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## **Abstract**

Export credit agencies (ECAs) are pivotal yet understudied actors in the clean energy transition. This dissertation utilizes mixed-method analysis to determine whether and how ECAs facilitate clean energy, examining their role in energy financing, their association with de-risking, and possible convergence with development finance institutions (DFIs). Using linear and logistic regressions, this dissertation finds that ECA participation de-risks deals, with credit spreads 88 to 175 bps lower than purely private models, yet ECAs are less likely than DFIs to support clean energy, with clean energy projects decreasing odds of ECA involvement by 74% to 53%. Stakeholder interviews support these findings, with practitioners viewing ECAs as crucial risk mitigators with growing environmental mandates but noting the fossil-oriented organization of ECAs and complementary institutional differences from DFIs. This dissertation concludes with recommendations to increase ECA facilitation of clean energy, inclusive of increased origination strategies, an OECD fossil-finance ban, and ECA–DFI collaboration templates.

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## **I. Introduction**

### **1.1. The Importance of Blended Finance for the Green Transition**

Tackling climate change is costly. With fossil fuels permeating almost every facet of modern industrial society, it is no surprise that the required amount of finance to address climate change spans from estimates of ~1.3 to ~8.5 trillion USD annually until 2035 (Strinati et al., 2024; United Nations Framework Convention on Climate Change [UNFCCC], 2024). These costs extend across the three key pillars of climate action – mitigation, adaptation, and loss and damage – covering everything from industrial transformation to relocation support (Strinati et al., 2024). However, these costs are not spread out evenly across projects, with much of the required finance being for long-term, large-scale, and innovative projects in crucial sectors of the economy, such as technologies to decarbonize transport (UNFCCC, 2024).

Considering the magnitude of finance needed, it is clear that we will need mass mobilization of private finance. Private finance makes up most of all capital circulating in the financial system and can utilize this capital at the speed and scale required to address sustainable transition needs (Organisation for Economic Co-operation and Development [OECD], 2023). These characteristics make private finance a key driver of capital expenditures and a principal funder in the development of new projects that do not yet have financial returns, such as many sustainable development projects (Hamilton & Zindler, 2016; World Bank, 2021). Still, while private finance is the primary driver of climate finance, it often requires the nudging to be deployed on some of the most pertinent projects (Buchner et al., 2023).

Private finance's tendency to be risk-averse, profit-focused, and short-term prevents it from fully meeting the need and demand for sustainable development (Andonov et al., 2021; Fay et al.,

2021). This financing gap often exposes itself in some of the most crucial areas for climate finance, such as large infrastructure projects, especially in emerging industries and developing markets (Fay et al., 2021; Tyson, 2018). A lack of financing in infrastructure poses a huge risk to achieving the Sustainable Development Goals (SDGs), as infrastructure makes up the grand majority of GHG emissions, accounting for 79 percent of global GHG emissions and 88 percent of global climate adaptation costs (Thacker et al., 2021). This aversion to financing infrastructure is especially harmful when it comes to that of energy infrastructure, which accounts for 37% of emissions and is often composed of large-scale, long-term, and high-risk projects (Hamilton & Zindler, 2016; McKinsey, 2016; Thacker et al., 2021). Therefore, to combat the largest contributor to GHG pollution of all infrastructure sectors, we need to utilize means other than solely private finance (Thacker et al., 2021).

Attempting to fill this gap, public finance has thus entered as an important player in manifesting these widely needed clean energy projects (Fay et al., 2021; Fay et al., 2019). In many cases, public finance institutions or related development institutions have come into different markets and settings and offered forms of funding, such as grants, which do not have the expectation of returns, or other forms of concessionary finance, where there is minimal expectation of financial returns (Anderson et al., 2021; Caldecott, 2020; Nakhooda et al., 2014). Still, while many of these sources of funding and financing have been successful in building out new infrastructure projects, this kind of solely public financing and funding tends to be limited in scale and scope (Climate Change Committee [CCC], 2022; Schlueter et al., 2024). With narrow mandates and limited capital, public finance institutions cannot fulfill the financing needs laid out at COP29 nor much larger global infrastructural investment needs on their own (Clark et al., 2018; G20 Global Infrastructure Investment Initiative, 2024; UNFCCC, 2024).

Clean energy infrastructure requires public and private finance to work in tandem to overcome their individual sector shortcomings and coalesce the capital needed for the green transition. This convergence can be achieved using blended finance models, which combine both private and public capital, bringing both the private sector's abundance of capital and the public sector's ability and mandate to assist high-risk, high-need development projects (Pereira, 2017; Randall, 2022). In these blended finance models, public finance works to de-risk projects in order to crowd in private financiers through utilizing tools such as direct financing or guarantees (Pereira, 2017).

