIs provide access to financial products for companies that are unable to access these services from private FIs (IFC 2011: 13; Xu et al. 2019). The reasons for which companies lack access to finance can be multifold (Demirgüç-Kunt et al. 2008) and are explored in more detail in chapter 3. As DFIs operate financially self-sufficient, they need to finance companies who generate profit, which ensures that DFIs invest in businesses that are essentially competitive (Smallridge 2017: 8f). Thereby, DFIs target a range of development outcomes, first and foremost sustainable job creation (IFC 2011). However, DFIs touch upon a range of development issues defined by the SDGs. These include decreasing economic inequality and exclusion, improving labor and environmental standards and boosting clean energy (ODI 2019: 12), depending on the specific business model of the company. Because DFIs are accountable to their public shareholders, development outcomes are evaluated in addition to financial health (Te Veld & Warner 2007). Whenever DFIs target the SDGs, they do so by means of the private sector as explained in section 2.3.

The special position of DFIs between the public and private sector enables them to undertake riskier investments over longer time periods than private FIs, achieving positive externalities[25] beyond profit (OECD, 2018, IFC 2011). In this way, DFIs can conclude contracts that are more supportive to clients and offer additional assistance. In short, DFIs provide i) financial services, ii) technical advisory and iii) support in difficult environments to companies that lack access to private sources (IFC 2011: 20f). According to Smallridge (2017), DFIs thereby i) address market failures, ii) help fill market gaps, iii) mobilize further private investments and iv) improve development impact of the private sector. Market failures can have several reasons, ranging from business cycles (Broccolini et al. 2019: 3) to coordination or institutional failure (Canova 2009), which will be described in more detail in chapter 3.

In addition to this market-fixing role of DFIs, Mazzucato and Penna (2016) emphasize a further role of development banks, namely the market creating role. Beyond providing finance in cases where companies lack access to private sources, DFIs can provide finance to companies with long-term economic as well as social and environmental value (Smallridge 2017: 2). This value may not be in the focus of traditional private FIs e.g. due to lack of knowledge (ibid.: 38), path-dependency[26] (p. 42), short-term orientation (pp. 15, 36) or risk-aversion (p. 10) of the private sector. DFIs provide "patient, long-term and committed financial capital" (Mazzucato 2016: 317) that is of particular importance to entrepreneurship, economic inclusion and development. Thereby, DFIs can change the trajectory of economies and expand them by choosing hitherto financially underserved geographical areas, sectors or groups in society (Mazzucato & Penne 2015: 42). This enables them to address societal problems or challenges, such as promoting the transition from coal to renewable energy (ibid.: 43). For example, a country where environmental regulations are not well enforced, companies that operate in a way that is harmful to the environment are likely to generate more profit on the short-term and are thus more

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[25] For the concept of positive and negative externalities: see Coase (1960) and Greenwald & Stiglitz (1986)
[26] For the concept of path-dependency, see North (1998)

attractive to commercial investors[27] (Dong et al. 2009: 217). Contrastingly, DFIs can invest in companies that may have lower return profiles, while monitoring their adherence to environmental, social and governance standards (IFC, 2011). Thereby, DFIs can shift production and consumption patterns towards achieving developmental goals (Mazzucato & Penne 2015: 23), such as the SDGs.

2.4.1. Additionality

An important principle that ensures that DFIs play a market fixing and creating role is the concept of additionality. Since DFIs are quasi-commercial actors with some features of public actors, they have to ensure that their operations do not distort the market and crowd-out private investment (IFC 2011; CfGD 2016: 39f). Thus, any of DFIs operations should only take place in cases where private financial institutions are either i) unwilling to assume certain risks, tenors and transaction costs[28] or ii) unable to do so because of internal restrictions of resources (Smallridge 2017: 3). Thus, DFIs serve market gaps that can only be closed through their involvement and not by way of the private sector alone (ibid.; IFC 2011: 26; OECD 2018).

DFIs constantly aim at complying with the principle of additionality in their individual activities as well as in mobilizing additional private finance (Smallridge 2017: 9; CfGD 2016: 40). If they finance to many risky projects that prove not viable, they risk their own financial self-sufficiency and credit ratings. Further, DIFs would fund companies that are not profitable because they offer non-competitive products and services that may have no demand or are of worse quality than of other companies. This would contribute to misallocation of resources and curtails market rents (Andreasen 2018: 19; Bruck 1998, Mazzucato & Penne 2016, IFC 2011: 21). On the other hand, if DFIs finance low-risk projects with comparably safe return on investment, chances are high that it could have been financed by a private FI which was crowded out as a consequence. This in turn would reduce profits of private FIs and again lead to market distortion curtailing rents (Andreasen 2018: 17ff, IFC 2011: 22).

As illustrated in Figure 1, DFIs need to find their "sweet spot" between the non-viable zone (where risk is too high) and the commercial zone (risk is too low), where DFIs meet the additionality criterion[29] (IFC 2011; OECDb 2015). It further shows that DFIs viable zone of operation is greater in low income countries with more investment opportunities because investments in these countries exhibit higher risk (IFC 2011).

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[27] This example is related to the "race-to-the-bottom" debate, in which the violation of standards, rules and regulations can be a competitive advantage for businesses and investors.

[28] Transaction costs involve all costs that surround a transaction and which are not part of the cost of the product itself. This includes the cost of obtaining information or to communicate.

[29] In everyday business of a DFI, it is difficult to find its sweet spot since the environment and markets are constantly changing and the sweet spot is dynamic and depends on market forces like supply and demand and the behavior of other private and institutional actors. Some DFIs conduct additionality studies for each country for specific time periods while most DFIs apprehend their sweet spot through a constant exchange with other relevant private FIs, other DFIs and institutional actors. Through that constant exchange, DFIs investment officers get an idea of the current market rates in a specific sector and country, allowing them to position themselves accordingly.
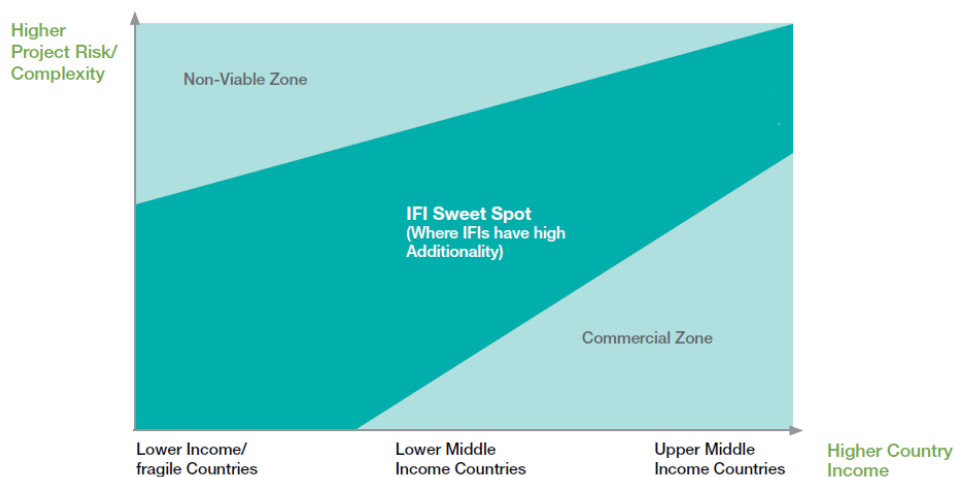
Figure 1: Tailoring investments to the type of country for additionality. Source: IFC 2011

Reasons for the tendency of higher investment risk in lower income per capita countries is described in chapter 3. Contrastingly, upper middle-income countries have generally less investment opportunities that cannot be served by private financial institutions, making DFIs activity in those countries less necessary and more likely to operate in the commercial zone if not following the principle of additionality (IFC 2011: 29f).

2.4.2. Mobilization and instruments

As described in the introduction, DFIs can only contribute to sustainably filling the SDG funding gap by mobilizing additional investments from the private sector (Lee 2017: 2; Smallridge 2017: 4). The ability of DFIs to mobilize private investments is emphasized in both the AAAA (2015) and the joint MDB report (2015) and is an important mandate that can be found in any DFIs statutes. The main effect that DFIs have on the involvement of private FIs is that they can use various financial and non-financial instruments to improve investments perceived as too risky in relation to expected returns by private investors alone (Makovšek 2018: 5; OECD 2015: 14). In other words, DFIs involvement can mitigate risk by assuming or sharing some of the risks that private FIs would not be willing or able to carry alone (Xu et al. 2019: 6). Further, DFIs can improve a company's performance and market reach, and thus make it more likely to receive further investment from the commercial investors (IFC 2011: 58). Also, if a DFI invests in a certain company conveys to other investors that it receives financial and technical support even when setbacks and difficulties arise (Smallridge 2017: 9).

DFIs have a set of instruments available that can offset risks and thus improve the ratio between risk and return for private FIs (Flotow et al. 2014: 10). All DFI instruments can mobilize private investments and contain differing applicability depending on the investment characteristics and context. These instruments include direct debt, equity or guarantees, syndicated loans, collective investment vehicles (such as funds), local currency bonds, mezzanine instruments (such as preferred stock or subordinated

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debt), currency hedging and other risk hedging instruments in the form of derivative contracts (such as swaps, futures, forwards and options) (OECDb 2018). While the core business of the majority of DFIs pertains to direct debt and equity instruments (IFC 2019: 9), most investments combine several financial instruments or involve further non-financial instruments such as contract flexibility, consultancy services, technical assistance or grants for feasibility studies (OVE 2017: 23). For example, a DFI can structure a syndicated loan where it is the lead arranger of a single loan to a risky project, while taking loans from other private investors and on-lend them to the project (EDFI 2017). Thereby, the private FIs can share the default risk with the DFI in cases where the required loan volume exceeds the private FIs acceptable risk-return rate (ibid.). Also, DFIs can lower risk for private FIs by guaranteeing to pay back a certain amount of a loan in case the borrowing company defaults. In this way, DFIs can mobilize investments from the private sector for the private sector without even deploying funds[30] in case the guarantee is not utilized. Further, DFIs can act as "anchor investors" for funds operating in high risk market segments which signals trust to domestic and international investors (Lee 2017; Mazzucato & Penna 2015). Providing more detail on these instruments and their subforms is beyond the scope of this thesis. However, a summary of how the most common DFI instruments work and how they improve the risk-return profile for private FIs can be found in Appendix A7.

3. Literature Review

The following chapter consists of three sections. The first section sketches the trends of mobilized private investments over the last years. In section two and three, the literature concerning the drivers and inhibitors of private investments and the particular relationship between investment and rule of law is reviewed.

3.1. DFIs and mobilizing private investments

Despite incomplete individual DFI reports on MPIs, two major reports attempt to address the lack of data and compile aggregate figures on the topic. One report is issued by the OECD's Development Cooperation Directorate (DCD) which is updated in irregular intervals. The other is a joint report issued annually by multilateral IFIs. According to the OECD (2019), 152.2 billion USD were mobilized by DFIs between 2012-2017. Figure 2 shows that annual MPI more than doubled from 2012 (15,3 bn USD) to 2017 (38,2 bn USD), whereas guarantees were the financial instrument mobilizing most of total

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[30] However, DFIs are constrained by law to block a certain share of financial assets as reserve in case the guarantee must be paid out. Thus, even though guarantees do not deploy financial assets in the conventional sense, they use up financial resources of a DFI for a certain time internally.

private investments. This is followed by syndicated loans, shares in CIVs, direct investments in companies and special purpose vehicles, credit lines and simple co-financing.
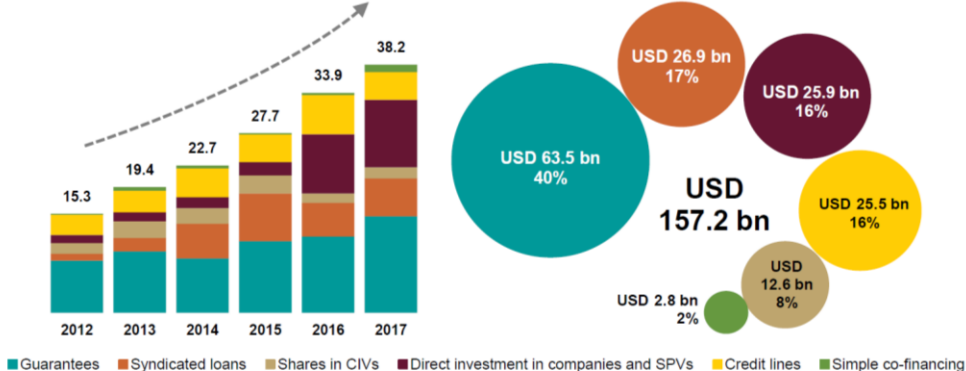
Figure 2: Amounts mobilzed by year and instrument, 2012-2017. Source: OECD (2019)

While MPI of single instruments grew proportionally with the total amounts of each year, direct investments grew unproportionally from 2015 to 2016 (ibid.). Despite these simple figures, the reports refrain from stating the types and location of investors. Both reports find that amounts of MPI are larger in countries with higher income per capita. OECD (2019) finds that in 2017, upper-middle-income countries received 66 % of total MPI. while lower-middle-income countries received 27 % and least developed countries 4 % . The joint MDB report (IFC, 2019) includes mobilized private investments by both IFIs and DFIs. Herein, high-income countries received 64 % of total MPI, middle-income countries 33 % and low-income countries 3 % in 2017 (ibid.: 11). While the MDB report states that the largely varying shares of MPI reflect higher risk prevailing in relatively weaker economies (ibid.), neither of the reports investigate potential factors that impact levels of MPI empirically. Due to the lack of data, no previous empirical studies known to the author specifically investigate what factors influence mobilization of private investments through DFIs beyond case studies. However, since DFIs ultimately mitigate risk for private FIs, literature on determinants of investments and the role of risk for investment is assumed to equally apply to the interaction between DFIs and private FIs. Thus, some of the most common determinants of investment will be described in the following.

3.2. Determinants of investment

There is vast empirical literature investigating determinants of investment, ranging from economic and financial to institutional factors. The studies commonly use cross-country panel data and focus on factors influencing foreign direct investment (Schwartz et al. 2015: 4; Mercado & Park, 2011: 656f; Buchanan et al .2011). Generally, an enabling macroeconomic environment increases potential returns and reduces risk for investors (Garibaldi et al. 2001: 13; OECD 2015: 15; Scaperland & Mauer 1969; Schneider and Frey, 1985; Zhang 2001). Several studies (Nunnenkamp 2002; Ito et al. 2009; Trevino et al. 2002) find GDP size, population size and growth of GDP to positively affect FDI because investors expect higher returns. Bloningen (2005) found that an increase in the sum of exports and imports in relation to GDP

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have a positive impact on FDI because trade is a sign of a healthy economy which attracts investments and strengthens international business ties to foreign investors (p. 19; Liargovas & Skandalis 2001; Torissi 1985; Dowrick & Golley 2004: 53; Broto et al., 2008; Makki & Somwaru 2004). Another factor increasing FDI is a country's monetary stability illustrated by inflation, since sharp depreciation of a currency drastically increases the risk for investors to lose their investment (Dabla-Norris et al. 2010: 4-6; Buchanan et al. 2012: 83; OECD 2015: 16). Also, government debt was found to have an influence on investment because it indicates lower country creditworthiness and decreased capacity of the state to fulfill its function regarding infrastructure and delivery of other government services (Garibaldi et al. 2001: 13; Schwartz et al. 2015: 13). A further distinct finding in the literature is that if businesses lack access to finance, overall investments in a country is lower (Kinda 2010: 499; Maeseneire & Claeys 2006).

A MIGA-EIU (2013) risk survey found that investors ranked macroeconomic stability the most important factor influencing their decision. This was followed by political risk such as regulatory changes or civil disturbances, lack of qualified staff and lack of financing (p. 5-7). According to Basnett and Bhattacharya (2015), factors impeding private investment are asset illiquidity, exchange rate risk, lack of standardized assets and underdeveloped capital markets, political and macroeconomic instability, government planning and spending failure, corruption, ineffective regulation, non-transparent government decision-making and the lack of functional courts (p. 12-14). The seminal work of North (1991, 1998) and Acemoglu et al. (2001, 2005, 2010) shifted the focus on what drives investment from purely market based reasoning towards the role of institutions. Particularly the studies of La Porta et al. (1996, 1998), Shleifer et al. (2009) and Pistor et al. (2000, 2002, 2009, 2019) have found that investment is particularly sensitive to the legal environment and investor protection, suggesting that the rule of law plays an important role for MPI. The next section briefly summarizes the literature on institutions and basic characteristics of capital in order to provide a deeper understanding of the empirical studies on how rule of law affects investment presented in section 3.4.

