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REVIEW ARTICLE

Mobilising Private Funding of Development Finance

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ABSTRACT *Successful delivery of the United Nations Sustainable Development Goals (SDGs) is dependent upon mobilising private sector finance. From a lending perspective, this requires banks to co-invest or otherwise divert more resources to development finance. To provide insights into the effectiveness of this important initiative, this paper reviews key literature across Scopus, Web of Science and Google Scholar using a defined set of keyword searches. Four main themes of future research are identified. First, the international political economy has an influence on the competitive conditions in development finance and these forces need to be explained. Second, the structure of development projects affects the extent to which private sector capital is willing to be mobilised. More insights are needed into how private sector banks can be influenced. Third, the manner in which development banks participate in development projects affects the availability of credit. A greater understanding of their role could unlock greater financing flows. Finally, it is shown that risk appetite and mitigation of development finance affects pricing and credit availability which is another critical component of delivering the SDGs.*

KEYWORDS: development banks; development finance; Sustainable Development Goals; capital mobilisation; blended finance; loan pricing

1. Introduction

Fulfilment of the United Nations Sustainable Development Goals (SDGs) has become a priority for multilateral development banks (MDBs) since the SDGs were launched in 2015. This critical development built upon the Millennium Development Goals (MDGs) (United Nations, 2015). The 17 goals of the SDGs, combined with 169 separate targets, provide the road map for international development as part of the 2030 Agenda for Sustainable Development (United Nations, 2020). Other development finance institutions (DFIs), such as bilateral development banks that are wholly-owned by a single sovereign state, also adopt and follow the UN's development goals.

It is acknowledged that MDBs do not have sufficient capital to fulfil the SDGs without private capital investment and this funding gap is characterised as 'from billions to trillions' (Development Committee, 2015). To bridge this gap, the UN further confirmed its development commitment in 2015, asking major MDBs through the Addis Ababa Action Agenda to find ways to mobilise long-

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term private capital into infrastructure investments and Green Finance (United Nations, 2015). Shortly afterwards, the G20 met in Antalya, Turkey in 2015 and instructed the MDBs to produce an Action Plan to maximise impact through a variety of measures to improve capital efficiency which also entailed mobilising private sector banks and investors (G20, 2015). Progress is monitored on an ongoing basis by the Inter-Agency Task Force on Financing for Development (IATF, 2016).

The idea of mobilising private sector finance to fulfil the SDGs raises some intriguing questions. Private and public sector institutions have different financial incentives and objectives, so how can there be common ground for providing capital to support the SDGs? How can we know whether expansion of MDB activity risks crowding out of private sector banks? Or whether MDBs can practically mobilise private sectors banks to bridge the funding gap?

This drive towards the SDGs then needs to be put in the context of changes in the international financial system since the crisis of 2007–9 that increased bank capital requirements under Basel III. There have been two broad economic effects from these changes. First, although there is no definitive evidence, there are grounds to believe that less capital is being made available to finance long-dated infrastructure projects (Martynova, 2015). Second, many international banks are reducing the geographic scope of their activities as they shrink their balance sheets and also partly because of the compliance difficulties of operating in many emerging markets (Starnes, Kurdyla, & Alexander, 2016). Now, at the time of writing, the Covid-19 pandemic is putting yet more strain on global economies and financial systems.

It would seem that there are two potentially opposing forces. A drive to increase MDBs lending and mobilise private sector banks, and simultaneously pressure on private sector banks to rationalise and streamline balance sheets. It is this potential conflict that has motivated this literature review. Given that fulfilment of the SDGs is for the greater good of society, it is essential to understand the economic forces that affect the ability of the MDBs to succeed in mobilising private capital.

A broad review of relevant literature shows that existing work can be organised into four principal themes. The first theme centres on the international politics of development lending, which is seen to be an important environmental component affecting the flow of funds. The second theme deals with the structural methods used for risk mitigation in projects. The third theme focuses on the structuring of lending syndicates and the way in which credit is made available. Finally, the fourth theme deals with loan pricing and risk evaluation.

The rest of this paper is structured as follows. [Section 2](#) provides an overview of the high-level issues to be considered and frames the questions for the literature review. [Section 3](#) describes the search methodology. [Section 4](#) describes the articles selected and [section 5](#) discusses the findings. Finally, [section 6](#) draws some conclusions for future research around this topic.

2. Background: loan availability and pricing for development finance

There are numerous DFIs operating on either a global, regional or national basis. These public institutions share a goal to find ways to improve the economic development of a given country or region through lending and other types of support such as advisory work for developing market financial institutions. The MDBs are considered to be a different class of financial institution because of their multilateral shareholder base. This has at times put them at the centre of some intense political debates reviewing their roles in financial markets (Buiters & Fries, 2002; Gurria, Volcker, & Birdsall, 2001; The Meltzer Commission, 2000). These debates have centred around the role of the state in markets and the special cases of market failure that finance presents such as adverse selection, monitoring failures and information inefficiencies (Stiglitz, 1993).

This review primarily focuses on MDBs because of the mobilisation mandate given by the G20. This is not to underestimate the role and importance of other types of DFIs. The mobilisation agenda is also recognised by regional development banks (RDBs) and national development banks (NDBs). Some developed country NDBs such as CDC (UK) or FMO (Netherlands) focus on overseas development reflecting the priorities of their governments. These entities are involved in mobilisation

efforts as evidenced by MDB reporting (Multilateral Development Banks, 2018). Conversely, NDBs such as KfW (Germany) operate both domestically and overseas, so their political mandate will reflect domestic as well as foreign policy. Finally, there are many developing market NDBs in recipient countries that are the focus of inward investment (De Luna-Martinez, Vicente, Arshad, Tatu, & Song, 2018). As the SDGs are oriented towards developing markets, it is the overseas activity of donor countries that is the focus of this review.

The degree of an MDB's politicisation depends upon its history and the concentration of donor and recipient country voting rights in the shareholder base (Kellerman, 2019; Ray & Kamal, 2019). The purpose of a given MDB needs to be taken into account and most of them have a straight development mandate with the exception of the EBRD that also has a political mandate (EBRD, 2013). Humphrey (2014) makes the case that MDBs should only be involved in projects where they can bring better structure to a transaction than a purely private sector deal. This could either be through structural benefits from preferred-creditor status (PCS) or contractual mechanisms, or that the action of participating in a transaction has additional in-country benefits as a result of their involvement. This benefit is described as 'additionality' or as 'making an investment happen that would not have happened otherwise' (Carter, Van de Sijpe, & Calel, 2018). There is a problem demonstrating additionality because the counterfactual case can never be observed. Nevertheless, it is accepted that this is an appropriate role for an MDB even if there is a risk of occasional crowding out of the private sector (Carter et al., 2018).

MDBs do function in a similar way to commercial banks, although they might be expected to have a lower risk-adjusted return than private sector institutions given their status as supranational institutions and their concessional lending activities. If an MDB or DFI were to make similar returns to a private sector company there would be a question as to the economic purpose that it fulfils. They are profitable and have not historically paid out dividends, instead retaining profits in capital to enable expansion of lending (Buiter & Fries, 2002). Similarly, commercial banks have been co-lending to development projects for decades and do take their non-financial obligations seriously through mechanisms such as the Equator Principles and the more recent Poseidon Principles which have been broadly adopted by the private sector (Equator Principles, 2020; Poseidon Principles, 2020).

The economics of running the larger MDBs also differ through their unusual capital structure. They have subscribed capital, but are also supported by shareholders committing to callable capital without having to provide it. This feature has the capacity to affect the supply and pricing of credit (Humphrey, 2014). The callable capital and the conservative capital structure of the MDBs help maintain the AAA credit ratings that most of the institutions have and keep funding costs low. However, rating agencies are sometimes considered to be quite conservative with their rating methodology and through that are limiting lending capacity (Humphrey, 2018; Munir & Gallagher, 2020; Perraudin, Powell, & Yang, 2016; Settimo, 2017).