Derisking brings a decreased cost of debt due to increased certainty by financiers that they will receive returns from their investment (Sorge & Gadanez, 2004). This is often reflected in the credit spread, or the additional premium that financiers demand over a risk-free interest rate benchmark, which is higher when there is more default risk and lower when there is less risk (Krainer, 2004). In theory, public and quasi-public finance institutions can achieve social, environmental, and financial additionality by facilitating the financing of social and green projects that would have otherwise been deemed unprofitable or too risky for private financiers to finance while minimizing concessionality (Flammer et al., 2025; Mutambatsere & Schellekens, 2020; Randall, 2022).

While this is true as a broad statement, the exact kinds of financial instruments, deals, projects, and partnerships that result in additional projects, especially for clean energy, are not clear. Moreover, the degree to which these blended finance models are bringing about financial additionality itself is obfuscated by a lack of agreed evaluation criteria for assessing different types and dimensions of additionality (Andersen et al., 2021).

## 1.2. The Role of ECAs

All blended finance models are not equal. While much attention has been paid to the role of the public finance institutions in blended finance, discussion has largely focused specifically on Development Finance Institutions (DFIs) and Multilateral Development Banks (MDBs). DFIs and MDBs are government-supported financial institutions utilized explicitly for the purpose of public policy goals such as development (Gregory, 2023; Xu et al., 2019). While these institutions play a sizeable role in advancing the sustainable development agenda, including within infrastructure (Xu et al., 2019), their impact on energy infrastructure pales in comparison to that of Export Credit Agencies (ECAs).

ECAs have contributed outsized amounts of money and resources compared to other public finance institutions to the roll-out of fossil fuel infrastructure around the world (Maurer, 2002). In fact, of all public finance institutions, ECAs are not only the largest source of public finance for fossil fuels but also provide nearly double the total international finance that MDBs provide (IEA, 2025; Ortega Pastor et al., 2022). Moreover, while still large financiers of fossil fuels, ECAs have started to reorient large swaths of their energy financing towards clean energy, recognizing the importance of helping one of their most well-funded sectors transition (Downie & Peterson, 2025; UK Parliament's Environmental Audit Committee, 2003). Therefore, ECAs' large capital reserves and consistent support of various energy projects make them crucial financiers in the energy financing landscape (Downie & Peterson, 2025).

ECAs are impactful financiers for energy infrastructure due to both the amount of funds they allocate towards energy and how they allocate those funds. While DFIs and MDBs utilize debt instruments for 90% of all their financing, ECAs often employ guarantees, a form of insurance,

to de-risk a given deal (Kim & Tam, 2024; Yahmed et al., 2024). With explicit backing from sovereign governments and operations built entirely around risk mitigation instruments, ECAs possess a special blend of funding, institutional capacity, and reputation that allows them to focus on and streamline the distribution of guarantees and insurance (IEA, 2025). This specialized focus has allowed ECAs to be the preferred public finance institution for private financiers, with guarantees leveraging 26% of all mobilized private finance between 2018 and 2020 (Yahmed et al., 2024). Moreover, in comparison to loans, guarantees alone were found to be 6 to 25 times more effective in mobilizing private finance, suggesting that the financial instruments ECAs specialize in are some of the most important for bringing about blended finance (Yahmed et al., 2024).

Yet, despite ECAs' role as a powerhouse of blended finance and energy infrastructure development, they are largely ignored in the literature. As the use of blended finance is primarily for development objectives, ECAs are often left out of the conversation due to not explicitly being geared towards development despite their overwhelming contributions to development (Garbacz et al., 2021). This extends even in evaluations of primarily ECA-backed areas, like energy, or instruments, like guarantees, demonstrating the overwhelming underrepresentation of one of the largest drivers of blended finance (Downie & Peterson, 2025; Garbacz et al., 2021).

### **1.3. Research Question(s) and Contribution to Literature**

Specifically focusing on ECAs, this dissertation examines if and how ECAs uniquely bring about improved financing terms for clean energy projects across the world. The research questions are as follows:

RQ1. What is the role of ECAs in facilitating clean energy infrastructure finance?

RQ2. Do ECAs provide risk-mitigation, measured by decreased credit spread (i.e. the decreased premium that investors might demand for financing clean energy projects)?

RQ3. Is there a convergence of roles for ECAs and DFIs in the clean energy financing landscape?

In investigating these questions, this study contributes to current literature on blended finance for clean energy through empirical analysis of ECA energy financing— an area which is sufficiently lacking in the literature (Censkowsky et al., 2025; Downie & Peterson, 2025; Wright, 2011; Peterson & Downie, 2024).

To do so, this dissertation employs a mixed methods approach, first quantitatively analyzing the degree to which the inclusion of ECAs and DFIs is associated with a reduced cost of debt, via the credit spread, through examining a dataset that contains 644 energy-related deals/transactions over the period 2015 to 2025. Following this, this dissertation reemploys the same dataset to determine if ECAs and/or DFIs are more likely to fund clean energy projects, through examining how the inclusion of a project being clean energy affects the odds of ECA or DFI involvement.