3.3. Institutions and financial development

In order to understand the context of rule of law, it is helpful to introduce the concept of institutions. Institutions are "*humanly devised constraints that structure political, economic and social interactio*n" (North 1991: 97). Institutions can be informal (e.g. customs, norms and traditions) and formal, such as the legal body of a country (e.g. a country's constitution, laws and jurisdiction). Both are subject to path-dependency[31] and shape one another (ibid.; Roland 2004: 108f). Institutions guide the behavior of individuals and thus shape their mutual expectations, minimizing uncertainty and thus transaction costs of any economic interactions between individuals (North, 1991; Peng 2010). This thesis is concerned

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[31] Path-dependency means that institutions do not exist or emerge in a "vacuum" – they are based on a country's individual history, social context as well as past and recent experiences. Generally, informal rules are considered rather stable and change slowly, while formal rules can sometimes change overnight. There is vast literature on change of institutions. For example, see North 1991 or Zweynert 2009

with formal institutions only, since multiple studies substantiate their superior explanatory power for differences in economic and financial development (North 1991; Acemoglu et al. 2005; La Porta et al. 1998). Building on these findings, Pistor (2019) ascertains that law as an institution provides four fundamental elements that define capital and thereby lay the foundation of any financial market. These are i) priority, ii) durability, iii) universality and iv) convertibility. In the same order, these elements ensure that holders of an asset can i) exclude the rights of potential other users, ii) rely on these rights over time, iii) invoke coercive power of the public to enforce these rights against anyone in case they are violated and iv) convert an asset into another asset type to retain their value (ibid.: 430).

Combining North (1981) and Pistor (2019), institutions play a crucial role in enforcing these four properties of capital. In this context, the quality of rule of law provides insight into how well a country's institutions execute these four properties. Keeping the effect of institutions with regards to structuring financial transactions in mind, the next section explores empirical studies on the effects of rule of law on investment.

3.4. Rule of law and investment

The concept of rule of law has received much attention in academia and among policy-makers due to its widespread application and central role in debates on why some countries are more developed than others (Skaaning 2010: 452). In the context of nation-states, rule of law refers to several interconnected dimensions, i) security of persons and property, ii) the compliance of inhabitants of a country with the law, iii) enforcement of laws by an authority endued with monopoly over violence and iv) equality under the law and before the courts as opposed to arbitrary exertion of power from government[32] (Belton 2005: 9 Haggard & Tiede 2011: 674f, Acemoglu 2005). For example, in a country with poor rule of law, the general public, private and public sector often fail to comply with laws because they may not be well defined, considered illegitimate or irrelevant, are unknown and arbitrarily enforced by the executive body (Franck 2006: 339). In this thesis, rule of law is defined as:

> "*the extent to which agents have confidence in and abide by the rules of society, and in particular the quality of contract enforcement, property rights, the police, and the courts, as well as the likelihood of crime and violence*" (Kaufman et al. 2010: 4)[33].

This definition acknowledges that the rule of law relates to a bundle of institutions that rely on each other and are only effective simultaneously (ibid.: 12). Contracts can only be well enforced if property

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[32] A third dimension concerns the content of laws and whether they meet liberal or social human right ideals. Whereas the first two dimensions are certainly connected to the third, the first two can be assessed more objectively while the third is rather normative and may entail a Eurocentric perspective on quality of law. For this reason, the third dimension of rule of law is mostly negelected (Skaaning 2010).
[33] For a discussion on other definitions of the rule of law, see Belton 2005.

rights[34] are well-defined and respected by citizens within a confined legal space, the police and the courts execute their tasks according to law and impartially which in turn decreases the likelihood of crime (ibid.: 13). Moreover, the applied definition recognizes the interdependence between the confidence of agents (including individuals, companies and state institutions) in others to adhere to the rules of a society and includes the particular role that formal institutions (property rights, police and courts) have in building that confidence. It also covers institutions that manage the relationship between private individuals and companies as well as the relationship between the two and the state (Acemoglu & Johnson 2003; Fernandes & Kraay 2005). A further important distinction is the difference between the rules regarding their content (de jure) and the adherence and enforcement of those rules depending on the state's capability to enforce them (de facto) (Rodrik & Rosenzweig 2010). Accordingly, the definition mentioned above puts an emphasis on the quality of enforcement of law rather than the content of law itself. This emphasis is supported by findings of Pistor et al. (2003), showing that the effectiveness of legal institutions has a much stronger impact on the capacity of firms to raise external capital than the law in the books (p. 356). Complementing the definition by Kaufman et al. (2010) with Hayek (1944), the rule of law means that

"*government in all its actions is bound by rules fixed and announced beforehand - rules which make it possible to foresee with fair certainty how the authority will use its coercive powers in given circumstances and to plan one's individual affairs on the basis of this knowledge*" (Hayek 1944: 72).

In countries with a well-functioning rule of law, an investor can rely on existing rules and a legal system that will impartially enforce the rules that are relevant to a particular investment (Shleifer et al. 2007: 325). Hence, the rule of law plays a critical role in shaping expectations which is relevant for all economic activity, especially for those that occur over stretched time-horizons, such as investments[35]. Rule of law protects property rights and ensures that contracts are enforced (Austin 2014: 105). This in turn enables owners of property to sell, trade, lease or transfer their rights and keep the gains produced by the means of the property (Besley & Ghatak 2014: 4; Locke 2013: 6; Whinston 2000: 2; Erlei et al. 1999; De Soto 2001). In countries with weak rule of law (RoL), legal decisions are more likely to be partisan and incoherent, civil servants involved in public procurement, finance authorities, land and collateral registries tend to be more corrupt (Acemoglu & Verdier 1998; Ojah et al. 2010: 725ff). If investors and companies are not protected from expropriation or theft, their confidence in realizing returns on their investments diminishes leading to less credit to the private sector and less developed

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[34] Property rights define legal ownership over tangibles and intangibles. They attain their distinction in the context of a society where individuals are interrelated, which means "something" only becomes a property in relation to another person or organization. Somebody who is in the possession of a property right is allowed to exclude others from his own rights and to even harm them in a predefined way. For in depth definitions of property rights, see Demsetz (1967), Besley & Ghatak (2009) and Locke (2013).

[35] Investment in generic terms is defined as acquiring an asset with the aim to gain profit. Profit can be generated through the sale of products that the asset produces or through appreciation of that asset in the future. It always involves giving up immediate consumption to create wealth in the future. In financial terms, the asset is a monetary asset that will provide future income or can be sold for a profit at a later point in time. Thus, the concept of time is inherent to investment. For an introduction to basic investment theory, see Blanchard and Illing 2014: 88ff.

stock markets (Acemoglu & Johnson 2005: 953; Besley & Ghatak 2014: 5; Zak & Knack 2001). Since investments require making predictions about the future, investor decisions are particularly affected by an unstable regulatory environment and arbitrary enforcement of contracts between investee and investor, as well as between investee and his business partners (Alexander 2014: 18; Shleifer et al. 2007). Further, rule of law lays the foundation for collateralization, meaning that assets can be used as a security and facilitate access to loans (Rodrik & Rosenzweig 2010: 4528; Locke 2013: 18). Also, well designed and enforced laws on financial reporting and capital endowments of private companies reduce uncertainty and transaction or information costs for investors and contribute to financial stability (La Porta et al. 2005: 27; Dima et al. 2018: 462; Canova 2009: 394). As every investment is highly sensitive to available information in order to assess risk and profitability, standard processes in finance such as financial and operational due diligence is less costly and more reliable for investors when companies abide by the laws of financial reporting, company and financial law[36] (Daude & Stein 2007: 318). Further, countries with strong rule of law tend to have less procedures and less complexity related to collecting on a defaulted commercial debt, higher savings and market capitalization as well as more credit to the private sector (Acemoglu & Johnson 2005: 953; La Porta et al. 2013). Because rule of law decreases transaction costs for investors, financial intermediaries can pool more resources and allocate them more efficiently (Beck & Levine 2005: 871f; Levine 1998).

Levchenko (2011) found a reverse relationship between investment causes an increase in the quality of rule of law since investment is linked to accumulation of wealth in some companies that gain stronger political influence, which translates into improved efficiency and design of rules. This in turn improves the regulatory environment for other companies. Despite this issue of potential endogeneity between investment and rule of law, Acemoglu et al. (2005a, 2005b) find that rule of law in the form of secure property rights have a first-order effect on levels of investment and financial development.

La Porta et al. (1996, 1998, 1999) found that differences in investments can be traced back to differences in legal investor protection and the quality of their enforcement. Accordingly, variations and quality of enforcement depend on the legal origin of a country varying by British (common law), French (civil law), German or Scandinavian law[37]. However, Musacchio (2010, 2013) and Harper and McNulty (2008) show that legal origin as a category has limited explanatory power since most legal systems have converged and constantly changed over time. Thus, the difficulty to unambiguously classify legal systems complicates their use as a determinant for investment. Irrespective of the origin of a legal system, it is ultimately investor protection and quality of enforcement that have significant positive effects on financial development and investments (ibid.).

To summarize, the rule of law has been found to increase a country's level of investment by mitigating risks deriving from breach of contract, corruption, expropriation, delays and arbitrary changes

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[36] For example, an investment is less risky if an investor can trust in the financial statements on paid-up capital, reserved assets and debt ratios provided by the investee or police records of the company management and its shareholders concerning corruption or misdemeanors.

[37] E.g. in common law countries, shareholders have stronger voting rights on a company's management decision and are better protected against expropriation by the management and controlling shareholders, creditors have immediate access to assets in case a company goes bankrupt and so on, resulting in bigger debt and equity capital markets. See La Porta et al. 1996, 1998. 1999

in rules (Knack & Kneefer 1995: 223f; OECD 2006: 14). It leads to better investors protection (Pistor 2009), efficient and impartial contract enforcement (Shleifer et al. 2007), higher financial development and more domestic investors (Acemoglu et al. 2005) due to more and less risky investment opportunities for both domestic and foreign investors (Buchanan et al. 2012). Thus, a high quality of rule of law contributes to the stability, predictability, growth and efficiency of a country's business and investment environment[38] (Dima et al. 2018: 462; Petrakis 2014:134).

3.4.1. Example

Without applying the meaning of the four elements described in 3.3 to every financial instruments and transaction, a simple example of a bank granting a loan can underline the basic mechanisms of rule of law in investment.

Applying the four elements that law "injects" into capital, rule of law ensures that the bank has the right to receive the principal plus interest as per contract between lender and borrower (priority) and assert this claim over time (durability), which is the basis for transferring the loan sum to the borrower in the first place. Thus, both elements shape expectations between lender and borrower on a fundamental level. Further, the bank must ensure that its priority right to the financial asset or capital (which is the loan) can be enforced against any party, protecting the bank from theft either through the company or individuals inside or outside the company, and expropriation in case of the state (universality). Universality is the opposite to arbitrariness and prevents that priority rights suddenly cease to hold in certain situations or during specific time periods. In this regard, corruption is an important factor that negatively impacts universality of law (Fernandes 2009: 81). If the company goes bankrupt, the bank needs the option to claim a potential collateral as defined in the contract. Only if the bank can convert a collateral such as the machinery or buildings owned by the company into another asset such as cash, it will be able to compensate for potential losses (convertibility). Moreover, only if the element of convertibility is given, a bank will make use of collaterals as a form of risk reduction. Generally, convertibility facilitates that assets retain their value regardless of the type of asset, meaning that goods can be purchased with money and money can be converted into stocks and so on. Thus, law and its rule not only mitigate the risks attached to financial transactions that would occur naturally on markets but decide upon their existence on a fundamental level (Pistor 2019). It facilitates for financial intermediaries to deploy capital for generating profit and keeping those profits, enables wealth to be accumulated over time and structures the expectations about the behavior of others. In the next chapter, the findings from empirical studies and other literature that has been presented so far will be brought together in a framework that serves as a basis for the empirical part of this thesis.

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[38] In other words, higher quality of rule of law decreases risk and cost and increases return on investments. In more financial terms, rule of law decreases the discount rate or β in standard neo-classical investment theory, including Net Present Value (NPV), Cost-Benefit Analysis (CBA), Discounted-Cash-Flow Analysis (DCF) for conventional private or public actors individual debt and equity investment decisions or Capital-Asset Pricing Model (CAPM) and Weighted Average Cost of Capital (WACC) for portfolio investment decisions. For further practical, microeconomic financial theory on the effect of rule of law and dysfunctional institutions on risk and investment see "Financial Decisions in Emerging Markets" by Jaime Sabal (2002).

4. Empirical Evidence on the relationship of rule of law and MPI through DFIs

Over the course of this thesis, it has been shown that there is strong theoretical evidence, partly supported by empirical data on FDI, debt and equity investments, that higher quality of rule of law has a positive effect on the level of investments from the private sector. This leads to following hypothesis:

H1: *An increase in quality of rule of law positively contributes to private investments mobilized by DFI*

4.1. Research design

Considering the nature of the research question and hypothesis, a cross-country panel data analysis allows to explore differences in the quality of rule of law between countries over time and their effect on MPI. This approach follows the studies presented in the literature review and Schwartz et al. (2015), who investigate the relationship between institutional quality such as rule of law and private investment in infrastructure PPPs. To this end, this thesis draws on various reliable data sources and uses one of the first datasets (as of 29.03.2019) on MPI gathered by OECD's development finance statistic unit. Another organization that collects data on MPI is an initiative by joint multilateral development banks (JMDB). However, the data collected by the latter appears ineligible for the purpose of this thesis due to reliability and validity concerns[39].

Following the selection of explanatory variables of investment identified in the literature review, the data on MPI is combined with several datasets from trustworthy institutions. The analysis is designed to explore the influence of rule of law on MPI, given the occurrence of MPI through DFIs in a country.

This research design addresses the current lack of previous studies and data on factors that influence MPI on an aggregate level (Lee 2017; Lee 2019; Saldinger 2019). The methods applied in this thesis as well as statistical models, data sources and their limitations are explained in the following sections. Section 5.4 includes basic descriptive statistics and section 5.5 explains the fixed effect model used for estimating the results presented in section 5.6.

4.2. Methodology

The methods applied in this thesis are multiple linear regressions with fixed effects (FE). FE, Pooled Ordinary Least Square (OLS) or multiple random effect (RE) regressions are widely used methods for analyzing cross-country panel data. These quasi-experimental methods explore the impact of changes of individual explanatory variables on the dependent variable on basis of the *ceteris paribus* principle[40]. However, pooled OLS and RE do not control for differences between countries and periods which

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[39] As pointed out by a report by the OECD (2018b), data gathered by joint MDBs inflate MPI. This illustrates the pressure DFIs are exposed to by their governmental shareholders to close the funding gap for the SDGs. Also, several inquiries and requests to access the aggregated data by joint MDBs via the World Bank's official researcher portal were denied.

[40] The ceteris paribus principle stimulates the isolated manipulation of single explanatory variables. However, this principle is only a deficient approximation to experimental designs but is nonetheless an adequate method for investigations of social phenomena that cannot be isolated. The main critics of econometrics using panel FE methods relate to the ceteris paribus assumption, since social phenomena may never be reduced to the isolated influence of single factors. For a concise appraisal of econometric methods, see chapter 7 of „Facts and Fiction in Economics" by Hendry (1980)

increases the likelihood of bias derived from a correlation between the error term and explanatory variables (Woolridge 2010: 375). The validity of using FE over OLS and RE is confirmed by the Hausman test (see section 5.6). A detailed description of the selected model specifications is provided in section 5.6. The methodologies measuring the main variables of interest are described in section 5.3.

4.3. Data

The dependent variable MPI is provided by the OECD Development Finance Statistics unit and denoted in current $. MPIs are recorded in an unbalanced panel dataset for 122 countries from 2012 to 2017. This dataset is complemented with country-level data from World Bank's World Development Indicators (WDI)[41], QoG Standard data from the Quality of Government institute, World Bank's World Governance Indicators and Transparency International. Details of variables used for statistical estimates are listed in the table below and will be briefly discussed.

Table 1: List of variables used for estimations.

Variable Type	Variable	Definition	Source
Dependent Variable	Mobilized Private Investments (MPI_ln)	Mobilized private investments, in current international $	OECD – Development Finance Statistics on amounts mobilized from the private sector for development (as of 29.03.2019)
Explanatory Variable	Rule of law (log_posRoL)	Estimate of governance performance regarding e.g. contract enforcement, property rights, police and courts; ranging from 0.5 (weak) to 5.5 (strong)	World Bank – World Governance Indicator (WGI) Rule of Law (RoL)
Control Variables	Quality of government (log_QoG)	Mean of the International Country Risk Guide (ICRG) variables "Corruption," "Law and Order," and "Bureaucracy Quality" scaled 0-1.	The Quality of Government Institute - QoG Standard dataset
	Government effectiveness (log_GovEff)	Captures perceptions of the quality of public services scaled 0.5-5.5	World Bank – World Governance Indicators (WGI)
	Regulatory Quality (log_RegQual)	Captures perceptions of the ability of the government to implement policies promoting private sector development scaled 0.5-5.5	World Bank – World Governance Indicators (WGI)

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[41] World Bank's WDI's consist of a range of further datasets. E.g. population size is derived from the United Nations Population Division, values for inflation and government debt are taken from the International Financial Statistics of International Monetary Fund. For every source of the WDI dataset, see https://data.worldbank.org/indicator/

	Freedom from corruption (log_Corruption)	Measures corruption based on a 100 point scale. 100 indicates little corruption and 0 indicates a very corrupt public sector	Transparency International - The Corruption Perceptions Index (CPI)
	Openness (log_TRADE)	Openness the sum of exports and imports of goods and services measured as a share in % of GDP	World Bank - World Development Indicator (WDI)
	Population (log_POP)	Total population size	World Bank - World Development Indicator (WDI)
	GDP (log_GDP)	Gross domestic product in current $	World Bank - World Development Indicator (WDI)
	GDP growth (log_GROWTH)	Annual percentage growth rate of GDP in current $	World Bank - World Development Indicator (WDI)
	Inflation (log_INFLATION)	Inflation reflects the annual % change in the cost to the average consumer of acquiring a basket of goods and services	World Bank - World Development Indicator (WDI)
	Government debt service (log_DEBT)	Total debt service as % of GNI consisting of principal repayments and interest	World Bank - World Development Indicator (WDI)
	Access to finance (log_ACCESSTOFINANCE)	Access to commercial bank credit, measured as borrowers from commercial banks per 1,000 adults	World Bank - World Development Indicator (WDI)
Dummy variable	Rule of law tested for countries with an average RoL_value below 2.16 (DxRoL)	DxRoL consists of dummy variable DummyRoL_weak that assign 1 to countries with an average rule of law value between 0.5 and 2.16 and zero if otherwise and multiples it with RoL_mod. Thus, DxRoL rules out countries with an average RoL above 2.16 on the scale of 0.5 to 5.5	World Bank – World Governance Indicator (WGI) Rule of Law (RoL) and own calculation

Source: Own illustration in Word, Description based on definitions found under sources listed in the table.