With that perspective, the Addis Ababa Action Agenda might be considered as a watershed moment. The change of approach by the international community from 2015 focuses strongly on mobilising private sector finance in pursuit of the SDGs (Chandy, Derviş, Ingram, Kharas, & Rocker, 2014; IATF, 2016). This matters because it appears to shift the definition of development finance from something that only MDBs do, to something that any financial institution could do provided there is an alignment with the SDGs. A more contemporary definition of development finance might therefore be the action of 'financing for development' in pursuit of the SDGs, which separates the financing from the type of institution that provides it (IATF, 2016).

However, changing the definition of development finance seems unlikely to change the way that private capital markets function. The role, corporate identity and purpose of MDBs is different to private sector banks and should remain distinct.

From a financial market perspective, the two practical constraints to mobilising private sector resources are (i) lack of risk appetite for MDB projects affecting the quantity of available funding, and (ii) the potential for a pricing disparity between the public and private sectors due to differing

economic incentives (Gurara, Presbitero, & Sarmiento, 2020; Lagoarde-Segot, 2020). Without bridging these gaps, the chance of fulfilling the SDGs by 2030 is significantly reduced. In that context, it is critical to examine the motivations and transaction behaviour of public and private-sector entities to see whether there are areas of mutual opportunity and potential conflicts of interest. From a transaction perspective, this requires consideration of project structures, risk appetite, risk mitigation and loan pricing.

In the context of private sector lending to development projects, the high-level questions that are addressed in this literature review are:

- What affects the availability of credit for development finance projects?
- How is the lending spread determined on a development project?

3. Method: sample selection and analysis

Defining the scope for development loan pricing is complicated by the coverage across academic journals and 'grey' literature (scholarly articles that have not been peer-reviewed). Some initial literature searches in Scopus and Google Scholar on key words such as 'development bank', 'loan pricing', 'lending behaviour' produced an interesting range of journal articles, but a wide diversity of search terms and JEL codes for economics papers. To refine this, it was decided to conduct a preliminary key word scoping exercise to find the best combinations.

Two strategies were deployed: (i) an internet-wide search for pairs of key search terms and JEL codes (American Economic Society classifications) applying a filter based on the Schema.org protocol for 'Article' (Schema.org, n.d.), (ii) a site-specific search focused on the websites of seven major MDBs plus the IMF. The seven MDBs being the ones that the G20 instructed to focus on risk transfer (G20, 2015).

These keywords were used to search Scopus and Web of Science. Of the academic search engines, Scopus outperformed in terms of locating indexed documents as shown in Table 1. However, as shown by Martín-Martín, Orduna-Malea, Thelwall, and Delgado López-Cózar (2018), academic indexing is not necessarily complete and can exclude relevant grey literature. To that end, the search terms were run through Google Scholar and the first 50 results reviewed for additional relevant material.

The inclusion criteria had an English language requirement and a subject matter test, but no time limitation. There was a preference for higher rated journals but this was not exclusive. The subject matter test was that the article needs to address the availability and pricing of development bank loan finance for private sector development projects. This could be the financial economic principles of fair value for a loan based on the credit risk, but also consideration was given to legal and political influences. The article must be relevant to project lending rather than sovereign lending, and should focus on non-concessional activities.

The abstract of each article from the searches was judged against the inclusion criteria and a shortlist selected for close reading. The citation links of these articles were reviewed to uncover new documents and these too were sifted by the abstracts against the inclusion criteria and read in detail if relevant. This resulted in a final list of 33 articles listed in Table 2.

4. Description of literature addressing development loan availability and pricing

Table 2 shows the final selection and where relevant shows the Scopus and Google Scholar citation counts, impact scores from InCites Journal Citation Reports (2019) and the CABS journal ranking from 2018. The citations are understandably low for the most recent papers. The range of journals is diverse and there are also working papers that are deemed important to include.

Table 1. Search term results for academic journal search engines. The table shows the number of academic journal articles found for each search string in Scopus and Web of Science. The figures are as of March 2021

Search String	Scopus	WoS
("development bank*" AND "loan pricing")	3	1
("development bank*" AND "credit spread")	0	0
("development bank*" AND "interest rate")	87	9
("development bank*" AND "pricing")	37	9
("development bank*" AND "lending behavio*")	51	1
("development" AND "loan pricing")	16	9
("MDB" AND "loan pricing")	3	2
("MDB" AND "lending")	26	10
("MDB" AND "interest rate")	2	0
("MDB" AND "pricing")	3	3
("project" AND "loan pricing")	8	4
("project" AND "credit spread")	16	2
("infrastructure" AND "credit spread")	4	1
("infrastructure" AND "loan pricing")	6	4
("development bank*" AND "securitisation")	7	2
("development bank*" AND "risk transfer")	0	0
("development bank*" AND "loan rate")	0	0
("international financial institution*" AND "loan pricing")	0	0
("international financial institution*" AND "lending") AND (LIMIT-TO (EXACTKEYWORD, "International Financial Institutions"))	81	41
("development*" AND "funding spread")	0	0
("development*" AND "lending spread")	1	0
("development bank*" AND "return on investment")	3	3
("development bank*" AND "economic capital")	0	0
("development bank*" AND "rarc")	0	0
("development bank*") AND ("ROE" OR "return on equity")	6	0
("development bank*" AND "mobili*ation")	42	6
("development bank*" AND "SDG")	12	5
("SDG" AND "finance")	111	46
('political economy' AND 'international financial institutions')	93	47
('political economy' AND 'international finance')	74	44

The 33 articles that were reviewed fall into four broad themes albeit with some overlaps. The themes are presented in an order that reflects the highest strategic level issues first and descending to more granular technical issues.

First, there is coverage of development finance from the perspective of the international political economy. These articles explore the motives of countries and development banks both from the private and public sector perspectives. The second theme is the choice of project structure which is broadly covered by corporate finance theory. These articles explore the relevance of the law and creditor protection, the use of leverage in finance and the importance of contracts as a risk management tool.

A third theme is the availability of credit for development projects, particularly the formation of syndicates and the identity of the lenders (whether private, public or both). The fourth and final theme is the pricing of finance and this is evidenced through empirical analyses of credit spreads. [Table 3](#) maps out which themes the papers most closely align with.

5. Discussion of findings

The diverse range of papers discovered follows a range of different research philosophies and methods. This is to be expected given the cross-disciplinary subject matter and the diverse range of journals in which the articles are found. There are a selection of empirical papers using a variety of

Table 2. Selected Journal Articles from Search Strategy. The following journal articles were selected as a result of the search using Scopus and Google Scholar as described in [section 3](#). The number of citations is as of March 2021. InCites scores for 2019 are taken from the Clarivate Analytics website. The Chartered Association of Business schools star ratings are for 2018 and taken from the CABS website