Complementing this quantitative analysis, this dissertation then utilizes a series of semi-structured interviews from different actors in the clean energy blended finance landscape, such as executive leadership of ECAs and private banks, to expand upon the quantitative findings and elaborate on governance, political, and other factors that might affect ECAs and their deal structures not captured in the data.

The dissertation is arranged as follows. Section 2 describes the role and evolution of ECAs within the energy financing landscape, followed by current gaps in the assessment of the impact

of ECA involvement in deals. Section 3 delves into the dissertation's mixed-method empirical approach for investigating the research questions. Section 4 presents the results of this mixed-method approach as well as descriptive statistics. Section 5 demonstrates how the results answer the research questions and the implications of those results, followed by recommendations to strengthen the impact of ECAs in clean energy financing. Section 6 provides final remarks along with limitations and avenues for future research.

## **II. Background and Literature Review**

In the following section, this dissertation reviews literature around the definition of ECAs, their historical role in public finance and its evolution, the changing strategies of ECAs with the emerging overlap of ECAs and traditional development finance, and the current gaps in the blended finance literature as it pertains to ECA finance.

### **2.1. What are ECAs?**

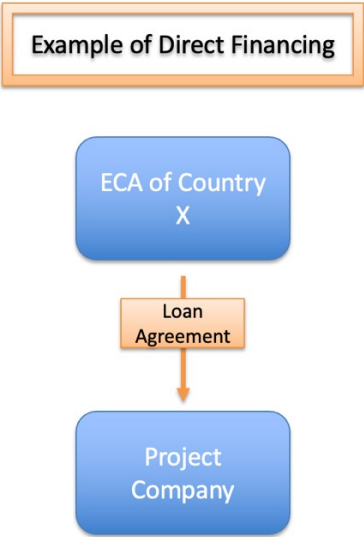
ECAs can be defined as institutions that aim to help a host country's, or a coalition of countries', domestic exporters sell goods and services to other regions and countries in order to strengthen their host country or countries' economic prospects (Wright, 2011).

These agencies have existed for over 100 years, with the first export credit insurance being offered by the Federal Bank of Switzerland in 1906 (Gianturco, 2001). Thirteen years later, in 1919, the first government export credit insurance program was created by the United Kingdom to re-invigorate export trade that had been disrupted following the First World War, thus enshrining the first ECA mandate (Gianturco, 2001; Wright, 2011). The success of these two forms of export insurance led to the recognition of the need for government stimulation of trade

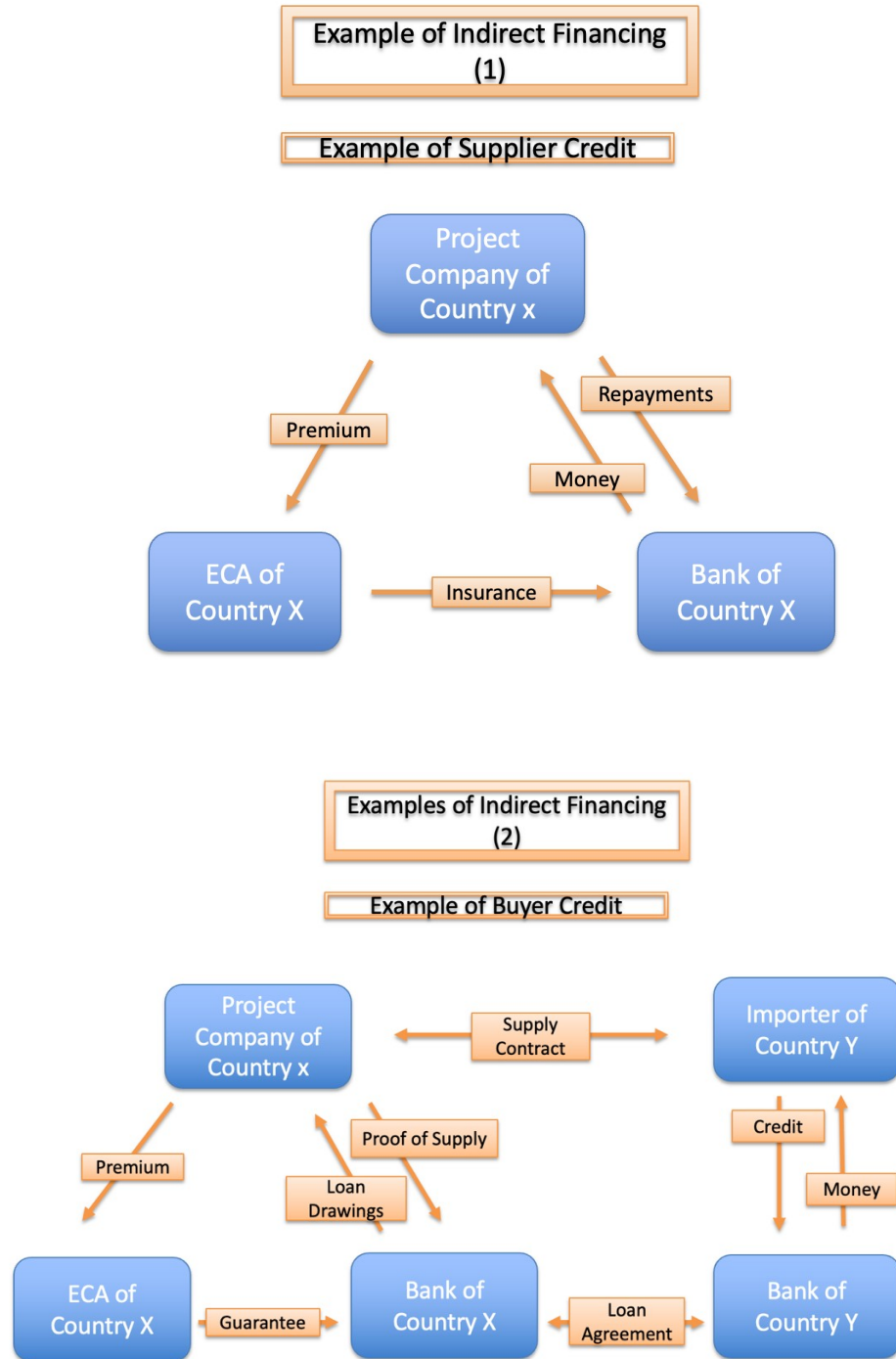
and resulted in developed and, subsequently, developing countries offering a host of export credit, guarantee, and insurance programs (Gianturco, 2001). Today, there are over 100 ECAs, with the activity from these agencies far exceeding that of MDBs and overseas development agencies; around 80% to 90% of international trade relies on export financing of some form (Hale, 2021).