Values for MPIs contained in OECDs dataset are the result of an attribution calculation developed by the OECD and experts on development finance (OECD 2018). The dataset covers six financial instruments, whereby each instrument has a unique calculation method linked to assumptions. These assumptions pertain to the level of MPIs (e.g. the total MPIs by guarantees are counted, regardless of the actual share of the amount that was covered by the guarantee) and the relative importance of specific actors that participate in large transactions (e.g. one DFI assumes the role of the lead arranger in syndicated loans. Hence, a larger share of MPI is attributed to the lead arranger). The necessity for these

assumptions is derived from the inherent complexity of DFI investments, as multiple private investors and other DFIs may be involved in the same deal. Therefore, the OECD has established principles that ensure internal validity of the measurement (OECDd 2018). These are i) pragmatism in terms of the point of measurement and data availability, ii) conservatism with regards to causality between DFIs activity and MPI and iii) fairness to avoid double-counting of MPI in cases where multiple investors are involved. Thus, only direct mobilization of MPI is considered and the possibility of additional MPI at later stages are neglected (OECDd 2016). Discussing the measurement methodology for MPIs in-depth is beyond the scope of this thesis. For a detailed description of the methodology see OECDd 2018.

The selection of an appropriate indicator for rule of law depends on various methodological and practical criterions. Generally, there are several measures of rule of law and closely related concepts on institutional quality that are commonly used in the reviewed literature. Some of the difficulties of measuring rule of law relate to the notional vagueness of rule of law illustrated in chapter 3.4. For example, the enforcement of contracts or secure property rights are interrelated with an independent judicial system, sound policies, administrative efficiency and corruption as well as their general perception by the public. Most of the measures of rule of law are indexes that consist of several sub-categories and indicators from a range of institutions that specialize in measuring specific aspects that contribute to rule of law. For example, the IRCG measure of RoL consists of 22 sub-components which are pooled in three categories, namely political, economic and financial risk and is considered one of the most used and reliable measures (Skaaning 2010: 450). However, the ICRG indicator cannot be utilized due to restricted accessibility[42]. Alternatively, the rule of law indicator included in the World Governance Indicators (WGI) dataset issued by the World Bank provides another commonly used measure of RoL. It covers all time periods and countries required to match it with OECD's data on MPI and contains several values of the ICRG dataset. The WGI RoL indicator includes subjective assessments of independent expert committees, surveys and polls worldwide[43]. Therefore, it covers a wide range of the aspects rule of law. This has also led to comprehensive critique of the indicator's methodology, mainly related to lack of connecting selected indicators to empirically proven theories (Thomas 2010). Nevertheless, Kaufman et al. (2011) address these critiques and claim that even after taking all conceptual flaws into account, the WGI RoL "permit meaningful cross-country and over-time comparisons" (p. 220)[44]. In order to control for the potential impreciseness of the WGI RoL variable, additional institutional variables are included in the regression, such as a narrower measure of corruption and regulatory quality.

The selection of control variables is guided by Schwartz et al (2015) who in turn rely on control variables used in several studies on determinants of FDI such as Nunnenkamp (2002), Chakrabarti

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[42] The ICRG has been contacted to receive free access to the data as a student researcher but access was denied
[43] For a list of all sub-indicators, sources and methodology applied to the WGI RoL indicator, see
http://info.worldbank.org/governance/wgi/pdf/rl.pdf and https://info.worldbank.org/governance/wgi/Home/Documents
[44] Discussing methodological and conceptual issues of rule of law in detail is beyond the scope of this thesis. For a concise overview of the debate, see Skaaning (2010) and Merkel (2010)

(2001), Hammami et al. (2006), Jensen et al. (2005)[45]. Government effectiveness and regulatory quality are transformed into positive values in the same ways as posRoL and indicate higher quality and effectiveness the higher the value on a scale of 0.5-5.5.

After removing MPI entries that cannot be allocated to a single country, there are 4218 MPI observations for 122 countries contained in the dataset. To enable analyzing the data with multiple linear FE regression, observations are summed up per country and year. In a next step, data of control variables are matched with MPI entries and all missing values are removed. This results in a final dataset containing 229 observations for 45 countries (for a list of countries contained in the final sample, see Appendix A6). The final number of observations for specific instruments, sectors or country classification do not allow for reliable more detailed investigations of MPI[46].

Herein, the lowest MPI value is 14.02 MM USD for the Dominican Republic in 2012, whereas a total of 5.9 bn USD in MPIs were recorded for Turkey in 2016. The RoL values assigned to a country are scaled from -2.5 (weak) to 2.5 (strong). To smoothen graphical representation, +3 is added to each value (posROL). The lowest average posRoL value belongs to the Democratic Republic of the Congo (1.44) while Botswana and Costa Rica exhibit the highest RoL values (3.6 and 3.51) in the sample.

Following OECD's definition of DFIs presented in 2.3, the target population contains 80 DFIs (OECD 2017: 3). These include the largest DFIs in terms of own investment and MPIs towards the SDGs (ibid.: 4). The OECD relies on individual survey responses by DFIs as well as official country reporting (OECD 2019: 4). While the exact response rate is unknown for the most recent dataset (as of 29.03.2019) due to ongoing data entries, the latest total survey overview mentions a response rate of 72 institutions or 90 % (OECD 2017: 3). 37 of these institutions reported no MPI because they use other instruments not covered by the survey or lack of capacity (ibid). The final sample used in this thesis contains 62 DFIs (Appendix A6), resulting in a 77,5 % coverage of the target population.

4.4. Limitations

The selected research design, methodology and dataset produces several limitations on different levels. Overall, this study is positioned in a relatively recent field of study with just emerging methodologies of measurement and can only draw on limited data. While the methodological principles for measuring MPI ensure internal validity, they also prevent the inclusion of further instruments (such as overlapping instruments or project finance) and MPI that was mobilized indirectly at a later point in time. This diminishes representativeness of MPI since the real, total amounts of MPI are unknown.

Further, the most disaggregated level of MPI consists of the financial instrument that was used to mobilize PI and the investment purpose. Thus, every country has multiple entries for all covered instruments as well as respective purposes for every year. Accordingly, it is unknown whether the

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[45] All of the papers mentioned are peer-reviewed and published with acceptable citation rates
[46] However, the sample size for guarantees may allow simple OLS regressions to produce reliable results (however, not controlling for country nor time effects). Exploring the impact of explanatory variables on mobilized PI by specific instruments are not required for a general investigation of the research questions posed in this thesis, but is recommended for further research

amount of MPI includes the activity of multiple DFIs and multiple investments that mobilized PI in the same year with the same financial instrument for the same purpose. However, this is not as relevant for the interest of this research but will be necessary for further research that narrows down on individual transactions. Overall, even though the dataset provided by the OECD provides the most reliable and comprehensive information on MPI available (as of October 2019), it cannot be considered representative of the population due to non-random selection of the target population, incomplete coverage of instruments and response rate of DFIs and an unknown total number of transactions relevant to MPI. Further, the removal of MPI that couldn't be linked to a specific country excludes MPIs that may still have a relationship with specific country variables. Nevertheless, these deficits should not be overestimated, since data on MPIs is inherently an approximation dependent on informed assumptions and attribution calculations.

Concerning the limitations of the data from other sources, there are some well-known downsides to cross-country panel data, such as non-comparability of countries due to inter- and extrapolation of data for missing data of some countries[47]. However, these issues are constantly minimized by the organizations collecting the data and can be neglected.

Further, the chosen statistical method has weak explanatory power regarding causality. Although time lags and ceteris paribus should simulate causality, the model does not contain specific causality tests. Further studies may run additional tests using time-series operators to make reliable inferences about causality between MPI and the independent variables.

Generally, it should be considered that the estimates produced by the utilized panel data do not translate into policy recommendations for countries but may point out specific variables that should be taken into consideration for further, more in-depth research or policy making e.g. in one country or region given more disaggregated data (Maddala 1999: 432). Also, the choice of countries and independent variables in the sample influence the results, making inferences about the total population fragile (Lui 1996). Also, the selected model does not account for countries in which no PI was mobilized, since this would skew regressions towards zero. Thus, further research may use logistic regression with a binary dependent variable (1= MPI occurred and 0= no MPI occurred) to estimate the odds ratio of explanatory variables for MPI to occur at all. This may be especially revealing for fragile countries[48] that critically depend on for external capital.

Overall, the methods and data used in this thesis produce an incomplete foundation for reliable inferences about the population. Taking this into account, improvements in data collection and further qualitative studies are encouraged to support and illuminate quantitative findings.

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[47] Retrieved from World Bank Help Desk under: https://datahelpdesk.worldbank.org/knowledgebase/articles/191133-why-are-some-data-not-available (viewed on November 4th, 2019)
[48] Fragile countries can be defined as countries with a CPIA below 3.2. Often UN peace-keeping and peace-building mission present in these countries. For more information, see http://pubdocs.worldbank.org/en/892921532529834051/FCSList-FY19-Final.pdf

4.5. Preliminary descriptive statistics

In order to provide first insights into the data, some basic data distributions of important variables and correlations are presented on the basis of bar graphs, pie charts, scatter plots and added simple linear regressions.

Summing up total MPI by year, a drastic increase of MPI can be observed from 2014 on in Figure 3. This coincides with the adoption of the 2030 Agenda in 2015 and could be interpreted as the result of an increased focus on DFIs role in mobilizing private investments according to the strategy documents described in chapter 2.1. Further, a relatively slight increase of total MPI from 2012 to 2013 can be observed, whereas almost 10 bn more private investments were mobilized in 2016 than 2012.

Figure 3: Sum of MPI from 2012-2017. Source: Own illustration in Excel based on OECD data
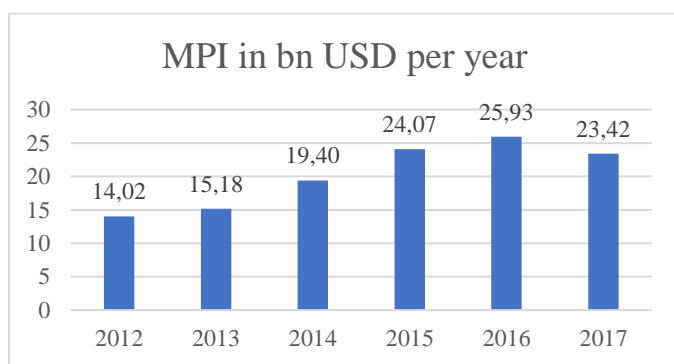
Figure 4 and 5 illustrate the total distribution of MPI by continent and financial instrument respectively. MPI are evenly distributed among Africa, Asia and Europe, whereas DFIs mobilized approximately 10 bn USD less in America and only 0.13 bn USD in Oceania, which relates to the comparatively small sized countries in Oceania. The instrument that mobilized more than half of all private investments in the data are guarantees, followed by credit lines and syndicated loans, whereas shares in CIV's and simple co-financing mobilized the smallest total amount of MPI.
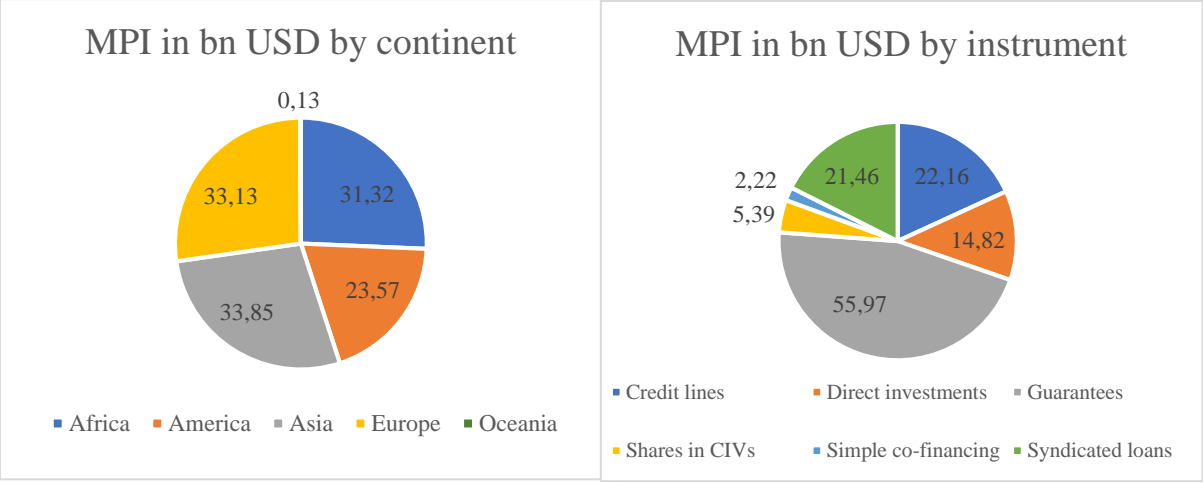
Figure 4: MPI in bn USD by continent

Figure 5: MPI by instrument

Source: Both Figures are own illustrations created in Excel based on OECD data

To linearize the exponential distribution of MPI and to reduce the impact of outliers, the natural logarithm is applied to MPI and the logarithm to rule of law. This smoothens distribution and improves graphical representation[49]. As a consequence, MPI and RoL values that are transformed into ln_MPI and log_RoL values are stretched for countries with lower MPI and RoL and converged for countries with higher MPI and RoL values. Logarithm is applied to all explanatory variables to linearize their relationship with the dependent variable and improves the ability of the model to detect trends, following Schwartz et al. (2015).

Looking at Figure 6, a weak linear and positive relationship between a country's (log) rule of law and (ln) MPI is illustrated by a fitted regression line that is slightly upward tilted. This indicates that a higher rule of law value may correlate with more MPI.

Figure 6: Scatter plot for (ln) MPI and (log) RoL. Source: Own illustration produced in Stata.

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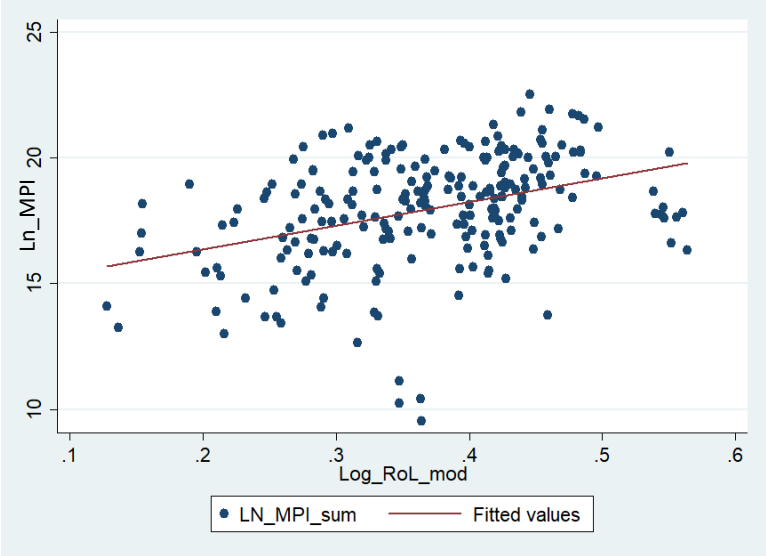
[49] For a comparison of scatterplots and histograms before and after log and ln transformations, see Appendix A2

Table 2: Summary statistics for (log) rule of law and (ln) MPI. Source: Own illustration done in Excel

Variable	Obs	Mean	Std. Dev.	Min	Max
log_RoL_mod	229	.368	.08695	.12807	.5637
ln_MPI_sum	229	17.962	2.20546	9.548	22.50304

Table 2 provides basic statistical information on the main variables of interest within the transformed dataset. The minimum and maximum value, observation count, mean and standard deviation of the dependent variable MPI and the explanatory variable rule of law are illustrated. Table 3 shows a correlation table of explanatory institutional variables, indicating that variable GovEff consistently produces a correlation coefficient above 0.7. To avoid multicollinearity of explanatory variables, GovEff is dropped from further estimations[50]. No indication for spurious association or confounding variables were detected[51] (for correlation table including the dependent and all explanatory variables, see Appendix A6).