Authors	Year	Source title	Citations Scopus	Citations GS	InCites 2019	CABS
Ahiabor F.S., James G.A.	2019	International Journal of Finance and Economics	2	3	0.943	3
Asmus G., Fuchs A., Müller A.	2017	AidData Working Paper No. 43	n/a	24	x	x
Athavale M., Edmister R.O.	2004	Financial Review	8	20	x	3
Broccolini, C., Lotti, G., Maffioli, A., Presbitero, A.F., Stucchi, R.	2020	The World Bank Economic Review	n/a	14	1.761	3
Buscaino V., Caselli S., Corielli F., Gatti S.	2012	European Financial Management	15	41	1.470	3
Byoun S., Kim J., Yoo S.S.	2013	Journal of Financial and Quantitative Analysis	20	47	2.707	4
Byoun S., Xu Z.	2014	Journal of Corporate Finance	18	29	2.521	4
Chin G.T., Gallagher K.P.	2019	Development and Change	13	33	2.246	3
Corielli F., Gatti S., Steffanoni A.	2010	Journal of Money, Credit and Banking	47	93	1.355	4
Cormier B.	2018	Journal of Organizational Behaviour	8	11	5.026	4
Dailami M., Hauswald R.	2007	Journal of Financial Economics	18	48	5.731	4*
Dreher A., Fuchs A.	2015	Canadian Journal of Economics	75	176	0.710	3
Dreher A., Fuchs A., Parks B., Strange A.M., Tierney M.J.	2018	International Studies Quarterly	53	196	2.146	x
Dreher A., Fuchs A., Parks B.C., Strange A.M., Tierney M.J.	2017	AidData Working Paper No. 46	n/a	192	x	x
Dreher A., Lang V.F., Richert K.	2019	Journal of Development Economics	6	18	2.649	3
Galindo A.J., Panizza U.	2018	World Development	3	11	3.869	3
Gatti S., Kleimeier S., Megginson W., Steffanoni A.	2013	Financial Management	25	66	1.677	3
Gurara D., Presbitero A., Sarmiento M.	2020	Journal of International Money and Finance	1	9	2.014	3
Hainz C., Kleimeier S.	2012	Journal of Financial Intermediation	36	88	2.820	4
Humphrey C.	2014	Review of International Political Economy	1	5	2.312	3
Humphrey C.	2016	Journal of Development Studies	7	30	1.596	3
Humphrey C.	2019	Development and Change	17	49	2.246	3
Humphrey C., Michaelowa K.	2019	World Development	8	29	3.869	3
Humphrey C., Michaelowa K.	2013	World Development	31	69	3.869	3
Lazzarini S.G., Musacchio A., Bandeira-de-Mello R., Marcon R.	2014	World Development	58	171	3.869	3
Percoco M.	2014	Transportation Research Part A: Policy and Practice	34	64	3.992	3
Ray R., Kamal R.	2019	Development and Change	2	5	2.246	3
Sawant R.J.	2010	Journal of International Business Studies	24	64	9.158	4*

(continued)

Table 2. (Continued)

Authors	Year	Source title	Citations Scopus	Citations GS	InCites 2019	CABS
Shapiro D.M., Vecino C., Li J.	2018	Asia Pacific Journal of Management	18	35	3.064	3
Sorge M., Gadanez B.	2008	International Journal of Finance and Economics	20	114	0.943	3
Subramanian K.V., Tung F.	2016	Journal of Financial Intermediation	11	53	2.820	4
Swedlund H.J.	2017	International Affairs	15	42	3.705	x
Yuan F., Gallagher K.P.	2018	Ecological Economics	8	18	4.482	3

regression techniques. These show some useful associations and patterns in loan markets, albeit with less causal explanation. There are a few pragmatic papers that take a mixed methods approach and combine some numerical analysis with interviews. These have more explanatory power, although as the interviewees are endogenous to the problem being studied some care is taken to put them in perspective.

This section links together the different ideas and findings in a narrative to explain a current understanding of the forces driving development finance.

5.1. The politics of development finance

The relevance of politics to development finance is that it provides a partial answer to the question about the availability of credit. Which countries and entities drive the development agenda? Do these countries compete with each other or cooperate?

There are two lenses through which to view these questions. From a private sector perspective, what may matter is how 'bankable' development projects are initiated and what the inherent country or sector risks are. Second, when viewed from an aid perspective, what may matter is how different countries seek to extend their influence. These two views are connected: aid-driven concessional activity that leads to institutional reform is likely to lead to more non-concessional private sector activity. While aid is not directly related to private sector lending it clearly influences the economic and political environment. This section first considers some of the aid-related issues and motives of donor organisations, and then considers how this affects the private sector activities of MDBs.

One of the more debated topics is the nature of competition between traditional western donors through the MDBs, and the increased reach of China and other new donors. An assumption behind the debate has been that donors who do not adhere to the OECD Development Assistance Committee (DAC) principles and regulations are affecting the influence of traditional donors (Dreher, Fuchs, Parks, Strange, & Tierney, 2018; Swedlund, 2017). Swedlund (2017) uses primary and secondary data, combined with some African case studies, to argue that these claims are over-stated. However, she does explain how Chinese aid is different in form, being channelled through institutions such as CHEXIM and focusing on productive rather than social sectors. She also explains how this aid is simpler and faster for recipient countries as there is less conditionality to deal with.

Dreher and Fuchs (2015) address the question on China's motives directly in an empirical analysis to test for patterns in aid from China that favour countries with natural resources or the characteristics of institutions. In other words, is the lending 'rogue' in the sense that it is seeking to undermine the rule of law and democracy? The conclusion from this article is that there is nothing unusual about China's aid patterns to justify that label. There is a clear link to politics as a driver of aid, but to no more extent than with other international donors. One of the stated limitations in this analysis is the quality of available data in the public domain. To that end, extensive efforts have been made to construct AidData's Global Chinese Official Finance Dataset, which is used as a source in several

Table 3. Thematic coverage by paper. The articles in Table 2 deal with a variety of themes and are grouped below according to which topics they touch upon. Where an article covers more than one theme, the relevant points are discussed separately in section 5

Authors	Year	International Political Economy	Project Structure	Syndicate Structure	Pricing & Risk
Asmus G., Fuchs A., Müller A.	2017	x			
Chin G.T., Gallagher K.P.	2019	x			
Cormier B.	2018	x			
Dreher A., Fuchs A.	2015	x			
Dreher A., Fuchs A., Parks B., Strange A.M., Tierney M.J.	2018	x			
Dreher A., Fuchs A., Parks B.C., Strange A.M., Tierney M.J.	2017	x			
Dreher A., Lang V.F., Richert K.	2019	x			
Galindo A.J., Panizza U.	2018	x			
Humphrey C.	2016	x			
Humphrey C.	2019	x			
Humphrey C., Michaelowa K.	2019	x			
Humphrey C., Michaelowa K.	2013	x			
Lazzarini S.G., Musacchio A., Bandeira-de- Mello R., Marcon R.	2014	x			
Ray R., Kamal R.	2019	x			
Yuan F., Gallagher K.P.	2018	x			
Percoco M.	2014	x	x		
Shapiro D.M., Vecino C., Li J.	2018	x	x		
Swedlund H.J.	2017	x	x		
Hainz C., Kleimeier S.	2012	x	x	x	
Humphrey C.	2014	x			x
Sawant R.J.	2010		x		
Subramanian K.V., Tung F.	2016		x		
Broccolini, C., Lotti, G., Maffioli, A., Presbitero, A.F., Stucchi, R.	2020		x	x	
Byoun S., Kim J., Yoo S.S.	2013		x	x	
Byoun S., Xu Z.	2014		x	x	
Gurara D., Presbitero A., Sarmiento M.	2020		x	x	x
Sorge M., Gadanez B.	2008		x	x	x
Corielli F., Gatti S., Steffanoni A.	2010		x		x
Dailami M., Hauswald R.	2007		x		x
Ahiabor F.S., James G.A.	2019			x	x
Athavale M., Edmister R.O.	2004			x	x
Gatti S., Kleimeier S., Megginson W., Steffanoni A.	2013			x	x
Buscaino V., Caselli S., Corielli F., Gatti S.	2012				x

articles (Chin & Gallagher, 2019; Dreher, Fuchs, Parks, Strange, & Tierney, 2017; Dreher et al., 2018; Dreher, Lang, & Richert, 2019; Humphrey & Michaelowa, 2019). This open source dataset captures information on Chinese aid using a rigorous collection methodology.

Dreher et al. (2017) use this data set to test a variety of propositions about the impact of China's aid activity. They test for the impact of Chinese aid, its most effective form and compare it to Western donors. For this review, the most relevant test is whether China's aid 'undermine[s] the effectiveness of Western donors and lenders'. The evidence from this analysis suggests that Chinese aid flows do not have an impact on Western assistance. Asmus, Fuchs, and Angelika (2017) reach a similar conclusion by examining BRICS countries' lending and considering the implications of working outside the DAC principles. The key point is that outside the DAC, donors can operate with a principle of non-interference and accept the recipient countries' standards for environmental and social standards. This could complicate the delivery of the SDGs if there is a proliferation of different

metrics and monitoring methods. They summarise the activities of each of the BRICS countries in turn and conclude that this aid could be complementary to DAC funding rather than displacing it.