ECAs tend to offer three different kinds of financial instruments: (1) direct financing, (2) indirect financing, and (3) insurance products (PricewaterhouseCoopers [PwC], 2024). Direct financing refers to loans given directly to the project company that may either be conditional upon some degree of goods and services coming from the ECA's home country/countries, tied, or unconditional, untied (PwC, 2024). Indirect financing refers to funds lent to a project company through an intermediary (PwC, 2024; Stephens, 1999). Finally, ECAs offer insurance, often in the form of a credit guarantee, primarily to deal with political risk, commercial risk, technology risk, or some combination of the three (PwC, 2024). With political insurance often being prohibitively expensive, difficult to obtain, and mostly only available for short-term trade under private insurers, ECAs' role in providing this insurance, as well as other financing, has been essential in facilitating traditionally riskier international trade (PwC, 2024; Wright, 2011). This facilitation of otherwise commercially undesirable projects also rings true for the other forms of ECA financing, with ECAs existing to do business that other financiers will not or cannot do, while also having to break even, earning ECAs the title of "lenders of last resort" (Stephens, 1999).

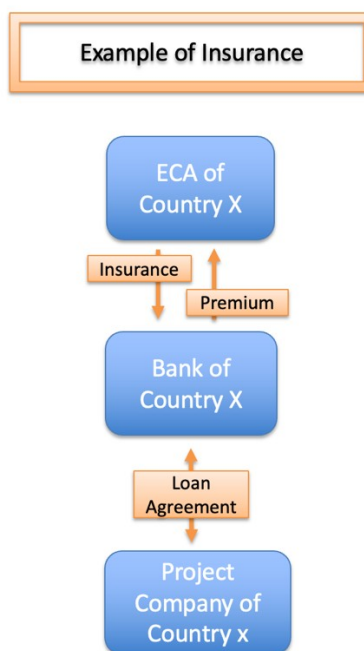
**Figure 1: Example of ECA Direct Loan Financing**



**Figure 2: Examples of ECA Indirect Financing (Supplier and Buyer Credit)**



**Figure 3: Example of ECA Insurance**



ECAs exist as a middle-ground between that of private financiers, who are primarily capitalist, and DFIs, who are more philanthropic, focusing on doing good while breaking even (Gianturco, 2001; Stephens, 1999). Thus, ECAs traditionally do not offer short-term high-interest rate financing like commercial banks or long-term low-interest rate financing like official development assistance (Gianturco, 2001; Wright, 2011). Instead, ECAs mostly offer intermediate range financing, over 2 to 10 years, at minimum fixed interest rates which are comparable to commercial lending rates (Abrams, 2018; Gianturco, 2001; OECD, 2024).