Table 3: Correlation table of institutional variables

Variables	(1)	(2)	(3)	(4)	(5)
(1) QoG_ICRG	1.000				
(2) Corruption_CPI	0.686	1.000			
(3) GovEff	0.747	0.814	1.000		
(4) RoL_mod	0.654	0.854	0.821	1.000	
(5) Reg_Qual_mod	0.487	0.699	0.792	0.799	1.000

4.6. Fixed Effects Analysis of Cross-Country Panel Data

Generally, the fixed effects regression model is appropriate if heterogeneity between entities is expected to bias the results. If non-random parameters between entities exist, they contribute to the effect of the explanatory variables on the dependent variable. Taking the heterogeneity of the investment environments between different countries into account, it is reasonable to assume that country specific variations that are not captured in the independent variables will influence the results. To remove this bias, the fixed effects regression adds dummy variables for each entity to control for variation between countries. This dummy variable is a constant producing group-specific means instead of a random mean derived from the sample that is applied to every country[52]. When testing the panel data for fixed effects with the Hausman test in Stata[53], this assumption is strongly confirmed in each applied model with a

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[50] Usually, a correlation coefficient above .9 indicates potential multicollinearity. However, in this case the variable GovEff is dropped due to a relatively high correlation coefficient with all other institutional variables. That the effect of GovEff is sufficiently captured by other institutional variables is further confirmed in the fixed effect analysis when institutional variables are included in the regression in all possible constellations.

[51] Commonly, correlation coeffcients above .8 or .9 of one variable with both the independent and another independent variable are considered as an indication for a confounding variable.

[52] As a consequence, country fixed effect models explain the influence of average values of explanatory variables on the average of the dependent variable across years. This implies that ln_MPI, henceforth refers to average (ln) MPI in models using FE

[53] The Hausman test essentially investigates whether the there is a correlation between the individual error term and the regressor variable in a multivariate linear regression model. If they do not correlate, the null hypothesis is rejected, and random effects are more applicable. For more detail on the Hausman test, see Hausman (1986)

significant p-value <0.05 (see Appendix A5 for Hausman test results). This rejects the null-hypothesis that heterogeneity is already captured in the variables. Based on the simplified general linear model:

$$Y_{(i,t)} = \beta_0 + \beta_{1(i,t)} + \beta_2 Z_{(i,t)} + \varepsilon_{(i,t)} \qquad \text{(Eq. 1)}$$

the specified country fixed effect equation is described as follows:

$$Y_{(i,t)} = \beta_0 + \beta_{1(i,t)} + \beta_2 Z_{(i,t)} + \alpha_{(i)} + \varepsilon_{(i,t)} \qquad \text{(Eq. 2)}$$

where $\alpha_{(i)}$ represents the unobservable fixed effect for any country. This fixed effect is assumed to be constant over time for each country and therefore represents a time invariant fixed effect. The fixed effects model allows i to be correlated with the different explanatory variables for any given year. $\varepsilon_{(i,t)}$[54] represents an idiosyncratic error term. Building on Schwartz et al. (2015) and further studies presented in the literature, economic and financial variables are expected to effect investments with a one-year time lag, t-1.

When plugging variables derived from the literature in Eq. (2), the following equation is derived[55]:

$$\begin{aligned}
\ln \text{MPI}_{(i,t)} = \ &\beta_0 + \beta_1 \log \text{posRoL}_{i,t-1} + \beta_2 \log \text{GDP}_{i,t-1} + \beta_3 \log \text{POP}_{i,\,t-1} + \beta_4 \log \text{GROWTH}_{i,\,t-1} \\
&+ \beta_5 \log \text{INFLATION}_{i,t-1} + \beta_6 \log \text{OPENNESS}_{i,\,t-1} + \beta_7 \log \text{DEBT}_{i,\,t-1} \\
&+ \beta_8 \log \text{ACCESSTOFINANCE}_{i,\,t-1} + \sum \beta_j \log X_{it\,j} + \varepsilon_{(i,t)} \qquad \text{(Eq. 2.1)}
\end{aligned}$$

where $X_{it\,j}$ includes institutional variables QoG, RegQual and Corruption.

4.7. Results

In this section, the main results in the form of regression table produced by the panel fixed effects estimations are presented and briefly discussed. Also, further investigations and robustness tests are described. All statistical estimations are produced in Stata v14.0.

Table 4 shows that model 1 produces a R^2 of 0.248 and therefore explains approximately 25 % of the variance in MPI, which implies an acceptable fit of the model[56] [57]. As predicted by the literature, rule of law has a strong positive correlation with MPI and is significant at the 0.1 level whereas none of the other institutional variables are significant. Thus, an increase of 1 unit of (log) posRoL increases raise (ln) MPI by 12.54 units, all else equal. GDP has an even higher regression coefficient (13.92) than posRoL and is highly significant with a p-value below 0.01[58]. Hence, GDP has the largest and most reliable effect on MPI in model 1. Overall, the null hypothesis stating that there is no relationship between rule of law and MPI can be rejected at a confidence interval of 90%.

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[54] which is often displayed as u_{it} in fixed effect models
[55] $\alpha_{(i)}$ is henceforth not displayed again as it represents the unobserved fixed effects coefficient term that is calculated for every variable and hence included in each variable
[56] For fixed effect models using both country and time data, R^2 values above 10 % are accepted in the common literature (Schwartz et al. 2015: 13)
[57] This is an improvement of R^2 by more than 10 % in comparison to models including only posRoL as a single explanatory variable and including all institutional variables. The result tables for these models can be found in Appendix A5
[58] A p-value <0.01 strongly rejects the null-hypothesis that the relationship between GDP and MPI is random.

Table 4: Estimation summary for H1

Variable	Model 1
Dependent Variable: ln_MPI	
log_GDP	13.92***
	(4.351)
log_POP	-16.78
	(12.87)
log_GROWTH	6.980
	(6.445)
log_INFLATION	-0.367
	(0.791)
log_TRADE	1.228
	(0.809)
log_DEBT	-0.563
	(0.601)
log_ACCESSTOFINANCE	1.135
	(0.972)
log_QoG	-7.647
	(7.429)
log_Corruption	-2.654
	(4.174)
log_posRoL	12.54*
	(6.534)
log_RegQual	4.944
	(5.879)
Constant	-35.90
R^2 within	0.248
R^2 between	0.03
R^2 overall	0.03
Observations	229

*** p<0.01, ** p<0.05, * p<0.1

Standard errors in parentheses

Source: Stata export and formatted in Excel.

As a robustness check, model 1 is rerun with MPI divided by GDP, FDI and Credit to the Private Sector in percentage of GDP as dependent variable instead of MPI (see Appendix A4 for a description of alternative dependent variables) to test whether MPI shows similar relationship patterns with other investment indicators. Also, robustness tests provide insights on whether the specified model produces valid results for relationships of similar investment types identified in the literature review. Model 2 uses MPI in relation to a country's GDP as dependent variable and thus GDP is dropped from the list of explanatory variables. Again, posRol is confirmed as an important independent variable with a coefficient of 15.19 and a p-value<0.05. Accesstofinance[59] shows a weak positive relationship with MPI over GDP at the same significance level[60]. Model 3 nearly doubles in R^2 and GDP has a weak but still positive influence on credit to the private sector at a 90% confidence level. Government debt service

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[59] Abbreviated with ACCTOFIN for improved graphical representation in Table 5

[60] This indicates that access to finance may not be relevant for other models because MPI is not considered in relation to GDP and that access to finance could be relevant a relevant channel through which posRoL impacts MPI. However, RoL has an almost seven times higher coefficient, which implies that posRoL consistently captures the larger effects on MPI. Nevertheless, the interrelation between RoL and access to finance could be an interesting object for further studies.

has a weak negative whereas access to finance and trade openness have a weak positive relationship with the independent variable, while the former two variables are highly significant with p<0.01 and the latter is significant with p<0.05. These trends follow the findings presented in the literature review. Interestingly, posRoL appears not to be an important explanatory variable for domestic credit to the private sector[61]. Model 4 exhibits a very low R^2, which implies that the specified model is inadequate to identify determinants of FDI. Further, no time effects on MPI are detected when introducing year dummies, which can be expected from a relatively narrow panel data including only seven years (see Appendix A3 for model 7 estimation results with year fixed effect). All models indicate no significant effect of Corruption, Regulatory Quality and QoG on MPI, which supports the use of posRoL to capture the expected effects laid out in chapter 3.4.

Table 5: Robustness tests

Variable	Model 1	Model 2	Model 3	Model 4
Dependent variable	ln_MPI	ln_GDP/MPI	ln_CredPS	ln_FDI
log_GDP	13.92***	-	0.566*	1.794***
	(4.351)	-	(0.317)	(0.570)
log_POP	-16.78	8.302	1.858*	-4.466***
	(12.87)	(8.955)	(0.947)	(1.683)
log_GROWTH	6.980	7.255	-0.0540	-0.126
	(6.445)	(6.557)	(0.528)	(0.840)
log_INFLATION	-0.367	-0.426	-0.0888	-0.000620
	(0.791)	(0.805)	(0.0589)	(0.103)
log_TRADE	1.228	1.295	0.146**	-0.0621
	(0.809)	(0.823)	(0.0601)	(0.105)
log_DEBT	-0.563	-0.438	-0.125***	0.0164
	(0.601)	(0.609)	(0.0464)	(0.0787)
log_ACCTOFIN	1.135	1.901**	0.211***	-0.0618
	(0.972)	(0.945)	(0.0737)	(0.132)
log_QoG	-7.647	-6.010	0.318	-0.298
	(7.429)	(7.533)	(0.538)	(0.971)
log_Corruption	-2.654	-2.083	0.277	-0.399
	(4.174)	(4.241)	(0.302)	(0.547)
log_posRoL	12.54*	15.19**	0.506	0.655
	(6.534)	(6.571)	(0.484)	(0.854)
log_RegQual	4.944	5.776	0.702	-0.0511
	(5.879)	(5.973)	(0.472)	(0.774)
Constant	-35.90	-94.83	-17.84***	39.79***
R^2 within	0.248	0.178	0.452	0.072
Observations	229	229	220	227

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Stata export and formatted in Excel

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[61] This indicates i) that posRoL may be more relevant for foreign investors, ii) that MPIs recorded in the dataset stem predominantly from foreign sources or iii) that domestic debt markets play a subordinated role in MPIs. With more disaggregated data on MPI such as source of investment, the investigation of the role of domestic debt markets in MPIs could produce interesting insights

When dividing the sample by low, medium and strong mean RoL values across years to investigate RoL in more detail, low RoL countries[62] appear to drive the statistical results as shown in Table 6[63]. The RoL scale ranges from 0.5 to 5.5 and the sample is divided into three equal parts from 0.5 to 2.16 (low), 2,16 to 3,83 (medium) and 3,83 to 5.5 (strong). Countries with strong RoL are not considered due to insufficient sample size[64].

Table 6: Sub-investigation of rule of law and robustness test

Model	Model 5	Model 6
Dependent variable:	ln_MPI	ln_FDI
log_GDP	15.53***	1.853***
	(4.265)	(0.566)
log_POP	-22.06*	-4.338**
	(12.98)	(1.714)
log_GROWTH	10.88	-0.215
	(6.621)	(0.872)
log_INFLATION	-0.491	-0.00698
	(0.782)	(0.103)
log_TRADE	0.925	-0.0753
	(0.790)	(0.104)
log_DEBT	-0.460	0.0220
	(0.593)	(0.0785)
log_ACCESSTOFINANCE	1.264	-0.0524
	(0.961)	(0.132)
log_QoG	-7.557	-0.345
	(7.361)	(0.972)
log_Corruption	-3.427	-0.261
	(4.142)	(0.548)
log_RegQual	4.797	0.139
	(5.737)	(0.765)
DxRoL	21.29***	-0.222
	(8.139)	(1.072)
Constant	-17.43	38.33***
R-squared within	0.261	0.069
Observations	229	227

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1
Source: Stata export and formatted in Excel

Model 5 controls for differences in the effect of rule of law on MPI for countries with rule of values that are weak on average (within the lower scale of rule of law when dividing the scale into three equal parts) by introducing dummy variable DxRoL[65]. The results show that the positive effect of rule of law on MPI is driven by countries with a weak rule of law as the coefficient for DxRoL is 21.29 units higher than for countries with medium average rule of law values and is highly significant at a 99% confidence interval. Also, R^2 slightly increases to 26 % in comparison to model 1. Consequently, rule of law

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[62] For a list of countries in each rule of law category, see Appendix A6.
[63] Dividing the sample by low, lower-middle and upper-middle income countries requires further adjustments of the data due to shifts of income classification of the countries in the sample over the years, which is why this perspective is neglected in this thesis. Further, classifying countries by GDP per capita hardly account for the complexity and individuality of the investment environments of countries.
[64] See Appendix XX for summary statistics of the sample divided by average rule of law values
[65] For a description of how DxRoL is constructed, see variable list in section 5.3

becomes the largest predictor variable for MPI in countries with a generally low quality of rule of law. This indicates that improvement in the quality of rule of law in countries with a generally weak rule of law could increase MPI drastically, whereas improvement of the quality of rule of law in countries with a medium average rule of law have an insignificant effect on MPI. As a robustness test, the same model specifications including DxRoLW are run with FDI as dependent variable (Model 6) and indicates that FDI may have a fundamentally different or less relevant relationship with rule of law than MPI. This finding corresponds with Perry (2000: 796), who claims that FDI is relatively less sensitive to institutional quality than other types of investment. The relationship of GDP is similarly positive in all applied models and differs only with regards to differences in effect sizes. This strongly confirms findings from studies reviewed in the literature that GDP and market size increase returns for investors. However, the negative relationship of population size on FDI cannot be explained by previous studies and may indicate the invalidity of the model for explaining differences in FDI (which is further confirmed by an R^2 value below 1 %).

Overall, H1 can be confirmed with the methods, model specifications and country sample utilized in this thesis. Yet, the estimations of model 6 modify H1 insofar as the positive relationship between rule of law and MPI appears to hold only for countries with a generally weak quality of rule of law. This suggests that quality of rule of law only plays a role in rising MPI until a certain threshold.

5. Discussion and limitations

The empirical analysis of the relationship between the quality of rule of law and MPI through DFIs has produced several findings that indicate implications for further research. Applying the fixed effect method to the selected model and sample specifications, the hypothesis proposed in chapter 5 could be confirmed for countries that exhibit a generally weak quality of rule of law. These findings largely correspond to the expected relationships derived from reviewing existing research on institutional and economic factors that influence investments.

Contrasting the findings with the theoretical work of Pistor (2002, 2009), Shleifer et al (2007) and Acemoglu et al. (2012), it can be assumed that a weak rule of law influences MPIs through multiple channels affecting the private sector in its role as a source of finance for and implementer of the SDGs. Based on the four elements of capital that describe how quality of rule of law influence investment described in 3.4, these channels include lower investor protection and contract enforcement, higher transaction costs, fewer available profitable companies and domestic investors, less developed capital markets and increased likelihood of expropriation. Overall, these channels increase overall investment cost as well as risk and decrease returns (Daude & Stein 2007: 318).

However, the wide range of possible effects of rule of law on MPI and investment in general is indicative of the critic of using rule of law in regression analysis due to its notional vagueness (see Skaaning 2010). Further research should address this shortcoming by using a narrower measure of certain aspects of rule of law. This would allow to control for specific qualities of rule of law and the

effectiveness of individual instruments with regards to MPI, as better protected minority voting rights may be more relevant to equity instruments and stock markets, while enforcement of bankruptcy laws or collateral may be more relevant to creditors and debt markets. Generally, more detailed micro-data on sector, type of investor and instruments would allow to investigate the unique relations between economic and institutional factors for single countries or regions, which could produce valuable policy recommendations that are tailored to the local context.

While empirical findings from section 5.5 indicate that rule of law has an important positive relationship with MPI in countries with weak rule of law, the data and methods used do not allow to control for the actual influence of DFIs on MPI on a more fundamental level. Even though the additionality principle ensures that MPI would not have occurred without the DFIs involvement, there is no possibility to control for the counterfactual (following an experimental design using control groups), which is no involvement of a DFI. The only possibility to approach assessing the isolated effect size of DFIs on MPI would be a comparison of the effects of explanatory variables on MPI and other capital flows that occurred independent of DFIs activity. Even though the literature suggests that DFIs increase MPI, the used model cannot verify whether DFIs actually have a positive or negative impact on MPI, but only that rule of law explains variations of private investments mobilized by DFIs between countries.

A further limitation of the estimates is that measures for MPI used in this thesis are the result of complex calculations conducted by the OECD. This reduces the overall reliability and validity of estimations that use this data and increases the risk of an imprecise representation of actual MPI.

Moreover, potential factors driving MPI outside of a country are not controlled for in applied model[66]. These factors external to a country's investment environment could range from specific political mandates that guide the behavior of DFIs or developments on international capital markets that may impact the behavior of private investors[67].

Also, inferences of estimations need to be treated with caution because the utilized sample includes only seven years and 45 countries. Replacing the access to finance with another variable may increase the explanatory power of financial development on MPI and would allow to include nearly all of the countries in the original sample. Further, changes in macroeconomic or institutional variables may influence MPI with longer time lags than one or even seven years and may vary from country to country. No specific tests addressing the issue of differing time lags or potential reverse causality and endogeneity (such as the two stage least square (TSLS) method) were conducted. The causal relationship between MPI, rule of law, GDP and other explanatory variables is uncertain since all directions are likely to occur to varying degrees (Beck & Levine 2005: 9). Thus, the methods applied in this thesis do not provide reliable predictions regarding causality.

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[66] However, omitted factors driving variation in the dependent variable are captured by the error term in as described in section 4.6

[67] For example, some studies show the relationship between the 2008 financial crisis and capital flows to developing countries. The effects of global financial events such as the 2008 financial crisis are not relevant to the time periods considered in this thesis. This is further confirmed by model 7 which controls for unobserved time effects.