Chinese activity in Africa is profiled by Dreher et al. (2018) who use AidData's Chinese Official Finance to Africa dataset and characterise flows into either official development assistance (ODA) or non-concessional 'other official flows' (OOF). Through empirical analysis of 2,647 projects across the period 2000–13, they demonstrate that the ODA flows tend to follow the political interests of China, whereas the OOF flows tend to follow the economic interests and land in more corrupt countries. From a capital mobilisation perspective, the private sector is less likely to have risk appetite for countries with weaker institutions and so there is potentially limited overlap between the destination of OOF flows and the risk appetite of the private sector.

After considering the political issues from an aid perspective, we need to consider what market-related complications these political implications might have. Chin and Gallagher (2019) again focus on China but slanted towards how lending is deployed from a structural perspective. Combining fieldwork interviews with Chinese institutions (CDB, CHEXIM, AIIB, NDB) with secondary publicly available documentation, they build a picture of how development finance has worked from a Chinese perspective and propose a 'coordinated credit space' where China operates national policy with the actions of development institutions (CDB, CHEXIM), the local banks, and the interests of Chinese firms which is consistent with Dreher et al. (2018). The authors report that some of the credit enhancement techniques reportedly used by Chinese entities are different to those used by traditional MDBs. Cross-default between projects can be used, whereas MDBs typically treat projects on a standalone basis. The paper also discusses a form of structural subordination as a method of credit enhancement. For example, the MDB lends for longer maturities than other lenders and would be paid back last.

In the spirit of international cooperation and competition, the authors explain the different objectives of Western MDBs compared to the Chinese institutions and provide a summary of areas of complementarity and potential conflict. The paper suggests that the mobilisation of private capital by the G20 and MDBs was partially motivated by the expanding range of activities by China and compares it to the Marshall Plan, noting that Chinese development lending overall is greater than the sum of the traditional Western MDBs.

Using this paradigm, the authors suggest that there are two slightly overlapping pools of capital in competition with each other, albeit with different motivations. If the financing is complementary and one pool does not substitute for another then this could be very constructive. In areas where there are conflicts of interest, then non-financial considerations might dominate such as the lack of policy requirements or the different environmental and social risk management systems (ESRM) standards.

Shapiro, Vecino, and Li (2018) also focus on the theme of China and how it extends credit to development for the benefit of Chinese firms. The article is exploratory and does not contain rigorous statistical analysis. The central proposition is that the Chinese Government influences development finance by making loans to Governments directly rather than providing aid through international agreements. This alternative approach changes the way in which disputes might be resolved as resources can be used as a form of security.

Their evidence suggests that Chinese firms are confident that the loans provided at a Government level provide suitable creditor protection, but also that Chinese firms get involved in more localised disputes with local workers and firms. The relevance of the article is that China's development agenda is potentially in competition with traditional development banks. If development finance is governed by access to resources and state lending rather than following the SDGs, it would limit opportunities for the MDBs to lead the development agenda and limit private sector mobilisation.

Proving the existence of actual competition between China and the traditional western MDBs has the same shortcoming as trying to demonstrate additionality. It is difficult to show with firm evidence because the counterfactual cases are not available. As a way to shed new light on the debate about competition, Humphrey and Michaelowa (2019) take a mixed method approach to test for a competitive response by traditional MDBs to Chinese-led investment. The econometric approach

uses a Poisson pseudo-maximum likelihood (ppml) regression to test for lagged responses in a lending data set. The qualitative overlay is a series of interviews with developing market borrowers to add some colour to the discussion of causation in the econometric results.

The MDB lending data set is compiled using an archival search of annual reports and is supplemented with some bilaterally provided data to ensure additional completeness. The Chinese data is from AidData's Global Chinese Official Finance Dataset. The regression uses a lag based on the average of Chinese lending in years t_{-1} of t_{-2} . From this, they find no evidence of an MDB response for non-concessional countries. For concessional countries, they find evidence of a response for both the level of lending and within sectors such as infrastructure. The qualitative interviews with borrowers appear to support these conclusions from a demand-side perspective. As this includes lending to sovereigns, the conclusions do not necessarily hold for private sector activity. From this analysis, it appears that overall competition between MDBs and Chinese development institutions is not intense.

An implicit assumption in the discussion of competition between nation states, as viewed through the lens of development lending, is that shareholders drive MDB behaviour and there is little operational autonomy. However, this depends on the power relationships between shareholders and the MDB. Cormier (2018) takes a theoretical approach to examine the extent to which the MDBs can contribute to the SDGs considering the external and internal constraints that they face. The external factors include the way in which such international organisations (IOs) obtain authority and legitimacy to have an impact on the SDGs independently of shareholders.

Initially, the legitimacy of an IO is bestowed upon it by shareholders and given a set of rules and procedures to follow. The author poses the question of whether the IO has 'agency' or whether it is a rule-taker. He resolves this by arguing that the institutions can acquire some autonomy over time. Using a definition of power as the ability to influence others, if the organisation can itself affect the behaviour of shareholders then there is a case to be made for autonomy. He argues that the process of defining and measuring SDGs demonstrates autonomous behaviour as the MDB can dictate what constitutes 'good policy'. Cormier also questions whether the internal structures of the IOs make the delivery of the SDGs harder, observing that culture and internal disagreements could affect resource allocation between the 17 different SDGs.

As a counterpoint to this, Ray and Kamal (2019) look at the relationship between lending flows and the composition of different MDB shareholder bases using Penrose-Banzhaf and Shapley-Shubik power indices. The data is derived from an archival search of MDB annual reports. The analysis uses some correlation results although the models, method and standard errors are not clearly explained. The key conclusion from the article is that CAF and the Islamic Development Bank (IsDB) have 'successfully challenged the hegemony of traditional Northern MDBs'. The essential argument is that they have managed to grow without ceding power to non-borrower shareholders. They are however, more capital-constrained and currently use different assessment metrics.

In contrast to this study, Dreher et al. (2019) focus on the IFC and whether the structure of its Board affects the flow of private sector lending. This is put into the context with the SDGs and the efforts to mobilise private finance. They construct a dataset of 3,223 projects totalling 101 USDbn and manually code them for the ultimate beneficial owner (UBO) of the recipient company and the country in which the project is located. Their empirical analysis shows that having a Board seat is associated with increased flows to a recipient country, or increased flows to countries where the UBOs are domiciled. Furthermore, they also report that if both the recipient and UBO country are on the Board, there is another significant positive effect on funding flows over and above individual effects. The implication of this is that, at the margin, the supply of projects that come on stream for private sector participation may be politically rather than economically driven.

The theme of internal conflicts and constraints affecting the supply of credit is picked up by various authors (Galindo & Panizza, 2018; Hainz & Kleimeier, 2012; Humphrey, 2014, 2019; Percoco, 2014; Ray & Kamal, 2019; Shapiro et al., 2018).

Galindo and Panizza (2018) construct a data set of the net flows of lending to governments and also of disbursements from MDBs, RDBs and from the private sector. Using OLS regressions, they find that MDB lending is counter-cyclical to a significant level, although this appears to be primarily driven by the World Bank. There is also some statistically significant regional variation where lending to Latin America and East Asia exhibits stronger counter-cyclicality. Perhaps unsurprisingly, the private sector flows are shown to be pro-cyclical and the RDBs appear to be acyclical, although over time appear to have become more procyclical. If MDBs overall are counter-cyclical and the private sector is pro-cyclical this would be a complicating factor in encouraging private sector money to co-invest into development projects. The authors suggest that changes in credit rating methodologies might affect the behaviour of institutions over time as MDBs control their balance sheets to target specific ratings.