Moreover, for OECD countries, the repayment tenor, the interest rate, the down payment, and the premium rate is set out by the OECD's Arrangement on Officially Supported Export Credits, further restricting ECAs so they do not interfere with commercial, philanthropic, or other

interests and instead focus on the integration of previously un- or underserved markets (Klasen & Vassard, 2023; OECD, 2024).

However, while this agreement provides the standard for ECA financing rules, it is subject to change and exceptions. This is evidenced by the increased flexibility with short-term financing after the aftermath of the 2008 credit crisis or recent changes to extended tenors due to the longer timelines of non-OECD ECAs (Klasen & Vassard, 2023; Wright, 2011). Furthermore, these restrictions vary for different sectors or projects, such as extended repayment timelines for climate-related projects (Klasen & Vassard, 2023). Thus, while ECAs do have a strict mandate and space they exist in within the financing landscape, their role in stabilizing the global trade landscape means they are often granted the flexibility to take on new roles and mechanisms of financing when needed.

## **2.2. Historical background on the Importance of ECAs in Traditional Energy**

With ECAs' strong role in facilitating international trade over the last century, they have also had an important role in expanding one of the most risky and important sectors of trade— energy. While not always under the purview of ECAs, investment in energy infrastructure has come about in the last 40 years thanks to two factors: the growing privatization of utility infrastructure and the subsequent expansion of tools for private capital to finance this new market (Maurer, 2002; Wright, 2011). With a number of countries facing increasing fiscal pressures and a perception of utilities mismanagement in the 1980s, there came a wave of liberalization of previously publicly owned utility infrastructure, such as water and energy (Araral, 2009; Dubash, 2002; Estache et al., 2001). This wave of liberalization thus opened utility infrastructure to public-private partnership models, which allowed for export opportunities for multinational

companies (Wright, 2011). Companies could finance major infrastructure projects in other countries rather than just sell capital goods to them (Short, 2000). These new investment opportunities consequently meant new investment risks for these companies, which now required more than just political risk insurance for the export of capital goods to infrastructure, but commercial risk insurance in case of infrastructure project failure (Short, 2000). ECAs stepped in to cover this risk through offering new commercial risk cover specifically geared towards the financing of infrastructure projects, which was done through new financing means called project finance (Short, 2000).

Financing around one-third of all project finance transactions going to developing countries in the 1990s, ECAs have contributed outsized amounts of money and resources compared to other public finance institutions to the roll-out of fossil fuel infrastructure around the world (Maurer, 2002). This amount of support for fossil fuels has yet to wane from the early 1990s and early 2000s, despite changes in the energy financing landscape and international climate change commitments, with the G20 providing around \$40 billion USD<sup>2021</sup> annually from 2018 to 2020 to fossil fuel financing, compared to \$3.5 billion USD<sup>2021</sup> to clean energy (Tucker et al., 2021). This intense investment in fossil fuels has earned ECAs the title of not only the largest class of bilateral financial institutions contributing to fossil fuels, but, in fact, the largest class of any public financial institution contributing to fossil fuels, accounting for 65% of all known public investment between 2020-2022 (O'Manique et al., 2024).

### **2.3. The Shifting Landscape of ECAs in Supporting the Energy Industry**

With growing international pressures for governments and financial institutions across the world to respond to the climate crisis, there has been an increasing discussion of ECAs' role as a funder

of fossil fuels and their responsibility in facilitating sustainable development (Hale et al., 2021; OECD, 2014). Rising in prominence in the 1990s, the issue of ECAs and the environment came to light with several civil society campaigns to promote transparency, social responsibility, and environmental responsibility within ECAs (Schaper, 2007). This spurred the OECD Council Recommendation on Common Approaches for Officially Supported Export Credits and Environmental and Social Due Diligence (Common Approaches), a non-binding ESG guideline for ECAs which was adopted in 2001 and came into effect in 2003 (Hale et al., 2021). The Common Approaches thus truly spurred the implementation of guidelines for how ECAs should analyze and address environmental, social, and human rights matters due to it having the authority of the most important ECA regulatory body, the OECD, behind it (Hale et al., 2021; Wright, 2011).

Since the introduction of the first environmental and social guidelines for ECAs, these frameworks and standards have only become more robust. The OECD Common Approaches has been updated 4 times to reform and enhance the standards themselves and their monitoring practices, aligning with IFC Performance Standards as well as World Bank standards (Ahn, 2024; Hale et al., 2021). This came to a clear head in 2021, when the OECD instituted its most drastic pro-environmental measure, a ban on coal-fired electricity financing, which came into effect in November 2021 (Censkowsky et al., 2025).