Nonetheless, this study provides empirical evidence that confirms that the relationship between the quality of rule of law and investments from the private sector has a somewhat similar relationship for MPI through DFIs. This relationship appears to be particularly relevant for countries with a low quality of rule of law. Contrasting the mechanisms assumed behind findings with the role of DFIs presented in chapter 2.3, the findings indicate that the overall capabilities of DFIs to mobilize private investments is constrained by the quality of rule of law of the country in which they operate.

While this may not be a surprising finding, it produces several insights for the current debate on how to finance the SDGs, regardless of the specific channel through which rule of law unfolds its effect on MPI. Considering the specific mandate of DFIs and financial instruments that enable them to operate profitable as a "quasi-commercial" actors in markets, DFIs may be inapt to address low institutional quality that negatively influences their mobilization capacity. This implies that DFIs may need to develop new, innovative instruments that allow them to operate more effectively in countries with low quality of rule of law or to coordinate their activities with IFIs. In contrast to DFIs, the latter have the explicit mandate to work with country governments on macro-level conditions such as institutional capacity and rule of law and may be able to improve mobilizing efforts of DFIs drastically.

6. Conclusion and outlook

The current financing approach of the SDGs relies heavily on DFIs and the private sector (Hickel 2019; Lee 2017; AAAA 2015). Further, it is assumed that DFIs have the capacity to address the market failures that they encounter in the countries where they are supposed to mobilize additional private investments and have a strong development impact (IFC 2011). However, more than half of the share of total private investments are mobilized in upper-middle-income countries (OECD 2017, IFC 2019). Although the representativeness of the data that this study uses is limited, it provides empirical evidence that deficient institutions, in particular the quality of rule of law, may constrain DFIs capacity to mobilize private investments through various channels. A weak rule of law is expected to reduce the overall size of domestic private sector in terms of available investment opportunities and investors, and to increase investment risk and cost for foreign investors (Acemoglu et al. 2005; La Porta et al. 2005, Pistor 2003, 2009). Hence, this research provides a potentially important reason for why some countries, namely those with generally weaker rule of law, obtain a smaller share of MPI.

Putting this finding into context, DFIs may not be the panacea as regards to closing the SDG financing gap that they are expected to be by their shareholders (Lee 2017; Lee 2019). This further underlines the relevance of i) the work of other development actors that specifically aim at improving a country's institutional capacity and ii) not to solely rely on market mechanisms as a way of financing the SDGs in countries with weak quality of rule of law.

However, to make more narrow and reliable assertions about which aspects of a weak rule of law should be addressed in which country and how these aspects relate to specific DFI instruments and

market sectors, more data transparency by DFIs is required[68]. Disclosure of data would allow to link MPI to investments by DFIs and thereby to research factors that influence investment efficiency and development impact in different contexts. Moreover, detailed and country specific estimates on SDGs investment needs could facilitate more concerted efforts by relevant stakeholders[69]. From an academic perspective, qualitative research including all parties involved in mobilizing private investments (such as investment officers in DFIs, private investors that invest alongside of DFIs and CEOs of companies that received investment) could illuminate the currently available statistics and indicate the most fruitful direction for further data collection and quantitative analysis.

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[68] The recently launched DFI Transparency Initiative funded by Bill & Melinda Gates Foundation is a relevant example of how this issue can be addressed. For more information see https://www.publishwhatyoufund.org/projects/dfi-transparency-initiative/

[69] There are ongoing efforts to complete investment gap estimates per country and sector by several research institutions such as the Working Group on SDG Costing and Financing (SDG Costing Group). For more information see www.unsdsn.org/sdgfinancing

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Appendix A1: Do-File

```
Clear

/*
Master thesis LUMID Lund University
Marian Wittenberg
Empirical Analysis of the Relationship of Rule of Law and the Mobilization
of Private Investments through Development Finance Institutions towards the
2030 Agenda
*/

log using "C:\Users\Marian\Desktop\Master Thesis\Datasets and Quantiative
research\From Scratch\2011_2017_with_zeros\First_Log_File_FE_Schwartz.smcl"

import excel "C:\Users\Marian\Desktop\Master Thesis\Datasets and
Quantiative research\FromScratch\2011_2017_with_zeros\Laggedmodels
\2011_2017_with_zeros_LAGGED.xlsx", sheet("FE Schwartz") firstrow

*/ Working directory commands
adopath
cd "C:\Users\Marian\Documents\Statapackage"

/* Additional command packages
ssc install asdoc
ssc install outreg2
ssc install estout

/*Generate missing log values
gen Log_Trade_lagged = log10( Trade_lagged)
gen Log_Debt_lagged = log10( Debt_lagged)
gen Log_AccessFin_lagged = log10( AccessFin_lagged )
gen Log_QoG_ICRG = log10( QoG_ICRG )
gen Log_Corruption_CPI = log10( Corruption_CPI)
gen Log_RoL_mod = log10( RoL_mod )
gen Log_Reg_Qual_mod = log10( Reg_Qual_mod )
gen EoDB_log = log10( EoDB )
gen GDPdeflator_log = log10( GDPdeflator )
gen GDPpc_lagged_log = log10( GDPpc_lagged)
gen GovEff_mod_log = log10(GovEff_mod)

/*Generate missing dependent variable values and their natural log
gen LN_MPI_sum = log( MPI_sum )
gen MPI_GDP = MPI_sum/ GDP_lagged
gen LN_MPI_GDP = log(MPI_GDP)
gen ln_MPI_AV = log(MPI_average)
gen LN_Cred_PS = log( Cred_PS )

/*Generate variable groups
global xlist_log GDP_log_lag Pop_log Growth_log_lagged Inflation_log_lagged
Log_Trade_lagged Log_Debt_lagged Log_AccessFin_lagged Log_QOG_ICRG
Log_Corruption_CPI Log_RoL_mod Log_Reg_Qual_mod
global xlist_log_MPI_GDP Pop_log Growth_log_lagged Inflation_log_lagged
Log_Trade_lagged Log_Debt_lagged Log_AccessFin_lagged Log_QoG_ICRG
Log_Corruption_CPI Log_RoL_mod Log_Reg_Qual_mod

/*Create summary statistics
summarize $xlist_log
describe $xlist_log

/*Create correlation table to check for multicollinearity
pwcorr $xlist_log LN_MPI_sum

/*Drop variables due to critical correlation coefficients
drop GovEff_mod

/*Create scatterplots for dependent and selected independent variables
scatter LN_MPI_sum GDP_log_lag || lfit LN_MPI_sum GDP_log_lag
scatter LN_MPI_sum RoL_mod || lfit LN_MPI_sum RoL_mod
scatter LN_MPI_sum GDP_log_lag || lfit LN_MPI_sum GDP_log_lag
```

```
scatter LN_MPI_sum Log_RoL_mod || lfit LN_MPI_sum Log_RoL_mod
scatter ln_MPI_AV Log_RoL_mod || lfit ln_MPI_AV Log_RoL_mod
scatter LN_MPI_sum GDP_log_lag || lfit LN_MPI_sum GDP_log_lag

/*OLS regressions
reg LN_MPI_sum $xlist_log

/*Set country and year buckets for fixed effects regression
encode Country, generate (CTR)
global id CTR
global t Year
sort $id $t
xtset $id $t

/*Generate summary statistics for panel and time-series data
xtdescribe
xtsum $id $t LN_MPI_sum $xlist_log

/*Conduct Hausman test
xtreg LN_MPI_sum $xlist_log, fe
estimates store FE
xtreg LN_MPI_sum $xlist_log, re
estimates store RE
hausman FE RE

/*Fixed effect regressions Schwartz model
xtreg LN_MPI_sum Log_RoL_mod, fe

/*Fixed effect regressions Schwartz model
xtreg LN_MPI_sum Log_QoG_ICRG Log_Corruption_CPI Log_RoL_mod
Log_Reg_Qual_mod, fe

/*Fixed effect regressions Schwartz model
xtreg LN_MPI_sum $xlist_log, fe

/*Fixed effect regressions Schwartz model controlling for time effects
xtreg LN_MPI_sum $xlist_log i.Year, fe

/*Fixed effect regressions Schwartz model with alternative dependent
variables
/* FE control FDI as dependent variable
xtreg LN_FDI $xlist_log, fe
/* FE control Credit to PS as dependent variable
xtreg Cred_PS_log $xlist_log, fe
/*LN of MPI over GDP as dependet varaiable
xtreg LN_MPI_GDP $xlist_log_MPI_GDP, fe

/*Fixed effect regressions Schwartz model with dummy for weak and medium
RoL countries
bysort $id : egen avRoL=mean( RoL_mod)
generate DummyWRoL = 0
replace DummyWRoL = 1 if avRoL<2.1666666666666
generate DxRoLW = DummyWRoL* Log_RoL_mod
xtreg LN_MPI_sum $xlist_legaldummy DxRoLW , fe
xtreg LN_FDI $xlist_legaldummy DxRoLW , fe
```

Appendix A2: Scatter plots
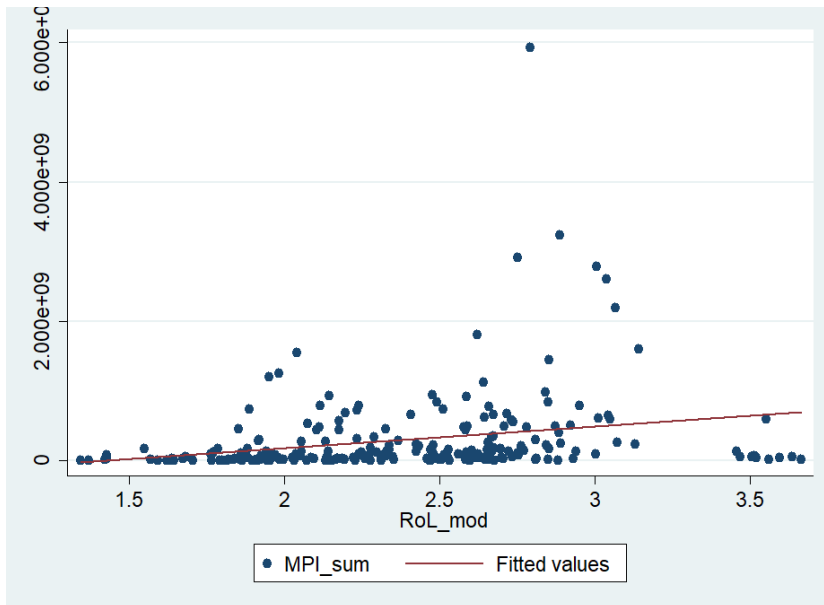
Figure SEQFigure 281: Histogram RoL and (log) RoL. Source: Own illustration done in Stata
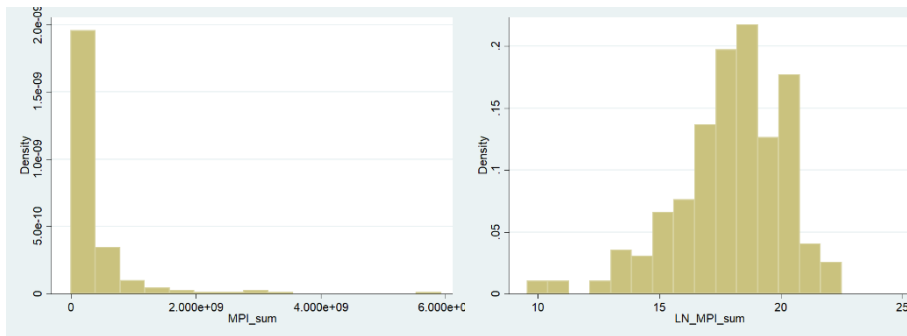
Figure 488: Histogram RoL and (log) RoL. Source: Own illustration done in Stata
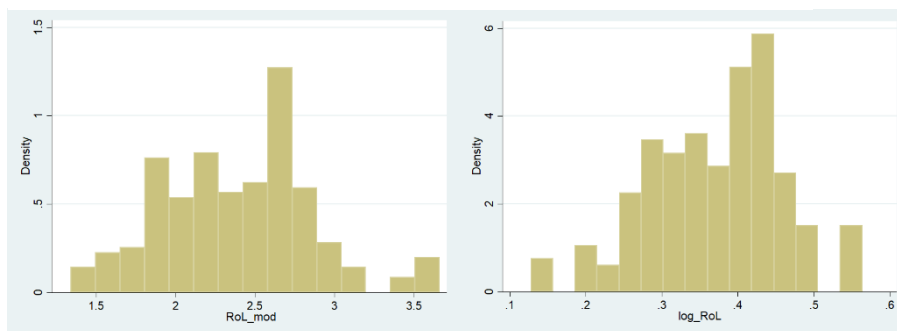
Appendix A3: Additional result tables

1. Result table for model 7 controlling for time effects

Variable	Model 7
Dependent Variable ln_MPI	
GDP	11.94*
	(7.102)
Population	-14.05
	(13.01)
GDP growth	5.934
	(6.568)
Inflation	-0.0976
	(0.798)
Trade	0.658
	(0.820)
Debt	-0.294
	(0.598)
Access to finance	0.466
	(0.980)
Quality of government	-5.007
	(7.357)
Corruption	-1.060
	(4.147)
Rule of law	7.339
	(6.769)
Regulatory quality	10.04
	(6.271)
2013.Year	0.146
	(0.370)
2014.Year	0.615
	(0.533)
2015.Year	0.901
	(0.696)
2016.Year	0.421
	(0.831)
2017.Year	-0.00576
	(0.940)
Constant	-31.97
R^2	0.296
Observations	229

*** $p<0.01$, ** $p<0.05$, * $p<0.1$
Standard errors in parentheses

2. Result table for additional models including only RoL (1) and institional variables (2)

VARIABLES	(1) posRoL only	(2) Institutional variables only
Log_RoL_mod	25.33***	20.58***
	(5.371)	(5.933)
Log_QoG_ICRG		-0.745
		(7.589)
Log_Corruption_CPI		-1.071
		(4.167)
Log_Reg_Qual_mod		11.95**
		(5.137)
Constant	8.592***	6.900
R-squared	0.108	0.138
Observations	229	229

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Appendix A4: Alternative dependent variables for robustness tests

Alternative dependent variables	**Foreign direct investments (ln_FDI)**	Foreign direct Investment, net inflows in % of gross domestic product	World Bank - World Development Indicator (WDI)
	Total MPI over GDP (ln_MPI_GDP)	MPI per country divided by the country's gross domestic product	OECD Development Finance Statistics and World Development Indicator (WDI) – own calculation
	Credit to the private sector (ln_CredPS)	Domestic credit to a country's private sector by banks	World Development Indicator (WDI

Appendix A5: Single estimation tables

1. Hausman test results

	Coefficients			
	(b)	(B)	(b-B)	sqrt(diag(V_b-V_B))
	FE	RE	Difference	S.E.
GDP_log_lag	13.91979	-.736467	14.65626	4.271483
Pop_log	-16.78318	2.305272	-19.08845	12.8436
Growth_log~d	6.980416	4.611364	2.369052	1.902131
Inf~g_lagged	-.3674438	-.7277029	.3602591	.4058499
Log_Trade_~d	1.228398	.9181775	.3102206	.4650205
Log_Debt_l~d	-.5627894	.7450922	-1.307882	.4156448
Log_Access~d	1.135375	.70656	.4288154	.8258024
Log_QoG_ICRG	-7.646569	-1.8529	-5.793669	7.044709
Log_Corrup~I	-2.654201	-2.271603	-.3825978	2.988709
Log_RoL_mod	12.54277	8.709864	3.832901	5.015898
Log_Reg_Qu~d	4.94408	5.001126	-.0570462	4.93908

```
                        b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(11) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =       41.13
                Prob>chi2 =     0.0000
                (V_b-V_B is not positive definite)
```

2. Model 1: Fixed effects regression including all variables

```
Fixed-effects (within) regression          Number of obs     =        229
Group variable: CTR                        Number of groups  =         45

R-sq:                                      Obs per group:
     within  = 0.2478                                   min =          1
     between = 0.0301                                   avg =        5.1
     overall = 0.0336                                   max =          6

                                           F(11,173)         =       5.18
corr(u_i, Xb)  = -0.9564                    Prob > F          =     0.0000
```

LN_MPI_sum	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP_log_lag	13.91979	4.351243	3.20	0.002	5.331434	22.50815
Pop_log	-16.78318	12.87411	-1.30	0.194	-42.19372	8.62737
Growth_log_lagged	6.980416	6.44515	1.08	0.280	-5.740836	19.70167
Inflation_log_lagged	-.3674438	.7910199	-0.46	0.643	-1.928736	1.193849
Log_Trade_lagged	1.228398	.8087799	1.52	0.131	-.3679485	2.824745
Log_Debt_lagged	-.5627894	.6007617	-0.94	0.350	-1.748556	.6229768
Log_AccessFin_lagged	1.135375	.9719654	1.17	0.244	-.7830621	3.053813
Log_QoG_ICRG	-7.646569	7.429124	-1.03	0.305	-22.30996	7.016822
Log_Corruption_CPI	-2.654201	4.173539	-0.64	0.526	-10.89181	5.583412
Log_RoL_mod	12.54277	6.534065	1.92	0.057	-.3539857	25.43952
Log_Reg_Qual_mod	4.94408	5.879004	0.84	0.402	-6.659729	16.54789
_cons	-35.90496	72.4832	-0.50	0.621	-178.9702	107.1603

sigma_u	6.6923858	
sigma_e	1.3260608	
rho	.9622219	(fraction of variance due to u_i)

```
F test that all u_i=0: F(44, 173) = 5.34              Prob > F = 0.0000
```