Humphrey (2019) examines the ways in which shareholder composition can constrain lending but from the perspective of the donor/recipient mix of the voting rights. He focuses the question on the power balance between large MDBs with donor shareholders and smaller ‘Minilateral’ development banks where the shareholder base better reflects the borrowers.

He builds a case study around Africa’s Trade and Development Bank (ATDB) and examines the structure of lending. In this instance, the decision to keep donor countries outside the voting shareholder base results in a much lower credit rating. The lower rating increases the cost of funding and as a consequence the bank must focus on shorter-dated, more secure lending such as trade finance and cannot participate in development projects in a significant way. Here there is a clear trade-off between (i) greater organisational flexibility due to shareholder alignment with the borrowers requiring less external scrutiny, and (ii) increased cost of, and more limited access to, funding for development. This provides more evidence that the structure of the shareholder base and the nature of the development bank significantly affects the availability of credit.

Humphrey’s ATDB example builds on his earlier work (Humphrey, 2014) dealing with the politics of loan pricing that is covered more fully in [subsection 5.4](#) below. For the purpose of this section, the political issue is that the capital structures of the large MDBs rely upon the existence of callable capital in order to maintain AAA credit ratings. The large MDBs that have donor-dominated shareholder structures have political constraints that affect lending capacity not only due to capital limitations, but also due to the monitoring and project assessment that needs to take place because of the need to demonstrate that funds are responsibly deployed. This agrees with the perspective that Ray and Kamal (2019) take in that operational independence and autonomy for recipients comes at a cost.

This concept is examined again in the context of organisational convergence (Humphrey, 2016) suggesting that the pursuit of the top credit rating and the callable capital structure creates an incentive for development banks to fund exclusively through the bond markets and to retain internal capital. Given this precedent, it would be difficult for a development bank to follow an alternative path and it should lead to similar business models and practices. The author uses examples of the World Bank, the Inter-American Development Bank (IADB) and the Latin–America focused Corporación Andina de Fomento (CAF) to illustrate how this has already happened. A non-traditional MDB might only evolve if the shareholder base is willing to provide equity and that in turn might only happen if there is congruence between the owners and the borrowers. However, as previously mentioned in the case of the ATDB that brings other complications due to weaker credit ratings and limited access to cheap, long-dated funding.

Lazzarini, Musacchio, Bandeira-de Mello, and Marcon (2014) examine the actions of the Brazilian Development Bank (BNDES) in Brazil. This study is narrower in scope as BNDES is a state-owned development bank without any multilateral ownership. The data set for the study uses public information from the stock exchange and from BNDES to establish a lending pattern to test whether BNDES is solving a market inefficiency and promoting growth, or effectively bailing-out inefficient firms. In practice, the paper does not find support for either view. It appears from their analysis that BNDES is lending to healthy firms and potentially subsidising shareholders, although the authors

qualify this due to the lack of complete data availability. The paper goes further to find a link with political donations and the allocation of funds, but this is out of scope for the purposes of this review.

The last paper dealing with the lending behaviour of development institutions is by Percoco (2014) and is again specific as it focuses on transport infrastructure and Public–Private Partnerships (PPP). However, it does cover emerging markets generally so although it is narrow by industry, the geographic coverage is broad. The author uses public World Bank data on participation in PPP contracts to test for the relationship between good governance and the levels of risk transfer. The analysis supports the hypothesis that rule of law and good governance is linked to higher levels of risk transfer from the public to the private sector.

The final two papers address how politics affects how finance is made available. Yuan and Gallagher (2018) focus on sovereign lending in the spirit of supporting green development and the environmental agenda and links this to SDG goal 7 'Affordable and Clean Energy'. Using a data set of lending commitments and covering 11 financial institutions (MDBs, RDBs, ECAs and state-owned development banks), the authors use a probit analysis that demonstrates that banks with strong shareholder commitment to environmental goals are the major providers of finance, and that donor preference is important in defining where the money flows. To that extent, provision of credit is politicised by the donors' agendas. Also, given the wide range of types of development institution, it highlights potential sources of difference and competition between them.

Shareholder structure also can have an effect on borrower behaviour as evidenced by Humphrey and Michaelowa (2013). Here the authors examine the lending patterns of the World Bank, IADB and CAF, but consider the impact from the borrower's perspective. The data used focuses on six Latin American countries. The authors examine the claim that borrowers pursue the cheapest loan for the required maturity. However, they find that the speed at which loans are approved and the approval process that the borrower has to follow are markedly different. Similarly, the external pressure to lend with 'safeguard policies' requiring monitoring can be lower from institutions with greater shareholder/borrower alignment.

The data also suggest that if a borrower faces a loan choice between CAF and IADB and the economic position of the borrower improves, there is more of an incentive for IADB to converge to the CAF position than for CAF to move to the IADB position. This might be true in a generally economically positive environment. However, an incentive to keep World Bank credit lines open might affect this choice.

5.2. *The financing structure of development projects*

A typical development finance initiative in an emerging market is a one-off project and the largest investments flow to infrastructure. In an emerging market, the quality of the financial institutions, the structure of the local legal system and the political environment can strongly affect the financial risk. As a result, a project finance (PF) is often adopted where a new single-purpose company is established with a network of contracts to direct its operations. PF structures are attractive targets for academic research because the simple form can be used to test corporate finance theories more effectively than with traditional listed companies.

Following on from the previous section on politics, it is worth re-considering the manner in which some Chinese FDI has been deployed (Chin & Gallagher, 2019; Shapiro et al., 2018) where a PF structure might still be used, but that projects can be linked to each other or to other government loans. This does not negate the concept of the value of PF as a risk management tool, but it significantly complicates the analysis of any single investment due to overlapping and inter-linked financial covenants. The other implication is that the different Chinese approach to funding described in these papers would not be fungible with the work done by traditional MDBs.

The case for PF as a risk management technique for weak investor protection laws is the focus of a paper by Subramanian and Tung (2016). Using data from the Dealscan database, they analyse three types of lending across a population of 18,247 loans: PF, capital expenditure and corporate term

loans. They use a Logit analysis to predict the presence of a PF structure and OLS regression to explore the intensity of PF usage by country, industry and over time. Their key finding is that PF usage is more likely in environments with weaker legal frameworks and creditor rights and protections. The paper does not link explicitly to development finance or MDBs, but reinforces the idea that contractual strength is a risk management technique in the absence of strong local legal frameworks which is typical of development finance in emerging markets.

In a similar vein, Hainz and Kleimeier (2012) considered whether increased political risk is more likely to result in a PF structure and analysed whether there is an increased probability of an MDB becoming involved in the syndicated lending. They also used Dealscan data and use a suitably global sample covering 64 countries, but use fewer loans (4,978) because they focus on syndication. They find a highly significant link between the use of PF vehicles and the presence of political risk, particularly in investment-intensive sectors such as mining, transport/utilities and construction. They also find that the involvement of an MDB in a syndicate is significantly related (at the 1% level) to political risk, weak economic performance, long-dated and large transactions. This does appear to be a reflection of what is seen in the development finance space where the largest, riskiest investments require a development bank to provide stability. In the paper, they use the World Bank Group as an example of MDB power, although it is worth noting that with the advent of AIIB, NDB and Chinese development finance the power base might have shifted. They use the expression ‘political umbrellas’ to describe the protection that an MDB is expected to bring to a transaction (also known as preferred creditor status (PCS)). This external influence can also affect the public/private sector balance of risks on a project, as observed by Percoco (2014) as noted in subsection 5.1, and could have consequences on the crowding in/out of private finance.