The OECD coal financing ban is representative of a growing trend of ECAs' increased support for low-carbon energy sources. This is demonstrated clearly through ECA financial trends, with ECA support for renewable energy financing increasing from only \$3 billion USD in the first half of 2022 to \$24 billion USD in 2023, an 8-fold increase in support in only a year (Klasen et al., 2025). Moreover, the share of renewable energy financing compared to that of all energy

financing from ECAs has grown exponentially. From only 9% of guarantees and 5% direct lending for energy financing going towards renewable energy in 2013 to 42% of guarantees and 39% of direct lending for the two-year average between 2022-2023, renewable energy financing is going from a minority to the dominant source of energy financing for ECAs (Censkowsky et al., 2025).

Still, whether this move towards clean energy has been robust or fast enough has been hotly debated (Censkowsky et al., 2025; Gonsalves Wetherell et al., 2025; Peterson & Downie, 2024). While it is clear that ECAs are making more of an effort towards investing in clean energy, it has been argued that those efforts will need to be increased around 7-fold for ECAs to make up their fair share of the climate finance funding the world requires (Klasen et al., 2022). Moreover, even in recent analyses that demonstrate a shift towards clean energy financing, ECA fossil fuel financing is still found to be much more substantial (Censkowsky et al., 2025). Yet, it is not necessarily clear what needs to be done to bring about the bold change needed to increase ECA clean energy financing. Some studies suggest that ECAs' mandates need to be altered, while others suggest that OECD policy change is the way to go, and others still say it is a matter of national policy (Censkowsky et al., 2025; Schlögl et al., 2023; Schmidt et al., 2024). Thus, whether ECAs will be the major contributors to the clean energy transition, as they were during the fossil fuel transition, is still to be declared.

#### **2.4. The Changing Mandates of ECAs**

With increased focus on environmental and social responsibility and a growing appetite for concessional and flexible finance in ever-changing markets, ECAs have been facing increasing tensions between their historical practices and a new world. While traditionally seen as 'lenders

of last resort' who only step in to respond to demand if there are no private financing options, there has been growing discussion over the need for ECAs to move from a demand response institution to a demand creation institution. For the last several decades, ECAs have trailed behind other financial institutions, such as MDBs and private financiers, due to their demand response focus, leading them to have products, like project finance cover, much later than other institutions (Gatti, 2017; Short, 2000).

This delayed response from ECAs has become especially visible in the age of sustainable development, in which many ECAs' energy portfolios have been seen as lagging behind larger financial trends towards low-carbon energy sources (Peterson & Downie, 2024). With examples like the United States EXIM Bank which gave very little support to renewables despite the United States having the second most competitive renewables market in the G20, it is clear that ECAs have continued to demonstrate outsized support for an industry that the rest of the financial market and the world sees as on its way out— fossil fuels (Peterson & Downie, 2024). This mismatch has thus resulted in many of the previously mentioned ECA policy changes in order to better support climate financing through ECAs, as demonstrated by the modernization of the OECD Arrangement in 2023, with increased repayment timelines, decreased premiums, and increased risk appetites (Chen, 2024).

Yet, unlike in many crises, such as that of the financial crisis and COVID-19 in which ECAs could more easily react to the tightening lending environment by providing a more varied and flexible set of financial instruments as requested by private companies, ECAs in this case are not trying to stabilize the trade environment but move it in a new direction (OECD, 2020). To move trade towards the sustainable development the world requires means that ECAs must become trade facilitators or promoters, moving past traditional mandates. Some ECAs have thus begun to

champion more proactive ‘push’ strategies and target strategically important sectors like climate, becoming catalysts for the green transition rather than respondents to it (Akita, 2022; Klasen et al., 2024).

All of these changes to ECAs' operations have also led to increasing overlap between ECAs, DFIs, and MDBs. With increased concessionality, ECAs, which were positioned in-between the private market and official development assistance, are slowly creeping into the same space as DFIs and MDBs, which will now both be referred to as DFIs for simplicity (Chen, 2024). This has led to many ECAs pursuing funding of projects traditionally left to DFIs, like infrastructure (Schipfer, 2019). This is further enhanced by the fact that many ECAs and DFIs have “similar objectives in relation to SDG-aligned investments and environmental, social and governance (ESG) principles, particularly as they seek to support the global energy transition” (Bilal & Klasen, 2025). Having similar objectives, especially as it relates to the energy transition, has led to DFIs also moving closer to the ECA space (Chen, 2024). Driven in part by geopolitical motivations to compete with integrated Chinese financing, DFIs have increasingly become instruments for national interests, such as seen with the U.S. International Development Finance Corporation or in Japan (Bilal & Klasen, 2025; Chen, 2024). As such, DFIs have begun to offer commercially oriented trade products like credit guarantees and mezzanine finance (Chen, 2024). Thus, as ECAs move closer to the ‘aid’ space and DFIs move more towards the ‘trade’ space, the exact boundaries between these institutions have become blurred (Bilal & Klasen, 2025; Chen, 2024). Yet, despite this overlap, there is still a lack of coordination or collaboration from these institutions, which, in Schipfer’s words, “is a pity!” (Schipfer, 2019).