3. Model 2: MPI over GDP as dependent variable

```
Fixed-effects (within) regression          Number of obs    =        229
Group variable: CTR                        Number of groups =         45

R-sq:                                      Obs per group:
    within  = 0.1779                                      min =          1
    between = 0.0948                                      avg =        5.1
    overall = 0.0514                                      max =          6

                                           F(10,174)        =       3.77
corr(u_i, Xb)  = -0.9566                   Prob > F         =     0.0001
```

LN_MPI_GDP	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Pop_log	8.301836	8.955058	0.93	0.355	-9.372685	25.97636
Growth_log_lagged	7.255316	6.556827	1.11	0.270	-5.685838	20.19647
Inflation_log_lagged	-.4259678	.8045198	-0.53	0.597	-2.013842	1.161906
Log_Trade_lagged	1.29453	.8225129	1.57	0.117	-.3288568	2.917917
Log_Debt_lagged	-.437796	.6093904	-0.72	0.473	-1.640545	.7649527
Log_AccessFin_lagged	1.901295	.944877	2.01	0.046	.0363992	3.766191
Log_QoG_ICRG	-6.01005	7.533043	-0.80	0.426	-20.87795	8.857853
Log_Corruption_CPI	-2.082772	4.24081	-0.49	0.624	-10.45282	6.287278
Log_RoL_mod	15.18527	6.571419	2.31	0.022	2.215314	28.15522
Log_Reg_Qual_mod	5.775573	5.973236	0.97	0.335	-6.013751	17.5649
_cons	-94.82838	70.24682	-1.35	0.179	-233.4739	43.81717

```
        sigma_u │  6.0833676
        sigma_e │  1.3492101
            rho │  .95311681   (fraction of variance due to u_i)

F test that all u_i=0: F(44, 174) = 6.53              Prob > F = 0.0000
```

4. Model 3: Credit to Private Sector as dependent variable

```
Fixed-effects (within) regression          Number of obs    =        220
Group variable: CTR                        Number of groups =         43

R-sq:                                      Obs per group:
    within  = 0.4520                                      min =          1
    between = 0.0923                                      avg =        5.1
    overall = 0.0599                                      max =          6

                                           F(11,166)        =      12.45
corr(u_i, Xb)  = -0.8866                    Prob > F         =     0.0000
```

LN_Cred_PS	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP_log_lag	.5663498	.3166554	1.79	0.076	-.0588412	1.191541
Pop_log	1.857655	.9473712	1.96	0.052	-.0127946	3.728105
Growth_log_lagged	-.0539779	.5276656	-0.10	0.919	-1.095779	.9878228
Inflation_log_lagged	-.0887838	.0589226	-1.51	0.134	-.2051181	.0275505
Log_Trade_lagged	.146173	.0600528	2.43	0.016	.0276073	.2647386
Log_Debt_lagged	-.1251842	.0463898	-2.70	0.008	-.2167743	-.0335941
Log_AccessFin_lagged	.2105858	.073719	2.86	0.005	.0650381	.3561335
Log_QoG_ICRG	.3178028	.537895	0.59	0.555	-.7441943	1.3798
Log_Corruption_CPI	.2774452	.3024806	0.92	0.360	-.3197596	.8746501
Log_RoL_mod	.5061624	.4842984	1.05	0.297	-.450016	1.462341
Log_Reg_Qual_mod	.7024702	.4719553	1.49	0.139	-.2293385	1.634279
_cons	-17.84306	5.433155	-3.28	0.001	-28.57005	-7.116072

```
        sigma_u │  1.5100987
        sigma_e │  .09549853
            rho │  .99601664   (fraction of variance due to u_i)

F test that all u_i=0: F(42, 166) = 99.60             Prob > F = 0.0000
```

5. Model 4: FDI as dependent variable

```
Fixed-effects (within) regression          Number of obs     =        227
Group variable: CTR                        Number of groups  =         45

R-sq:                                      Obs per group:
    within  = 0.0717                                   min =          1
    between = 0.1582                                   avg =        5.0
    overall = 0.0764                                   max =          6

                                           F(11,171)         =       1.20
corr(u_i, Xb)  = -0.9971                   Prob > F          =     0.2895
```

LN_FDI	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP_log_lag	1.794407	.5701296	3.15	0.002	.6690088	2.919805
Pop_log	-4.466257	1.682751	-2.65	0.009	-7.787897	-1.144617
Growth_log_lagged	-.1257827	.8404083	-0.15	0.881	-1.784693	1.533128
Inflation_log_lagged	-.0006201	.1034829	-0.01	0.995	-.2048885	.2036484
Log_Trade_lagged	-.0620601	.1054462	-0.59	0.557	-.270204	.1460838
Log_Debt_lagged	.016426	.0787271	0.21	0.835	-.1389762	.1718281
Log_AccessFin_lagged	-.0618164	.1321634	-0.47	0.641	-.3226982	.1990654
Log_QoG_ICRG	-.2978665	.97086	-0.31	0.759	-2.21428	1.618547
Log_Corruption_CPI	-.3994427	.5471595	-0.73	0.466	-1.4795	.6806141
Log_RoL_mod	.6545737	.8542308	0.77	0.445	-1.031622	2.340769
Log_Reg_Qual_mod	-.0511187	.7742658	-0.07	0.947	-1.579468	1.477231
_cons	39.79376	9.473229	4.20	0.000	21.09423	58.49329

```
sigma_u |  1.8151818
sigma_e |  .17282579
    rho |  .99101625   (fraction of variance due to u_i)
```

F test that all u_i=0: F(44, 171) = 2.18   Prob > F = 0.0002

6. Model 5: Model 1 including DxRoL controlling for countries with weak rule of law

```
Fixed-effects (within) regression          Number of obs     =        229
Group variable: CTR                        Number of groups  =         45

R-sq:                                      Obs per group:
    within  = 0.2610                                   min =          1
    between = 0.0092                                   avg =        5.1
    overall = 0.0013                                   max =          6

                                           F(11,173)         =       5.55
corr(u_i, Xb)  = -0.9699                   Prob > F          =     0.0000
```

LN_MPI_sum	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP_log_lag	15.52534	4.265093	3.64	0.000	7.107022	23.94366
Pop_log	-22.06421	12.97612	-1.70	0.091	-47.67611	3.547683
Growth_log_lagged	10.88447	6.621473	1.64	0.102	-2.184807	23.95374
Inflation_log_lagged	-.4905433	.7815043	-0.63	0.531	-2.033054	1.051968
Log_Trade_lagged	.9247537	.7899497	1.17	0.243	-.6344264	2.483934
Log_Debt_lagged	-.4599274	.5930819	-0.78	0.439	-1.630535	.7106807
Log_AccessFin_lagged	1.2641	.9609161	1.32	0.190	-.6325285	3.160729
Log_QoG_ICRG	-7.556636	7.361111	-1.03	0.306	-22.08579	6.972514
Log_Corruption_CPI	-3.426978	4.142172	-0.83	0.409	-11.60268	4.748721
Log_Reg_Qual_mod	4.797002	5.737097	0.84	0.404	-6.526715	16.12072
DxRoLW	21.28945	8.138746	2.62	0.010	5.225428	37.35347
_cons	-17.42797	72.60377	-0.24	0.811	-160.7312	125.8753

```
sigma_u |  8.3459064
sigma_e |  1.3143678
    rho |  .97579824   (fraction of variance due to u_i)
```

F test that all u_i=0: F(44, 173) = 5.38   Prob > F = 0.0000

7. Model 6: Model 5 using FDI as dependent variable

```
Fixed-effects (within) regression          Number of obs      =       227
Group variable: CTR                        Number of groups   =        45

R-sq:                                      Obs per group:
    within  = 0.0776                                      min =         1
    between = 0.1287                                      avg =       5.0
    overall = 0.0622                                      max =         6

                                           F(12,170)          =      1.19
corr(u_i, Xb)  = -0.9966                   Prob > F           =    0.2924
```

LN_FDI	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP_log_lag	1.683513	.5798691	2.90	0.004	.5388422	2.828185
Pop_log	-4.079822	1.722847	-2.37	0.019	-7.480751	-.6788924
Growth_log_lagged	-.4140876	.88471	-0.47	0.640	-2.16052	1.332345
Inflation_log_lagged	.0078304	.1037761	0.08	0.940	-.1970255	.2126862
Log_Trade_lagged	-.0409897	.1073478	-0.38	0.703	-.2528961	.1709167
Log_Debt_lagged	.0092573	.079009	0.12	0.907	-.1467079	.1652224
Log_AccessFin_lagged	-.0718363	.1324818	-0.54	0.588	-.3333577	.1896851
Log_QoG_ICRG	-.3056085	.9706537	-0.31	0.753	-2.221695	1.610478
Log_Corruption_CPI	-.3355819	.5504592	-0.61	0.543	-1.422197	.7510337
Log_RoL_mod	1.525046	1.195479	1.28	0.204	-.8348501	3.884942
Log_Reg_Qual_mod	-.0251102	.774482	-0.03	0.974	-1.553951	1.50373
DxRoLW	-1.559217	1.498452	-1.04	0.300	-4.517186	1.398752
_cons	38.37474	9.568615	4.01	0.000	19.48614	57.26335

```
sigma_u |  1.6832182
sigma_e |  .17278399
    rho |  .98957265   (fraction of variance due to u_i)
```

```
F test that all u_i=0: F(44, 170) = 2.21                Prob > F = 0.0002
```

8. Model 7: Time effects including year dummies

```
Fixed-effects (within) regression          Number of obs      =       229
Group variable: CTR                        Number of groups   =        45

R-sq:                                      Obs per group:
    within  = 0.2959                                      min =         1
    between = 0.0466                                      avg =       5.1
    overall = 0.0519                                      max =         6

                                           F(16,168)          =      4.41
corr(u_i, Xb)  = -0.9410                   Prob > F           =    0.0000
```

LN_MPI_sum	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
GDP_log_lag	11.94336	7.10245	1.68	0.095	-2.078194	25.96491
Pop_log	-14.04982	13.01437	-1.08	0.282	-39.74261	11.64296
Growth_log_lagged	5.934365	6.568176	0.90	0.368	-7.032431	18.90116
Inflation_log_lagged	-.0975998	.7983324	-0.12	0.903	-1.673656	1.478456
Log_Trade_lagged	.6582099	.820036	0.80	0.423	-.9606929	2.277113
Log_Debt_lagged	-.2944776	.5984785	-0.49	0.623	-1.475985	.8870298
Log_AccessFin_lagged	.4658471	.9802361	0.48	0.635	-1.46932	2.401015
Log_QoG_ICRG	-5.006906	7.357371	-0.68	0.497	-19.53172	9.517906
Log_Corruption_CPI	-1.059695	4.146748	-0.26	0.799	-9.246143	7.126752
Log_RoL_mod	7.339056	6.769305	1.08	0.280	-6.024805	20.70292
Log_Reg_Qual_mod	10.03594	6.270741	1.60	0.111	-2.343664	22.41554
Year						
2013	.146036	.3696159	0.40	0.693	-.5836543	.8757263
2014	.6153692	.5332448	1.15	0.250	-.4373547	1.668093
2015	.9008096	.6957981	1.29	0.197	-.4728247	2.274444
2016	.4214581	.831313	0.51	0.613	-1.219708	2.062624
2017	-.0057639	.9404117	-0.01	0.995	-1.862311	1.850783
_cons	-31.97309	108.4812	-0.29	0.769	-246.135	182.1889

```
sigma_u |  5.7693321
sigma_e |  1.301927
    rho |  .95154363   (fraction of variance due to u_i)
```

```
F test that all u_i=0: F(44, 168) = 4.82                Prob > F = 0.0000
```

9. Additional models not presented in text: FE including RoL only

```
Fixed-effects (within) regression          Number of obs     =        229
Group variable: CTR                        Number of groups  =         45

R-sq:                                      Obs per group:
     within  = 0.1084                                    min =          1
     between = 0.1697                                    avg =        5.1
     overall = 0.1370                                    max =          6

                                           F(1,183)          =      22.25
corr(u_i, Xb)  = -0.6508                    Prob > F          =     0.0000
```

LN_MPI_sum	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Log_RoL_mod	25.33374	5.371216	4.72	0.000	14.73627	35.93121
_cons	8.592151	1.988848	4.32	0.000	4.66813	12.51617

sigma_u	2.1619891	
sigma_e	1.4037183	
rho	.70345566	(fraction of variance due to u_i)

```
F test that all u_i=0: F(44, 183) = 6.88          Prob > F = 0.0000
```

.

10. Additional models not presented in text: FE including institutional variables only

```
Fixed-effects (within) regression          Number of obs     =        229
Group variable: CTR                        Number of groups  =         45

R-sq:                                      Obs per group:
     within  = 0.1376                                    min =          1
     between = 0.2153                                    avg =        5.1
     overall = 0.1682                                    max =          6

                                           F(4,180)          =       7.18
corr(u_i, Xb)  = -0.7540                    Prob > F          =     0.0000
```

LN_MPI_sum	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
Log_RoL_mod	20.57598	5.93347	3.47	0.001	8.867872	32.28409
Log_QoG_ICRG	-.7447189	7.588672	-0.10	0.922	-15.71892	14.22948
Log_Corruption_CPI	-1.071443	4.166968	-0.26	0.797	-9.293833	7.150946
Log_Reg_Qual_mod	11.95172	5.137025	2.33	0.021	1.815185	22.08826
_cons	6.90013	6.99699	0.99	0.325	-6.906546	20.70681

sigma_u	2.4236554	
sigma_e	1.3919837	
rho	.7519602	(fraction of variance due to u_i)

```
F test that all u_i=0: F(44, 180) = 6.51          Prob > F = 0.0000
```

Appendix A6: Summary statistics and data overview

1. Overview country time-period distribution

```
CTR:   1, 2, ..., 45                                          n =           45
Year:  2012, 2013, ..., 2017                                  T =            6
       Delta(Year) = 1 unit
       Span(Year)  = 6 periods
       (CTR*Year uniquely identifies each observation)

Distribution of T_i:   min      5%      25%      50%      75%      95%      max
                         1       2        5        6        6        6        6
```

2. Correlation table

`. summarize $xlist_IQ`

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP_log_lag	229	11.17586	.6948959	9.915919	13.33065
Pop_log	229	7.383392	.6165483	6.244727	9.141887
Growth_log~d	229	1.829182	.0197567	1.774154	1.904666
Inf~g_lagged	229	.9829194	.1972967	-.2589629	1.574609
Log_Trade_~d	229	1.785254	.2441741	-.6981748	2.219181
Log_Debt_l~d	229	.3678975	.4933218	-1.172383	1.47545
Log_Access~d	229	1.864312	.6513725	-.078202	2.940918

3. Descriptive statistics of RoL by country

Summary for variables: RoL_mod
    by categories of: CTR (Country)

CTR	N	mean	p50	min	max	sd	variance
Albania	5	2.616608	2.662138	2.479684	2.671774	.0824217	.0067933
Algeria	5	2.206874	2.226832	2.13148	2.310626	.0742708	.0055162
Angola	4	1.902105	1.904245	1.881864	1.918066	.0164911	.000272
Azerbaijan	4	2.273925	2.301224	2.165489	2.327761	.0761695	.0058018
Bangladesh	6	2.223381	2.235527	2.070696	2.336512	.1058413	.0112024
Bolivia	6	1.888746	1.90187	1.791801	1.983926	.0832671	.0069334
Botswana	4	3.601421	3.614552	3.514085	3.662495	.0643669	.0041431
Brazil	6	2.868651	2.886374	2.715679	2.950142	.0864952	.0074814
Cameroon	4	2.008922	1.991545	1.949047	2.103552	.0714847	.0051101
China	5	2.610764	2.590205	2.47541	2.737087	.0979087	.0095861
Colombia	6	2.673528	2.677113	2.594112	2.731587	.0548071	.0030038
Congo	2	1.912933	1.912933	1.904404	1.921461	.0120612	.0001455
Costa Rica	6	3.509586	3.51222	3.454841	3.560501	.0433136	.0018761
Democratic Repub	4	1.436491	1.427006	1.343	1.548952	.0847908	.0071895
Dominican Republ	6	2.508069	2.534693	2.312229	2.604858	.111988	.0125413
Ecuador	6	2.057851	2.001412	1.865312	2.298641	.1729177	.0299005
Egypt	5	2.425954	2.405912	2.337484	2.527617	.0813022	.00661
Ethiopia	2	2.337551	2.337551	2.322515	2.352586	.0212635	.0004521
Gabon	3	2.493945	2.491113	2.460151	2.530572	.0352958	.0012458
Ghana	4	3.08251	3.088747	3.010495	3.142053	.0639491	.0040896
Guatemala	5	1.98217	1.980158	1.916521	2.052718	.0628534	.0039505
Guinea	6	1.709475	1.705501	1.592416	1.841504	.1030941	.0106284
Haiti	6	1.820352	1.81695	1.672549	1.998003	.1224436	.0149924
Honduras	6	1.943334	1.917546	1.835337	2.074375	.10231	.0104673
Indonesia	6	2.573016	2.615734	2.424318	2.657819	.103295	.0106699
Kenya	6	2.451075	2.535587	2.176199	2.587061	.1750392	.0306387
Lebanon	5	2.200517	2.176019	2.169505	2.248962	.0377435	.0014246
Madagascar	6	2.180289	2.163875	2.087172	2.313066	.0912494	.0083264
Malawi	1	2.624846	2.624846	2.624846	2.624846	.	.
Moldova	6	2.632111	2.637211	2.505017	2.752163	.0834175	.0069585
Mongolia	6	2.667574	2.641941	2.62021	2.779812	.0620124	.0038455
Myanmar	6	1.85948	1.790262	1.645264	2.113023	.1834183	.0336423
Nigeria	6	1.974406	1.966652	1.853718	2.134165	.1026017	.0105271
Pakistan	6	2.200624	2.214479	2.115779	2.276162	.0613562	.0037646
Paraguay	6	2.266698	2.28934	2.153791	2.349017	.0780983	.0060993
Peru	6	2.47831	2.488843	2.425617	2.517983	.0401051	.0016084
Serbia	6	2.7832	2.82423	2.643696	2.882831	.0997537	.0099508
Sierra Leone	2	2.143699	2.143699	2.140967	2.146432	.0038648	.0000149
Tanzania	5	2.571026	2.604876	2.470626	2.628381	.0694247	.0048198
Thailand	5	2.886609	2.852296	2.808632	3.04374	.0914057	.008355
Tunisia	6	2.930584	2.914384	2.810752	3.071251	.0943797	.0089075
Turkey	6	2.922766	2.946052	2.749863	3.066959	.1333471	.0177815
Uganda	6	2.665555	2.655278	2.61162	2.753004	.0545871	.0029798
Zambia	5	2.727702	2.732438	2.673098	2.770275	.0415455	.001726
Zimbabwe	6	1.549614	1.594805	1.370017	1.683372	.1259115	.0158537
Total	229	2.389901	2.405912	1.343	3.662495	.4691927	.2201418