The theme of ‘political umbrellas’ comes up again in infrastructure finance studies in the context of the risk of appropriation of PF assets (Gurara et al., 2020; Sawant, 2010) that refers to earlier work by Hainz and Kleimeier that is outside the scope of the literature chosen for this review (Hainz & Kleimeier, 2006). Sawant proposes that projects with low volatility cash flows and a low requirement for management expertise run a higher risk of appropriation by a host government (referred to as the ‘hold-up problem’). He finds that project finance is a significant mitigation to this risk in that high leverage and syndicate structure provide protection. High leverage increases cashflow volatility and project risk creating a disincentive to appropriate. Similarly, a large diffuse syndicate involving MDBs increases the reputational risk for a government that intervenes, and also provides cover (an umbrella) for the private sector banks. There is only weak support for the idea that PF mitigates country risk itself. The results suggest that part of the responsibility for the crowding-in of private finance belongs with the recipient country and is therefore not something that the MDBs can push unilaterally.

Broccolini et al. (2020) and Gurara et al. (2020) take a more active view of MDBs that they can influence outcomes with governments in a way that private sector banks cannot. This would explain the presence of MDBs in riskier environments and reinforces the distinction between MDBs and private sector banks and investors. These two papers were written contemporaneously and cite each other (albeit in an earlier working paper form in one instance). Both sets of authors work with the Dealogic Loan Analytics database and select syndicated loans over a 24/20 year period, respectively, and perform regression analyses. Both articles show that MDBs are more often present in transactions with higher risk and longer duration. This should be expected given the role of MDBs to push into areas where the private sector would not operate. The theme of the trade-offs between leverage, contracts and MDBs is explored by Byoun, Kim, and Yoo (2013) using a data set from Thomson Financial Securities Data Corporation for the period 1997–2006. It incorporates 2,572 PF deals across 124 countries so there is diversity of country risk and industry risk. The authors run a multivariate analysis indicating that higher project risk is associated with greater involvement of MDBs and less supply of private sector syndicated debt. They find that the presence of offtake agreements is associated with lower project leverage.

The paper also suggests that project sponsors will accept lower leverage in the presence of offtake agreements because risk in the project is reduced. Offtake agreements are an alternative to leverage. The reasoning for this is that if there is an offtake agreement, there will be less need for strong cashflow controls and covenants in a project. As the authors themselves suggest, the causality of these associations needs closer inspection. It would also be useful in the context of development finance to focus on a narrower data set and exclude the large developed market projects and see whether the regression shows significant results for emerging markets. A closer examination of the risk management structures could also provide a deeper understanding of how risk is mitigated (for example, whether political risk reinsured at a project level, by individual syndicate members or through the presence of an MDB).

As a follow up to this work, Byoun and Xu (2014) studied the relationships between contracts, governance and country risk in a similar way to Hainz and Kleimeier (2012). In this instance, they explore the private/public relationships in PF by focusing on government concessions and offtake agreements. The paper develops a theoretical model to examine the agency costs for PF and uses it to propose a series of hypotheses about when government concessions and offtake agreements will be present in a transaction.

The data used to test this model again derives from the Thomson Financial SDC but over a broader period from 1990 to 2012. The pool of projects is 5,908 although in the series of multiple regressions, not all projects have complete data. The key conclusion is that government concessions or offtake agreements can mitigate political risk for the private sector and provide a net social welfare benefit. However, increased political risk can be a negative factor on obtaining concessions or offtake agreements because it increases risks such as expropriation or 'regulatory takings' that might impact specific projects or industries. The implication is that some types of government risk should be avoided. They find that in higher risk environments, an offtake agreement is more likely than government concessions. Their findings also suggest that the presence of an MDB in a PF serves to reduce political risk overall which reinforces the view of the political protection that they bring. They also find a negative relationship between the use of government concessions and the degree of leverage in a project which is consistent with the previous work on offtake agreements.

Three further papers refer to the structure of PF deals, although these papers mainly focus on loan pricing and so will be dealt with in detail in [subsection 5.4](#). However, there are some pertinent points that relate to project structure so should be discussed here.

Sorge and Gadanez (2008) observe that traditional PF structures tend to have high initial leverage and construction risk, debt amortisation and other features that decrease risk over time, so the structure is not static and suggests that different lenders might be involved at different parts of the project life-cycle.

The relationship between leverage and non-financial contracts (NFCs) such as offtake agreements is analysed by Corielli, Gatti, and Steffanoni (2010). They take the approach that NFCs are exogenous to the capital structure which contradicts the approach of some of the other authors in this section. This suggests that there should be more work done focusing on causation to establish the better view. The last observation on project structure comes from a paper that focuses on the Ras Gas project which is a Qatar LNG (liquid natural gas) project (Dailami & Hauswald, 2007). This particular project is worth considering because it involved the use of project bonds to complete the financing rather than relying on conventional syndicated debt. This has interesting implications for the crowding in/out debate around private finance because bond investors have different incentives to traditional lenders and potentially have some risk and stability implications.

5.3. The composition of lending syndicates

Industry practice for project finance transactions is that a sponsor appoints a lead arranger, known as an MLA (mandated lead arranger), to prepare documentation and get the project into a form that will make it financially viable. This section explores what the literature says about how

financing is sourced for PF transactions and what market forces might affect the way in which this is done.

The issue of the MLA and syndicate structure is explored by Ahiabor and James (2019) in a study of certification. Certification is the act of the MLA performing due diligence on a project and preparing an information memorandum for the syndication process. The purpose of the paper is to examine whether the involvement of a domestic bank in a project finance syndicate serves to reduce information asymmetry which can then result in a reduction in loan spreads. Loan spreads and pricing will be dealt with in [subsection 5.4](#), but the discussion of MLA selection is relevant to how syndicates are formed and which participants are involved.

The paper focuses on emerging market projects and proposes reasons why a domestic MLA might be chosen in preference to a foreign one. The selection mechanics are not examined explicitly in the paper but suggestions are made as to the reasons why: higher economic development, more developed banking system, close links to government. A significant finding with regard to syndicate structure is that a domestic arranger is more likely to have been appointed as MLA if the loan is shorter-dated, large, and not related to EXIM facilities. This again shows association, although does not help resolve the issue of causation.

On the topic of information asymmetry, Athavale and Edmister (2004) consider whether sequential lending affects bank behaviour with respect to pricing. The value in this article is the evidence of how an information asymmetry problem relating to lending can be solved. This is relevant to the syndicate structure and the crowding in/out of private investment because the MLA has to effectively solve this issue for the syndicate. In the context of development finance, repeated in-country projects are of a similar form to taking repeated country risk with a government. This is in essence what the MDBs are doing for the private sector by their repeated international activity. Even if the MDB is not effectively acting as MLA, its involvement affects the overall project structure and send certain signals to the syndicate (Broccolini et al., 2020; Gurara et al., 2020; Hainz & Kleimeier, 2012; Sawant, 2010). Broccolini et al. (2020) take this further, however, and design tests for mobilisation of private capital with extensive robustness checks. They also test for crowding out of corporate bonds and find no evidence that development lending substitutes for securities issuance. They conclude that the entry of an MDB to a market increases the volume of lending from the private sector and the number of banks involved.

This links back to questions discussed in [subsection 5.2](#) about when and why an MDB might be involved in a transaction, and what motivates the private sector to participate. Analysis focusing on MDBs involvement is useful to build a view on how development finance is operating (Byoun et al., 2013; Byoun & Xu, 2014; Hainz & Kleimeier, 2012; Sorge & Gadanez, 2008), although that does not explain why the private sector would be motivated to co-invest.

Finally, the theme of certification and the role of the MLA is central to the analysis by Corielli et al. (2010) with regard to how the MLA is compensated. Although this study mainly focuses on loan spreads and fees, the issue is circular. Syndicate structures will depend to a large extent on the economics that are available to be shared. This is the subject for the final section on loan pricing and risk.

5.4. Loan pricing and risk

A challenge with reviewing papers that address loan pricing is that many datasets used focus on the period before the financial crisis of 2007–2009. In addition, all the data for the studies pre-date the Addis Ababa meeting in 2015, the establishment of the SDGs and the instruction of the G20 to the MDBs to optimise their balance sheets and catalyse private sector funding (G20, 2015; United Nations, 2020). The introduction of Basel III, the waves of bank regulation and changes in attitude to the SDGs and the environmental agenda have all developed subsequently. However, the fundamentals of finance have not changed and while private and public sector financial institutions might

have changed their credit appetites and pricing models, there is still a market price for a transaction and the analyses are still relevant.