With growing debates on the role and rationale of ECAs and increasing policy changes, it is now being argued that ECAs are no longer just the ‘lender of last resort’ and are more of a financing

agent for national policy goals (Wragg, 2023). Yet, others suggest that there is no real shift in practices, arguing that areas like the supposed convergence of DFIs and ECAs are not really occurring, with DFI-ECA collaboration going down in 2025 as compared to 2024 (TXF Intelligence, 2025). Moreover, others argue that there are possible neocolonial concerns of unsustainable debt accumulation for developing countries seeking to participate in the green transition, suggesting that ECAs must be careful in fostering both sustainable development and sustainable economic growth for debtor nations (Heard & Laryea, 2021). Still, while analysis of ECAs' role operations remains sparse, the studies that exist mainly suggest one thing in particular: that as one of the world's largest energy facilitators and public finance providers, ECAs need to help facilitate climate finance (Censkowsky et al., 2025; Downie & Peterson, 2025; Gonsalves Wetherell et al., 2025; Hale et al., 2021; Klasen et al., 2024; Wright, 2011; Peterson & Downie, 2024).

## **2.5. The Gap: Current Analysis on Public Finance for the Green Transition**

While ECAs have been promoting more proactive origination strategies, becoming more flexible, and taking on overall more proactive approaches to development, it is unclear if and how well these changes have worked, especially in catalyzing the clean energy transition. The lack of clarity on the effect of ECAs in blended finance for clean energy can be attributed to three reasons: the inability to truly determine financial additionality, the paucity of other methods to determine the effect of public finance in blended finance transactions, and the lack of empirical evaluation of ECA policies.

Determining financial additionality causally in of itself is a difficult task. Due to commercial confidentiality concerns, there is a lack of specific details regarding the quantity of investments

from institutions, deal amounts, financial instruments, credit spreads, etc., or just a lack of investment data overall (Carter et al., 2018). This extremely limits the ability to do any kind of causal analysis of possible financial additionality. Furthermore, there may be an inherent endogeneity issue, with instances such as public financial institutions having investment selection processes that drive them to invest in already bankable projects (Carter et al., 2018). Even with approaches that attempt to deal with this endogeneity issue through isolating exogenous variation in investments from public financial institutions or an instrumental variable estimator, there can be extremely misleading results from the inclusion of imperfect control variables, which is a likely occurrence (Carter et al., 2018). Therefore, while it is possible to measure the probability that public finance involvement leads to increased investments on a macroeconomic and firm level, it is likely that the estimate will be fraught with error.

Despite this inability to determine financial additionality, there is a lack of other methods to examine the effects of public financial institutions in blended finance transactions, especially when it comes to econometric methods. Amongst the methods that exist to evaluate public finance impact, most of these analyses are only meant to be utilized to determine impacts on a case-by-case basis, such as theory of change, results chains, and cost-benefit analysis (European Bank for Reconstruction and Development [EBRD], 2025; Habbel et al., 2021). In cases where statistical methods are employed to examine larger trends, it is mainly done in the form of descriptive analysis for program evaluations, which do not look to broader financing trends, as found in a systematic review of over 33 studies (Sánchez Torrente et al., 2020). Yet, there are few studies that do look beyond descriptive analysis to correlational analysis of the effect of public finance on financial deals; however, these analyses tend to only utilize blended finance deals (Flammer et al., 2025; Sánchez Torrente et al., 2020). As such, there is a large gap in the

use of the strongest statistical analysis tool— correlational analysis —for examining the non-additional impact of public finance on financial terms that may only be filled through a dataset that contains both private and blended transactions.

There is a surplus of literature that takes a historical or theoretical lens to examine ECA policies, practices, and effects on the larger geopolitical and trade climate, and a paucity of literature that looks to the current state of ECAs through either a qualitative or, especially, quantitative lens. Most analyses of these ECAs focus on the application of theoretical international relations, political economy, and strategic analysis to ECA governance, the use of case studies, and comparative analysis between one or two ECAs (Hopewell, 2019; Hopewell, 2021; Klasen & Schedler, 2024; Liao, 2021; Peterson & Downie, 2024). This lack of clear quantitative and mixed method examination of the effects of ECAs on the energy financing landscape has thus left a gap in determining the true effects of ECAs in facilitating clean energy deals, how ECA strategy impacts deals they are involved in, and what factors might lead to ECAs having the highest impact possible on clean energy facilitation.

### **III. Empirical Approach**

This dissertation seeks to determine the effect of ECAs in clean energy infrastructure financing and set out recommendations to increase the effect and scope of ECA clean energy infrastructure financing. To do so, this dissertation will demonstrate a mixed-methods analysis, utilizing fixed effects (FE) regressions for quantitative analysis and expert stake-holder interviews for qualitative analysis.