4. List of DFIs included in the dataset provided by the OECD

Type	Shareholder	Agency name
Bilateral	Australia	Australian Department of Foreign Affairs and Trade
Bilateral	Austria	Austrian Development Bank
Bilateral	Austria	Austrian Development Agency
Bilateral	Belgium	Belgian Investment Company for Developing Countries
Bilateral	Canada	Global Affairs Canada
Bilateral	Canada	Finance Canada
Bilateral	Canada	Department of Foreign Affairs, Trade and Development
Bilateral	Czech Republic	Czech Development Agency
Bilateral	Czech Republic	Ministry of Foreign Affairs
Bilateral	Denmark	Investment Fund For Developing Countries
Bilateral	Finland	FinnFund
Bilateral	France	Proparco
Bilateral	France	French Development Agency
Bilateral	Germany	Kreditanstalt für Wiederaufbau
Bilateral	Germany	Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung
Bilateral	Germany	Federal Ministry of Finance
Bilateral	Ireland	DFAT
Bilateral	Korea	Korea International Cooperation Agency
Bilateral	Luxembourg	Ministry of Foreign Affairs
Bilateral	Netherlands	NLD Investment Bank for Developing Countries (FMO)
Bilateral	Norway	Norwegian Agency for Development Co-operation
Bilateral	Norway	NORFUND
Bilateral	Portugal	Camões-Institute for Cooperation and Language
Bilateral	Portugal	SOFID Sociedade para o Financiamento do Desenvolvimento
Bilateral	Portugal	Portuguese Government
Bilateral	Slovak Republic	Slovak Agency for International Development Cooperation
Bilateral	Spain	Ministry of Foreign Affairs and Co-operation
Bilateral	Spain	MAEC FONPRODE
Bilateral	Sweden	Swedish International Development Authority
Bilateral	Sweden	Swedfund
Bilateral	Switzerland	State Secretariat for Economic Affairs
Bilateral	Switzerland	SDC
Bilateral	Switzerland	Swiss Investment Fund for Emerging Markets
Bilateral	United Kingdom	CDC Capital Partners PLC
Bilateral	United Kingdom	Department for International Development

Bilateral	United Kingdom	Department of Energy and Climate Change
Bilateral	United Kingdom	Department for Business, Energy and Industrial Strategy
Bilateral	United Kingdom	DFID/DECC
Bilateral	United States	Overseas Private Investment Corporation
Bilateral	United States	Agency for International Development
Multi-donor fund/facility	Multiple shareholders	Credit Guarantee and Investment Facility
Multi-donor fund/facility	Multiple shareholders	Global Energy Efficiency and Renewable Energy Fund
Multilateral	Multiple shareholders	African Development Bank
Multilateral	Multiple shareholders	Asian Development Bank
Multilateral	Multiple shareholders	Caribbean Development Bank
Multilateral	Multiple shareholders	Council of Europe Development Bank
Multilateral	Multiple shareholders	Development Bank of Latin America
Multilateral	Multiple shareholders	European Investment Bank
Multilateral	Multiple shareholders	European Bank for Reconstruction and Development
Multilateral	Multiple shareholders	Inter-American Development Bank Group
Multilateral	Multiple shareholders	International Bank for Reconstruction and Development
Multilateral	Multiple shareholders	International Development Association
Multilateral	Multiple shareholders	International Finance Corporation
Multilateral	Multiple shareholders	International Fund for Agriculture Development
Multilateral	Multiple shareholders	Multilateral Investment Guarantee Agency
Multilateral	Multiple shareholders	MIGA (TrustFund)
Multilateral	Multiple shareholders	Nordic Development Fund
Multilateral	Multiple shareholders	InfraCo Asia
Multilateral	Multiple shareholders	GuarantCo
Multilateral	Multiple shareholders	EAIF
Multilateral	Multiple shareholders	ICF-DP
Multilateral	Multiple shareholders	GAP
Multilateral	Multiple shareholders	InfraCo Africa

5. MPI by sector

Sector	MPI in MM USD
I.1. Education	550953,6918
I.2. Health	3747855,234
I.3. Population Policies/Programmes & Reproductive Health	6998,851755
I.4. Water Supply & Sanitation	2034265,928
I.5. Government & Civil Society	1174300,716
I.6. Other Social Infrastructure & Services	491875,3157
II.1. Transport & Storage	4952513,429
II.2. Communications	3524871,431
II.3. Energy	34772969,99

II.4. Banking & Financial Services	34245174,86
II.5. Business & Other Services	180104,5975
III.1. Agriculture, Forestry, Fishing	4177690,995
III.2. Industry, Mining, Construction	25924684,2
III.3.a. Trade Policies & Regulations	1331533,685
III.3.b. Tourism	681370,0993
IV.1. General Environment Protection	413194,3181
IV.2. Other Multisector	2212406,235
IX. Unallocated / Unspecified	1558292,879
VIII.2. Reconstruction Relief & Rehabilitation	27500,76445
VIII.3. Disaster Prevention & Preparedness	1447,290328
total	122010004,5

6. MPI by purpose

Purposes	MPI in MM USD
Advanced technical and managerial training	$ 1.631,41
Agricultural alternative development	$ 62.916,69
Agricultural co-operatives	$ 435,63
Agricultural development	$ 772.634,80
Agricultural education/training	$ 1.436,51
Agricultural extension	$ 6.794,75
Agricultural financial services	$ 518.102,95
Agricultural inputs	$ 49.686,85
Agricultural land resources	$ 23.704,69
Agricultural policy and administrative management	$ 443.538,25
Agricultural research	$ 464,93
Agricultural services	$ 514.009,78
Agricultural water resources	$ 77.505,34
Agro-industries	$ 1.039.385,72
Air transport	$ 582.557,09
Basic drinking water supply	$ 300.754,65
Basic drinking water supply and basic sanitation	$ 24.687,39
Basic health care	$ 52.519,95
Basic health infrastructure	$ 2.388.535,85
Basic life skills for youth and adults	$ 1.157,74
Basic metal industries	$ 210.325,73
Basic nutrition	$ 1.903,67
Basic sanitation	$ 171,09
Bio-diversity	$ 3.335,70
Biofuel-fired power plants	$ 1.239.938,32
Biomass	$ 6,62
Biosphere protection	$ 281.345,97
Business Policy and Administration	$ 179.128,74
Cement/lime/plaster	$ 418.841,23
Chemicals	$ 1.668.954,91
Civilian peace-building, conflict prevention and resolution	$ 1.483,89
Coal	$ 1.061,53
Coal-fired electric power plants	$ 250.000,00

Communications policy and administrative management	$	42.749,76
Construction policy and administrative management	$	618.481,33
Cottage industries and handicraft	$	346,32
Culture and recreation	$	3.950,71
Decentralisation and support to subnational government	$	5,31
Democratic participation and civil society	$	941,75
Disaster prevention and preparedness	$	1.447,29
District heating and cooling	$	4,11
Domestic revenue mobilisation	$	30.104,37
Early childhood education	$	80.724,17
Education and training in transport and storage	$	160,94
Education and training in water supply and sanitation	$	163,07
Education facilities and training	$	221.546,09
Education policy and administrative management	$	33.531,24
Education/training in banking and financial services	$	455,99
Electric power transmission and distribution	$	2.640.259,10
Electrical transmission/distribution	$	575.401,09
Employment creation	$	1.663,78
Ending violence against women and girls	$	0,05
Energy conservation and demand-side efficiency	$	745.292,82
Energy education/training	$	100,44
Energy generation, non-renewable sources, unspecified	$	2.183.708,17
Energy generation, renewable sources - multiple technologies	$	3.913.550,58
Energy manufacturing	$	409.045,88
Energy policy and administrative management	$	1.711.179,52
Engineering	$	350.020,19
Environmental education/training	$	99,12
Environmental policy and administrative management	$	127.447,64
Environmental research	$	202,05
Family planning	$	104,38
Ferrous metals	$	928,86
Fertilizer plants	$	355.419,61
Financial policy and administrative management	$	2.156.395,72
Fishery development	$	37.627,90
Fishing policy and administrative management	$	31.538,66
Flood prevention/control	$	763,84
Food crop production	$	581.368,67
Forest industries	$	506.947,38
Forestry development	$	62.978,50
Forestry policy and administrative management	$	153.714,75
Formal sector financial intermediaries	$	30.076.499,95
Fossil fuel electric power plants with carbon capture and storage (CCS)	$	100.000,00
Fuelwood/charcoal	$	161,62
Gas distribution	$	816.567,44
Geothermal energy	$	665.442,35
Health education	$	1.587,35
Health personnel development	$	5.982,56

Health policy and administrative management	$	61.496,37
Higher education	$	11.859,52
Housing policy and administrative management	$	114.479,00
Human rights	$	2.838,12
Hydro-electric power plants	$	4.794.217,24
Immediate post-emergency reconstruction and rehabilitation	$	27.500,76
Industrial crops/export crops	$	428.219,77
Industrial development	$	341.995,17
Industrial minerals	$	357.167,23
Industrial policy and administrative management	$	1.140.933,08
Infectious disease control	$	983,16
Informal/semi-formal financial intermediaries	$	1.923.986,74
Information and communication technology (ICT)	$	156.186,44
Livestock	$	405.548,47
Livestock/veterinary services	$	5.301,47
Low-cost housing	$	294.875,54
Malaria control	$	925,05
Media and free flow of information	$	1.366,56
Medical education/training	$	772,55
Medical research	$	23.466,12
Medical services	$	1.209.261,47
Mineral prospection and exploration	$	47.887,53
Mineral/mining policy and administrative management	$	1.506.741,18
Monetary institutions	$	23.904,03
Multilateral trade negotiations	$	190.154,38
Multisector aid	$	704.059,73
Multisector aid for basic social services	$	43.291,54
Multisector education/training	$	23,96
Natural gas-fired electric power plants	$	5.453.335,05
Non-ferrous metal industries	$	2,79
Nonferrous metals	$	2.154.253,19
Oil and gas	$	3.510.144,35
Oil-fired electric power plants	$	397.201,02
Personnel development for population and reproductive health	$	324,04
Pharmaceutical production	$	1.454,34
Power generation/non-renewable sources	$	141.473,66
Power generation/renewable sources	$	183.578,71
Precious metals/materials	$	206.000,90
Primary education	$	4.702,24
Privatisation	$	975,86
Public finance management (PFM)	$	148.090,00
Public sector policy and administrative management	$	983.923,87
Radio/television/print media	$	172.399,72
Rail transport	$	1.095.120,90
Remittance facilitation, promotion and optimisation	$	63.932,43
Removal of land mines and explosive remnants of war	$	136,09
Reproductive health care	$	4.645,73
Research/scientific institutions	$	1.090,81

River basins development	$	679.539,17
Road transport	$	1.295.105,21
Rural development	$	71.149,17
Sanitation - large systems	$	371.318,47
Secondary education	$	19.054,63
Sectors not specified	$	1.558.292,88
Security system management and reform	$	2.232,40
Small and medium-sized enterprises (SME) development	$	10.903.714,72
Social Protection	$	33.560,84
Social protection and welfare services policy, planning and administration	$	53,91
Solar energy	$	4.467.810,42
STD control including HIV/AIDS	$	1.924,70
Storage	$	15.999,77
Teacher training	$	481,10
Technological research and development	$	67.166,53
Telecommunications	$	3.153.535,52
Textiles, leather and substitutes	$	57.254,89
Tourism policy and administrative management	$	681.370,10
Trade facilitation	$	682.900,00
Trade policy and administrative management	$	458.411,13
Trade-related adjustment	$	68,18
Transport equipment industry	$	50.209,58
Transport policy and administrative management	$	610.357,54
Tuberculosis control	$	421,12
Urban development	$	178.695,54
Urban development and management	$	1.257.387,01
Vocational training	$	176.265,54
Waste management/disposal	$	408.245,18
Water resources conservation (including data collection)	$	11.449,36
Water sector policy and administrative management	$	8.634,15
Water supply - large systems	$	9.876,20
Water supply and sanitation - large systems	$	219.427,20
Water transport	$	1.353.211,98
Wind energy	$	4.493.903,33
Women's equality organisations and institutions	$	3.178,31
total	$ 122.010.004,51	

7. MPI values per country, year and total in MM USD

Country (total of 45)	Years included	MPI in MM USD	
Albania	2012	$	219.850,82
Albania	2014	$	104.311,27
Albania	2015	$	351.872,10
Albania	2016	$	146.215,88
Albania	2017	$	5.413,14
Albania total		$	827.663,22
Algeria	2012	$	27,85
Algeria	2013	$	33,47

Algeria	2014	$	66,77
Algeria	2015	$	1.018,18
Algeria	2016	$	3.601,31
Algeria total		$	4.747,58
Angola	2012	$	37.271,48
Angola	2013	$	684.387,47
Angola	2014	$	42.134,23
Angola	2015	$	297.447,23
Angola	2016	$	19.175,05
Angola	2017	$	3.611,36
Angola total		$	1.084.026,82
Azerbaijan	2012	$	19.067,89
Azerbaijan	2013	$	8.663,56
Azerbaijan	2014	$	85.547,04
Azerbaijan	2015	$	459.010,56
Azerbaijan	2016	$	78.759,10
Azerbaijan	2017	$	524.500,00
Azerbaijan total		$	1.175.548,16
Bangladesh	2012	$	312,68
Bangladesh	2013	$	280.217,45
Bangladesh	2014	$	46.541,44
Bangladesh	2015	$	114.987,35
Bangladesh	2016	$	220.978,96
Bangladesh	2017	$	131.428,34
Bangladesh total		$	794.466,22
Bolivia	2012	$	11.334,25
Bolivia	2013	$	1.791,00
Bolivia	2014	$	1.290,97
Bolivia	2015	$	16.683,77
Bolivia	2016	$	850,29
Bolivia	2017	$	2.538,17
Bolivia total		$	34.488,45
Botswana	2012	$	12.068,10
Botswana	2014	$	54.803,64
Botswana	2015	$	45.000,00
Botswana	2017	$	66.000,00
Botswana total		$	177.871,74
Brazil	2012	$	29.104,06
Brazil	2013	$	506.306,54
Brazil	2014	$	793.788,73
Brazil	2015	$	1.450.919,15
Brazil	2016	$	219.103,17
Brazil	2017	$	675.275,04
Brazil total		$	3.674.496,70
Cameroon	2012	$	91.668,64
Cameroon	2013	$	37.596,98
Cameroon	2014	$	438.551,30
Cameroon	2015	$	41.774,42
Cameroon	2016	$	114.080,82