It is important to reiterate that all the papers discussed below focus on transactions that are deemed to be executed at non-concessional prices. The concessional activities of MDBs are out of scope and it is unrealistic to expect MDBs to mobilise private capital at concessional rates. Humphrey's work on the politics of loan pricing (Humphrey, 2014) makes it clear that MDBs have to price sustainably and avoid capital calls (refer to [subsection 5.1](#)). The relevance of this paper with respect to pricing is that it describes the overall goals of MDBs and explains the cross-subsidies between concessional and non-concessional loans. The net returns across both need to be sustainable for the MDB in question, but it is the cross subsidy and concessional rate that is the political issue rather than the pricing of the non-concessional loans. With this approach, it is possible to set aside the issue of pure concessional pricing and focus on market pricing.

The next issue to consider is how banks come to a decision on pricing. In the academic literature, there is little discussion of how banks transform return on capital objectives into the pricing of individual loans, although the focus on risk-weighted asset and return on capital is evident from bank annual reports and investor presentations. The absence of academic discussion on this could be due to the changes that have occurred since the financial crisis. As a result, analysis that is available in the selected literature focuses on credit spreads. It is reasonable to assume that banks only add new lending business when they perceive the balance of risk and reward to be profitable at the point of execution.

In the selected papers, the work by Athavale and Edmister (2004) is useful as it focuses on how information asymmetry works in bank lending. This is particularly important in the development finance space where the lending can be esoteric, bespoke and high risk. The purpose of the analysis was to determine which of two competing theories better explained the behaviour of banks with regard to ongoing loan pricing. The two competing theories being: (i) through monitoring of a lending relationship, banks resolve information asymmetry and are able to lend at better rates in future as they have superior knowledge, (ii) banks take advantage of serial lending in order to exert market power and increase lending rates. The contribution is to define the existence of a sequence of loans to be the 'cleanest evidence of a lending relationship'.

The dataset is a US commercial bank loan book with repeated lending activity. Of the initial pool of 8,521 loans, 3,331 are retained for the analysis and categorised according to whether they are 2nd, 3rd, 4th, etc. in the lending sequence. The authors run regressions to measure the impact of adjacent spreads. A key finding is that there is a reduction in the 2nd loan in a lending sequence (1% confidence). Thereafter, there are insignificant further reductions and they reject the hypothesis that banks are able to increase returns on future lending. They also assert that other banks can compete effectively for these customers, but still have to overcome the asymmetric information costs.

Although the data set is not related to development finance, the result that the information asymmetry can be overcome quickly and does not confer any material strategic advantage is useful for thinking about how development lending works in practice. If it is true that the existence of a sequence of loans is evidence of a relationship, then the MDBs certainly qualify given ongoing lending activities over many years. It is reasonable to assume that MDBs have effectively overcome the information asymmetries at a country level in this way.

Focusing on PF, there are three papers that deal directly with the dynamics of loan pricing and the capital structure of projects (Corielli et al., 2010; Dailami & Hauswald, 2007; Gurara et al., 2020). Corielli et al. (2010) take data drawn from Projectware (Dealogic) and clean it due to the lack of contractual information in many cases. NFCs prior to 1998 are not well documented, so the final pool of loans is from January 1998 to May 2003. They model credit spreads and leverage separately as dependent variables based on a range of economic (eg. rating, size, etc.) and dummy variables (NFC terms) and also with reference to the other dependent variable. The analysis shows that credit spreads are strongly driven by rating and leverage, and that leverage is strongly driven by rating and credit spread. The key conclusions with respect to pricing are that lenders do rely on NFCs, lenders prefer

not to have sponsors as counterparties to NFCs, and NFCs affect leverage. A drawback that they highlight is that fine detail of a contract is lost in the overall data as two contracts can be nominally similar, but economically quite diverse.

The analysis by Gurara et al. (2020) using Dealogic Loan Analytics (see [subsection 5.2](#)) extends further to analyse loan pricing in emerging markets, although the usable data set shrinks to 7,571 deals and 3,703 borrowers. They find that loan spreads are positively (and significantly) affected by the presence of an MDB, longer maturity, higher leverage and whether the deal is related to infrastructure. Conversely, spreads are negatively affected by larger deal sizes and increased syndicate concentration (Herfindahl–Hirschman Index (HHI)). This reinforces the idea of the MDB as a pioneer lender in difficult markets. The intuition behind lower spreads for more concentrated syndicates is that if a larger pool of banks is required to support a deal it creates a supply-side problem and each marginal lender needs to be paid more to participate.

Dailami and Hauswald (2007) take a different approach and analyse just the Ras Gas Qatari LNG project in detail. This project is unusual because the project bonds used to partially fund the transaction could be actively traded and so a price history of project risk established. The project mechanics and contracts are detailed in the original paper, but the essential component is that the Korean companies KOGAS/KEPCO were the counterparties to the offtake agreements. As the credit spreads for the Ras Gas bonds and also the offtakers are publicly traded, an analysis could be performed to show that markets price the nexus of contracts and that the unmanaged risks are transmitted to the project (in this case, the risk of default by the offtaker). The significance is that the project structure can significantly affect the risk sharing and pricing for development projects. Without the public bond issuance, it would not have been possible to perform the analysis.

As noted in [subsection 5.2](#), Sorge and Gadanez (2008) consider the full term structure of credit spreads in project finance due to the unusual life-cycle of debt and risk. The paper seeks to establish the economic drivers of credit spreads for PF lending by comparing the results with traditional bonds and loans. The analysis finds that the pricing for traditional bonds/loans follows convention, so after controlling for other variables, the pricing appears to increase monotonically with maturity. For PF loans, there is no significant relationship based on this original model, so the authors include additional maturity components to test for the shape of credit spreads.

They find that the term structure of pricing is ‘humped’ and conclude that it is due to peculiar features of PF loans such as high initial leverage and construction risk, debt amortisation and other features that decrease risk through time. They also find that loans costs decrease in the presence of an MDB/ECA guarantee, which demonstrates the risk reducing role that the public institutions can perform. The authors go further and suggest that Basel II ought to take account of this reduced risk and allow lower capital requirements. The regulatory environment has evolved since the paper was written as banks now mostly operate under Basel III. Credit substitution can be used for guarantees to reduce RWAs and anything more might require further regulatory change. Banks also now have to contend with IFRS9 and CECL which is a disincentive to participate in long-term PF lending. In the event that Chinese lending contains cross-defaults between projects then this term structure effect would not be so evident.

Following on from the discussion of syndicate structures in [subsection 5.3](#) there are papers that deal with how value is affected by certification (Ahiabor & James, 2019; Gatti, Kleimeier, Megginson, & Steffanoni, 2013). As Ahiabor and James build on the earlier work of Gatti et al. it is best to take the analyses in chronological order.

Gatti et al. put forward two hypotheses regarding certification. A ‘valuable certification’ hypothesis (VCH) and a ‘direct compensation hypothesis’ (DCH). The VCH relates to whether the involvement of a prestigious MLA reduces the lending spreads in a contract, the DCH proposes that the MLA is compensated for arranging. The article suggests that projects might only become viable with the involvement of a prestigious arranger. The authors find that of their two hypotheses that both VCH and DCH are supported, and it is the lesser banks in a syndicate that pay the MLA for certification even if the overall project lending costs are reduced. There is no explicit mention of

MDBs in the analysis and there is no differentiation between emerging and developed markets. As such, the analysis might need to be refined to focus it more on development finance.