Cameroon	2017	$	108.034,11
Cameroon total		$	831.706,26
China	2012	$	355.597,15
China	2013	$	941.309,12
China	2014	$	916.595,44
China	2015	$	493.589,48
China	2016	$	333.240,82
China	2017	$	562.091,10
China total		$	3.602.423,11
Colombia	2012	$	38.821,53
Colombia	2013	$	4.871,47
Colombia	2014	$	496.866,99
Colombia	2015	$	589.727,37
Colombia	2016	$	135.421,45
Colombia	2017	$	1.122.387,89
Colombia total		$	2.388.096,70
Congo	2015	$	19.071,98
Congo	2016	$	10.792,88
Congo total		$	29.864,86
Costa Rica	2012	$	43.474,00
Costa Rica	2013	$	599.416,70
Costa Rica	2014	$	16.231,75
Costa Rica	2015	$	50.454,65
Costa Rica	2016	$	52.121,41
Costa Rica	2017	$	126.579,13
Costa Rica total		$	888.277,65
DRC	2012	$	1.305,01
DRC	2013	$	24.079,31
DRC	2014	$	167.883,25
DRC	2015	$	76.312,33
DRC	2016	$	142.829,38
DRC	2017	$	5.536,93
DRC total		$	417.946,20
Dominican Republic	2012	$	14,02
Dominican Republic	2013	$	1.991,50
Dominican Republic	2014	$	10.000,00
Dominican Republic	2015	$	48.321,97
Dominican Republic	2016	$	126.524,74
Dominican Republic	2017	$	14.881,53
Dominican Republic total		$	201.733,76
Ecuador	2012	$	5.460,20
Ecuador	2013	$	10.582,94
Ecuador	2014	$	127.152,90
Ecuador	2015	$	78.462,88
Ecuador	2016	$	92.948,58
Ecuador	2017	$	125.047,51
Ecuador total		$	439.655,02
Egypt	2012	$	155.018,32
Egypt	2013	$	282.333,52

Egypt	2014	$ 154.952,97
Egypt	2015	$ 658.446,38
Egypt	2016	$ 844.110,35
Egypt	2017	$ 1.100.295,53
Egypt total		$ 3.195.157,07
Ethiopia	2012	$ 100.092,13
Ethiopia	2013	$ 23.258,85
Ethiopia	2014	$ 14.635,55
Ethiopia	2015	$ 51.305,57
Ethiopia	2016	$ 18.817,17
Ethiopia	2017	$ 123.191,75
Ethiopia total		$ 331.301,03
Gabon	2012	$ 6.254,32
Gabon	2013	$ 34.219,47
Gabon	2014	$ 34.454,99
Gabon	2015	$ 3.739,87
Gabon	2016	$ 18,68
Gabon	2017	$ 147.300,00
Gabon total		$ 225.987,34
Ghana	2012	$ 609.223,87
Ghana	2013	$ 385.855,94
Ghana	2014	$ 251.977,54
Ghana	2015	$ 1.594.897,89
Ghana	2016	$ 602.474,72
Ghana	2017	$ 232.754,19
Ghana total		$ 3.677.184,15
Guatemala	2012	$ 63.195,18
Guatemala	2013	$ 287.002,36
Guatemala	2014	$ 93.715,18
Guatemala	2015	$ 73.993,54
Guatemala	2016	$ 37.560,00
Guatemala	2017	$ 33.571,39
Guatemala total		$ 589.037,66
Guinea	2012	$ 5.000,00
Guinea	2013	$ 6.121,63
Guinea	2014	$ 32.576,52
Guinea	2015	$ 29.522,72
Guinea	2016	$ 168.332,41
Guinea	2017	$ 120.449,12
Guinea total		$ 362.002,41
Haiti	2012	$ 36.437,63
Haiti	2013	$ 1.836,42
Haiti	2014	$ 680,45
Haiti	2015	$ 20.493,47
Haiti	2016	$ 14.587,67
Haiti	2017	$ 4.606,46
Haiti total		$ 78.642,10
Honduras	2012	$ 113.480,48
Honduras	2013	$ 12.383,26

Honduras	2014	$	128.413,26
Honduras	2015	$	530.815,67
Honduras	2016	$	165.726,82
Honduras	2017	$	11.888,42
Honduras total		$	962.707,91
Indonesia	2012	$	137.787,92
Indonesia	2013	$	157.313,12
Indonesia	2014	$	776.342,47
Indonesia	2015	$	480.813,08
Indonesia	2016	$	101.771,77
Indonesia	2017	$	154.161,62
Indonesia total		$	1.808.189,97
Kenya	2012	$	566.375,26
Kenya	2013	$	345.243,12
Kenya	2014	$	436.267,64
Kenya	2015	$	741.143,71
Kenya	2016	$	100.853,07
Kenya	2017	$	120.650,90
Kenya total		$	2.310.533,70
Lebanon	2012	$	86.053,98
Lebanon	2014	$	312.475,76
Lebanon	2015	$	28.314,48
Lebanon	2016	$	35.204,43
Lebanon	2017	$	441.433,29
Lebanon total		$	903.481,95
Madagascar	2012	$	30.849,88
Madagascar	2013	$	49.267,62
Madagascar	2014	$	26.118,95
Madagascar	2015	$	30.066,77
Madagascar	2016	$	26.270,21
Madagascar	2017	$	135.835,94
Madagascar total		$	298.409,38
Malawi	2012	$	735,10
Malawi	2013	$	35.061,20
Malawi	2014	$	315,63
Malawi	2015	$	3.041,21
Malawi	2016	$	65.395,46
Malawi	2017	$	5.582,43
Malawi total		$	110.131,03
Moldova	2012	$	3.900,00
Moldova	2013	$	58.152,49
Moldova	2014	$	101.232,99
Moldova	2015	$	22.520,27
Moldova	2016	$	13.142,64
Moldova	2017	$	22.611,87
Moldova total		$	221.560,27
Mongolia	2012	$	96.993,29
Mongolia	2013	$	60.152,97
Mongolia	2014	$	265.534,69

Mongolia	2015	$ 1.807.062,46
Mongolia	2016	$ 479.682,59
Mongolia	2017	$ 168.636,19
Mongolia total		$ 2.878.062,20
Myanmar	2012	$ 434,54
Myanmar	2013	$ 880,27
Myanmar	2014	$ 8.874,51
Myanmar	2015	$ 95.148,80
Myanmar	2016	$ 485.487,96
Myanmar	2017	$ 280.763,04
Myanmar total		$ 871.589,11
Nigeria	2012	$ 452.639,16
Nigeria	2013	$ 738.437,12
Nigeria	2014	$ 1.198.581,65
Nigeria	2015	$ 1.548.171,84
Nigeria	2016	$ 1.253.019,18
Nigeria	2017	$ 45.044,82
Nigeria total		$ 5.235.893,77
Pakistan	2012	$ 794.942,40
Pakistan	2013	$ 928.045,05
Pakistan	2014	$ 786.827,51
Pakistan	2015	$ 731.488,92
Pakistan	2016	$ 680.633,08
Pakistan	2017	$ 190.263,61
Pakistan total		$ 4.112.200,57
Paraguay	2012	$ 4.976,23
Paraguay	2013	$ 19.164,89
Paraguay	2014	$ 72.245,44
Paraguay	2015	$ 80.058,69
Paraguay	2016	$ 62.411,62
Paraguay	2017	$ 60.660,57
Paraguay total		$ 299.517,44
Peru	2012	$ 234.750,93
Peru	2013	$ 215.339,49
Peru	2014	$ 102.867,55
Peru	2015	$ 75.397,37
Peru	2016	$ 49.358,76
Peru	2017	$ 20.691,86
Peru total		$ 698.405,96
Serbia	2012	$ 624.925,86
Serbia	2013	$ 657.306,58
Serbia	2014	$ 841.887,98
Serbia	2015	$ 397.203,72
Serbia	2016	$ 981.784,45
Serbia	2017	$ 306.742,41
Serbia total		$ 3.809.850,98
Sierra Leone	2012	$ 900,00
Sierra Leone	2013	$ 5.846,32
Sierra Leone	2014	$ 11.050,00

Sierra Leone	2016	$ 56.877,71
Sierra Leone	2017	$ 500,00
Sierra Leone total		$ 75.174,03
Tanzania	2012	$ 5.862,47
Tanzania	2013	$ 26.854,96
Tanzania	2014	$ 140.928,18
Tanzania	2015	$ 45.319,87
Tanzania	2016	$ 48.023,29
Tanzania	2017	$ 55.506,95
Tanzania total		$ 322.495,72
Thailand	2012	$ 21.036,29
Thailand	2013	$ 943,58
Thailand	2014	$ 12.500,00
Thailand	2015	$ 169.320,95
Thailand	2017	$ 644.872,55
Thailand total		$ 848.673,37
Tunisia	2012	$ 497.278,35
Tunisia	2013	$ 36.355,78
Tunisia	2014	$ 243.931,08
Tunisia	2015	$ 135.780,36
Tunisia	2016	$ 100.685,54
Tunisia	2017	$ 261.022,38
Tunisia total		$ 1.275.053,50
Turkey	2012	$ 2.602.612,50
Turkey	2013	$ 2.196.402,30
Turkey	2014	$ 2.786.511,25
Turkey	2015	$ 3.236.878,19
Turkey	2016	$ 5.928.545,01
Turkey	2017	$ 2.911.418,61
Turkey total		$ 19.662.367,87
Uganda	2012	$ 19.484,07
Uganda	2013	$ 17.174,52
Uganda	2014	$ 62.133,47
Uganda	2015	$ 44.038,63
Uganda	2016	$ 87.921,48
Uganda	2017	$ 26.395,58
Uganda total		$ 257.147,75
Zambia	2012	$ 93.938,17
Zambia	2013	$ 61.762,15
Zambia	2014	$ 207.196,69
Zambia	2015	$ 147.356,78
Zambia	2016	$ 43.824,78
Zambia	2017	$ 179.278,66
Zambia total		$ 733.357,23
Zimbabwe	2012	$ 559,31
Zimbabwe	2013	$ 11.529,69
Zimbabwe	2014	$ 11.578,26
Zimbabwe	2015	$ 61.821,47
Zimbabwe	2016	$ 4.328,26

Zimbabwe	2017	$ 1.053,00
Zimbabwe total		$ 90.869,99
total		$ 72.817.997,90

8. Dummy variable sample division for average RoL values over and below 2.16

Country	Average RoL	Dummy value
Angola	1,90	1
Bolivia	1,89	1
Cameroon	2,01	1
Congo	1,91	1
DRC	1,44	1
Ecuador	2,06	1
Guatemala	1,98	1
Guinea	1,71	1
Haiti	1,82	1
Honduras	1,94	1
Myanmar	1,86	1
Nigeria	1,97	1
Sierra Leone	2,14	1
Zimbabwe	1,55	1
Albania	2,62	0
Algeria	2,21	0
Azerbaijan	2,27	0
Bangladesh	2,22	0
Botswana	3,60	0
Brazil	2,87	0
China	2,61	0
Colombia	2,67	0
Costa Rica	3,51	0
Dominican Republic	2,51	0
Egypt	2,43	0
Ethiopia	2,34	0
Gabon	2,49	0
Ghana	3,08	0
Indonesia	2,57	0
Kenya	2,45	0
Lebanon	2,20	0
Madagascar	2,18	0
Malawi	2,62	0
Moldova	2,63	0
Mongolia	2,67	0
Pakistan	2,20	0
Paraguay	2,27	0
Peru	2,48	0
Serbia	2,78	0
Tanzania	2,57	0
Thailand	2,89	0

Tunisia	2,93	0
Turkey	2,92	0
Uganda	2,67	0
Zambia	2,73	0

Appendix A7: DFIs instruments

Trough **guarantees,** DFIs commit themselves to compensate for a certain amount of money that the investee has received from another investor which is not the DFI. In case the investee is unable to pay back the loan or other capital an investor has deployed in a company loses value, the DFI will pay the amount to the investor instead of the investee. Guarantees can cover only parts or the full amount of what the investor is owed by the investee. Further, guarantees can be tied to additional conditions. For example, the money will only be paid to the investor in case the investee is unable to repay due to political conflict, expropriation or natural disasters. In this sense, guarantees function similar to individually structured insurance policies for that the guarantor pays a certain fee. Guarantees enable DFIs to mobilize funds of single or multiple commercial actors and can also have an impact beyond the immediate guaranteed amount on the risk assessment for further debt or equity investors.

Syndicated loans are a debt finance instrument that combine several loans from multiple investors and thus share the risk of one investment. There are various possibilities to structure syndicated loans in which one or multiple DFIs either arrange or participate in the investment alongside one or multiple private financial institutions. Accordingly, the arranger is the party who contracts with the borrower and coordinates with other lenders. Multiple lenders may provide a special expertise and experience to deals and they are able to finance deals that exceed the capital base of one single financial institution. (Interest rates can be fixed or floating, depending on expectations of how market rates develop and how much risk which party is willing to assume.)

Collective investment vehicles allow investors to pool their money and invest in a portfolio of companies. That portfolio is often created to serve certain companies and attract certain investors according to their preferences. CIV's can be very complex structures, combining different risk classes (diversification) and asset classes (such as equity, bonds, loans). Some CIVs can constantly receive further investors (open-ended) while some have a certain time or funds limit (close-ended CIVs). They can have the same portfolio for all investors or divide the portfolio into tranches with different risk and return profiles to serve different investors. Further, they can differ regarding how much, when and which investor can take out its capital (liquidity). For example, DFIs can help arranging CIVs because they have knowledge of markets investors have little experience in, they can invest into riskier tranches while private financial institutions invest in less risky tranches or they can top-up or co-invest alongside other private investors. The standardization that comes with portfolios that are chosen by the asset manager,

drastically lowers transaction costs for investors and usually facilitates the creation of large amounts of capital.

One of the most common financial instruments of DFIs are **direct equity, debt or mezzanine investments**, whereas equity is considered riskier than debt. In contrast to loans which usually require repayment of the principal and interest within a certain timeframe, the profitability of equity investments depends on the future growth and profitability of the company that received an increase in its private equity. If the company goes bankrupt, there is little chance that the DFI will be compensated for its loss. On the other hand, there is no limit to the appreciation of equity value in case the company grows and the DFI sells its shares or exits through an IPO[70]. Equity investments enable the DFI to influence the company's operations through voting rights and to share knowledge both ways. Mezzanine investment combine properties of debt and equity and most commonly is an equity investment without voting rights for the investor. Another form of mezzanine capital are subordinated (junior) loans that have lower priority claims on assets or earnings in contrast to senior loans. However, mezzanine can take many forms. For example, a loan converts into equity or vice versa after a predefined time period or in case of certain events such as exceeding or falling short of a certain amount of profit or other financial indicators. If a DFI invests into a company, it usually becomes more attractive for other commercial investors to directly invest as well (however, as a separate entity with an own contract to the company, unlike syndicated loans) because of the improved financial position and reduced default risk of the investee.

Another financial instrument that is widely applied to strengthen the financial sector of a country is a **credit line**. In contrast to conventional loans, a credit line entails a certain amount that is available to a borrower, who can decide how much and how often he takes a credit within a given time frame. The borrower will only pay interest on the amount which is borrowed, not on the amount that is practically available. This is particularly beneficial for local financial institution that lack capital, expertise or willingness to serve a certain industry. DFIs provide a credit line to the local bank that on-lends to their clients, while charging the client more interest than the DFI charges the bank to make a profit. In case the bank is unable to on-lend, it doesn't need to make use of the available funds. Often, the LFI tops up the credit line with own funds. Thereby the DFI can multiply its deployed capital, mobilize private investment and use the LFIs existing branches and market knowledge. The LFI expands its business into segments it deemed too risky thus far and may choose to continue these operations after the credit line matures, successfully closing the market gap identified by the DFI.

In addition to the five instruments described above, which usually compose the core business of DFIs, they may make use of various further financial products, often simultaneously under one or separate contracts. These can range from: grants (require no repayment); technical assistance/advisory services (e.g. DFIs may have in-house experts or connect the client to external experts on issues like social and

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[70] Initial Public Offering, see Mankiev

environmental standards, energy efficiency and agriculture; or DFIs may consult companies in issuing bonds, enabling them to raise capital from financial markets); project finance schemes (long term financing structure that often involve a mix of equity and long-term loans tied to expected cash-flows of the project instead of balance sheets of companies) to currency, interest or price hedging (by using derivatives such as swaps, futures and forwards).

Appendix A8: Basic definitions in finance

1. Investment:

"The act of placing capital into a project or business with the intent of making a profit on the initial placing of capital. An investment may involve the extension of a loan or line of credit, which entitles one to repayment with interest, or it may involve buying an ownership stake in a business, with the hope that the business will become profitable. Investing may also involve buying a particular asset with the intent to resell it later for a higher price. Many types of investing exist, and each is subject to greater or lesser regulation in the jurisdiction in which it takes place. Legally, investing requires the existence and protection of individual property rights. Investing wisely requires a combination of astuteness, knowledge of the market, and timing." (Farlex, 2009).

"Investment means every kind of asset owned or controlled, directly or indirectly, by an Investor, [including]: (i) an enterprise; (ii) shares, stock or other forms of equity participation in an enterprise; (iii) bonds, debentures, and other debt of an enterprise; (iv) an interest arising from the commitment of capital or other resources in the territory of a Contracting Party to economic activity in such territory, such as under contracts involving the presence of an investor's property in the territory of a Party, including turnkey or construction contracts or concessions, or contracts where remuneration depends substantially on the production, revenues or profits of an enterprise;(v) an interest in an enterprise that entitles the owner to share income or profits of the enterprise[and]the assets of that enterprise on dissolution; (vi) claims to money and claims to performance pursuant to a contract having an economic value; (vii) intellectual property rights; (viii) rights conferred pursuant to law such as licenses and permits; (ix) any other tangible and intangible, movable and immovable property and any related property rights, such as leases, mortgages, liens and pledges (OECD 1996).

2. Risk:

"Risk is the uncertainty associated with any investment. That is, risk is the possibility that the actual return on an investment will be different from its expected return. A vitally important concept in finance is the idea that an investment that carries a higher risk has the potential of a higher return. Certain types of risk are easier to quantify than others. To the extent that risk is quantifiable, it is generally calculated as the standard deviation on an investment's average return." (Farlex, 2009)