Ahiabor and James (2019) address emerging markets in their paper which focuses on the role of domestic lead arrangers in PF transactions. The certification role is explained in [subsection 5.3](#). The authors sourced a selection of 1,270 project finance loans that cover approximately USD300bn of notional lending. This is filtered from a universe of 14,000 loans extracted from Dealogic's ProjectWare database after eliminating loans with no spreads shown (9k), developed market loans (3k) and bilateral or club deals (c.700).

They find that loans spreads with a domestic MLA are negatively correlated (1% significance) with size, hard currency (USD denomination), improved credit risk and positively correlated with the involvement of an Export Credit Agency (ECA, or 'EXIM' in their paper). The results for foreign MLA loan spreads are negatively correlated with size (5% significance), improving credit quality (1% significance) and the involvement of an ECA (1% significance). A key step in the paper is to imply counterfactual loan spreads based on the regressions to imply what the impact on a loan spread would have been if the MLA was domestic rather than foreign. In this, they find that loan spreads would be lower (tighter) if the MLA would have been domestic.

There is nothing in the paper that is counter-intuitive in their reasoning, although the use of counter-factual spreads presupposes that there is a choice when appointing the MLA of whether to choose a domestic or foreign arranger. If domestic arrangers are more likely to be appointed when a local market is more economically developed, it could equally be the case that the global pool of capital available to finance the project is larger and this in turn could drive the lending spread.

The final paper to consider relates to whether it is possible for banks to offload lending risk to other investors and how that would work mechanically. Although a straight loan sale is always possible, Buscaino, Caselli, Corielli, and Gatti (2012) focused on the use of PF Collateralised Debt Obligations and the commensurate credit spread levels. Although the financial crisis has radically changed the shape of the securitisation market, deals are still possible and have been executed in the development finance space, notably by the African Development Bank (AfDB) even if with a high degree of difficulty (Allen, 2018).

This analysis focuses on the pricing of PF transactions using a model that considers default risk, recovery, liquidity, market conditions and portfolio quality. The sample data is 43 tranches of PF CDO loans between 1998 and 2007. To parameterise the model, the authors use credit ratings, attachment levels, size (as a proxy for liquidity), AAA prices (market conditions). Quality characteristics are defined by considering contract risks, stage of construction, industry and geographical concentration.

The key finding is that credit ratings are the primary driver of pricing accounting for 84 per cent of the variance. All other parameters are significant at the 1 per cent level with the exception of attachment levels (10%) and market conditions (not significant).

A difficulty with the study is that the data is drawn from the pre-crisis period where the ability to price and distribute CDOs is significantly different to today. However, what the article does do is raise some interesting questions about loan availability and the prospect of any potential risk transfer. It also highlights some useful points about project contractual structures that could be relevant for future transactions. It also confirms the ultimate focus on credit ratings as a measure of risk which, although it would need re-examining, is a form of monitoring and resolution of information asymmetry.

6. Conclusions

This literature review focuses on loan pricing and availability for development finance with a view to identifying gaps for future research. The four key themes are the political environment, the financing structure of projects, the composition of syndicates and the pricing of loans.

From the political environment, it is clear that although MDBs have similar operating models and are aligned in their support of the SDGs, they each have idiosyncrasies derived from their different mandates and history. Given their different shareholder profiles, constituents and lending portfolio, there is room for further research into how these characteristics can affect the way in which credit is made available and which projects, sectors and countries might be supported. Some literature does touch on these issues, although there is scope to focus on the power relationships in a more empirical way with respect to syndicated lending. The literature also appears to overlook other providers of finance in this market such as bilateral development banks (owned by a single nation state) and ECAs that also provide credit for development projects but with a national economic interest.

The structure of development projects is shown to be affected by the political risk in the countries that are recipients of funds. There are some trade-offs to be considered such as the strength of local legal frameworks and the need for private sector lenders to secure political cover from MDBs. The shareholder composition and power relationships could also have a bearing on the geographic distribution of credit. In the countries where MDBs are active alongside private sector firms, an important test will be how the actions of MDBs affect the competitive environment. To that end, a study on the competitive conditions for development finance could illustrate the degree to which crowding-in of credit from the private sector is achievable in different countries or regions.

There is strong evidence from the literature for the use of project finance structures to mitigate political and legal risk. This follows corporate finance theory and there appears to be a clear association between the participation of MDBs and risk reduction. In that context, the involvement of an MDB can provide additional protection as a 'political umbrella'. That protection is not a formal contract but is a halo effect from the PCS that MDBs bring to lending arrangements. It would be important to establish whether the value of PCS is driven by the shareholder structure of an MDB. More research could also be done on the value of PCS, whether it is priced, and how it could be monetised by either banks or MDBs. If it can be shown to be of economic value it would be a positive signal for the mobilisation of private sector finance. Similarly, research that can positively demonstrate the catalytic impact of PCS on private sector institutions would add to our existing understanding of how crowding-in works. This work could also be extended to examine the different catalytic effects of the various types of MDBs, RDBs and national development banks.

The structure of syndicates and project financing offers the opportunity for banks and MDBs to adopt different roles. This broadly falls under the description of 'blended finance'. An MDB could be part of a syndicate and *pari passu* with other lenders, or subordinated in some way, either explicitly or structurally. There is room for further research into which format is likely to produce the better outcomes and could in turn inform how MDBs are involved in projects and how they are structured. For example, is there an optimal mix of public/private sector funding on blended transactions? Or what is the best use of MDBs power to lend for longer tenors than the private sector? This could provide more answers to the question of which existing financial instruments best support MDBs to crowd-in/out private finance. The literature suggests that these choices would also affect the capital structure as it would depend upon how contractual arrangements are organised. Financing needs to be well structured in order to tempt private finance to participate.

As the MDBs are seeking to crowd private finance into transactions, there is room for further exploratory research as to the perceptions of private sector banks about MDBs and the economics of development finance. Where qualitative interviews have been identified in this review, they have been done from the perspective of development banks and funding recipients and not from the private sector lenders' perspective. This viewpoint currently appears to be missing from the literature and research on this specific topic would be valuable in assessing the likelihood and the motivations of banks in being mobilised in the way that the UN and G20 envisage.

As an extension of this, more research could be done on the pricing of credit risk in the new regulatory environment. One of the shortfalls of the articles identified in this review is that much of the data pre-dates the financial crisis of 2007–9 and significantly precedes the focus from MDBs to mobilise private

sector finance towards the SDGs. Research that provided a more current review of loan pricing could provide some useful grounds for determining whether previous conclusions are still sound.

Although the initial search process was based on specified search terms, the subsequent article selection process is subjective in that it reflects the views of the author in framing the research around the identified gaps in the literature. The material is organised in a way that will be recognisable and useful to practitioners working in development banks and private sector institutions. There could be merit in expanding the literature search terms beyond those in Table 1, although from the selection process highlighted in section 3 the value of doing this is not immediately apparent. It is also hoped that this review provides a useful foundation for researchers focusing on development finance and mobilisation.

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Appendix: Acronyms

AfDB	African Development Bank
AIIB	Asian Infrastructure Investment Bank
ATDB	Africa Trade and Development Bank
BNDES	Banco Nacional de Desenvolvimento Econômico e Social
CAF	Corporación Andina de Fomento
CDB	China Development Bank
CHEXIM	China Export-Import Bank
DAC	Development Assistance Committee
EBRD	European Bank for Reconstruction and Development
ECA	Export Credit Agency
ESRM	Environmental and social risk management systems
FDI	Foreign Direct Investment
IADB	Inter-American Development Bank
IATF	Inter-Agency Task Force on Financing for Development
IO	International Organisation
IsDB	Islamic Development Bank
MDB	Multilateral Development Bank
MDG	Millennium Development Goal(s)
MLA	Mandated Lead Arranger
NDB	New Development Bank
NFC	Non-financial contract
ODA	Official Development Assistance
OOF	Other Official Flows
PCS	Preferred Creditor Status
PF	Project Finance
PPP	Public-Private Partnership
RDB	Regional Development Bank
SDG	Sustainable Development Goal(s)
UN	United Nations
WBG	World Bank Group