#### **3.1. Quantitative Methods**

### 3.1.1. ECA Association with Credit Spread

For the quantitative analysis, this dissertation starts by examining the association of ECA involvement on the credit spread of an individual deal or portion of a deal referred to as a tranche, but will be called a deal for simplicity. With the alteration of the risk-return profile being a crucial indicator for bankability, the demonstration that ECAs are associated with better financing terms through reduced credit spread, which is expressed in basis points or bps, is both a policy-relevant finding and may be assumed to lead to increased deal closures (EBRD, 2025).

To determine the correlational effect of ECA involvement on credit spread, this dissertation employs Ordinary Least Squares (OLS) with the FEs of OECD country risk rating and the closing year of a deal. Utilizing a FE linear regression model, this dissertation isolates the relationship between credit spread and deal-level financing characteristics while also controlling for unobserved heterogeneity and does so in line with previous studies that perform correlational analysis on the effect of blended finance models on financial terms (Flammer et al., 2025; Sánchez Torrente et al., 2020).

For the independent variable of interest, this model utilizes a three-level variable, inclusive of the default private deals only, ECA involvement, and DFI involvement. This model does this due to overlap between categories that could result in collinearity issues, as well as a desire to compare ECA, represented by blended finance level 2 or *DBF=2*, and DFI involvement, represented by blended finance level 3 or *DBF=3*, to the reference category of solely private deals. Additionally, this model does not include an overlapping DFI and ECA category due to the lack of observations that contain a DFI and an ECA on a deal. Furthermore, this model includes several deal and project-level characteristics that are considered when setting the credit spread as its

control variables to capture their effect. The sole exception to this is the time until the deal closes, which is not explicitly considered when setting the credit spread. Despite this, this model uses this variable to control for possible complexity differences between deals that lead to increased negotiation and structuring timelines and compare like-for-like deals, thus making it a good proxy for deal complexity (Baker & Benoit, 2022; Carter et al., 2018). All variables found within the model are elaborated on in Table 1:

**Table 1: List of Variables included in FE OLS**

Variable Names	Description
$SPREAD_i$	The credit spread of a deal $i$
$D_i^{BF=2}$	The 2 <sup>nd</sup> level of the three-level finance type variable, represents ECA involvement on a deal $i$
$D_i^{BF=3}$	The 3 <sup>rd</sup> level of the three-level finance type variable, represents DFI involvement on a deal $i$
$LCE$	Dummy variable for a project being low-carbon energy on a deal $i$
$PCOST$	The overall cost of a project that deal $i$ covers
$TENOR_i$	The tenor of deal $i$
$INST$	The amount of syndication on a project that deal $i$ is on
$DURATION_i$	The days between of deal $i$ starting and closing
$\alpha_{r(i)}$	The fixed effect of country risk rating for deal $i$
$\lambda_{t(i)}$	The fixed effect of the year deal $i$ closed
$\varepsilon_i$	The error term for deal $i$

The FE OLS can thus be represented as follows:

$$SPREAD_i = \beta_0 + \beta_1 D_i^{BF=2} + \beta_2 D_i^{BF=3} + \beta_3 LCE + \beta_4 PCOST + \beta_5 TENOR_i + \beta_6 INST_i + \beta_7 DURATION_i + \alpha_{r(i)} + \lambda_{t(i)} + \varepsilon_i \quad (1)$$

After creating the model, a variance inflation factor test was performed with no multicollinearity being found.

### **3.1.2. Association between Clean Energy and Public Finance Involvement**

This dissertation then analyzes the relationship between ECAs and clean energy projects as well as DFIs and clean energy projects, investigating the possible overlap in DFI and ECA clean energy financing through two FE logistic regressions. This dissertation employs this regression to determine if the inclusion of the project characteristic of being low-carbon energy corresponds to a higher likelihood that a project will have public finance involvement. This allows us to examine if ECAs' change in mandates has truly resulted in them being more likely to catalyze clean energy development versus that of DFIs.

As such, this dissertation employs two models utilizing a binary outcome variable, one being ECA involvement or not and the other being DFI involvement or not, to determine the association between involvement of blended financing models and low-carbon energy, which is not referred to as clean energy in the regressions due to the inclusion of energy types like biomass, biogas, and green hydrogen. Furthermore, this dissertation uses a logistic model over that of the probit model after employing a hypothesis test by Chambers and Cox (1967).

Similar to the initial linear regression, these models have an FE of the deal year, allowing them to absorb common time shocks, global rates and spreads, commodity cycles, policy changes, and technology cost trends that jointly affect the propensity of public finance involvement and project characteristics such as low-carbon energy. With the within-year comparison, these models prevent possible misattribution of general technological adoption trends and global growth of green deals to ECA or DFI involvement, and, with a fixed and small number of years,

the resulting slope estimates from the FE logits are not likely to be subject to the incidental parameter problem or IPP inconsistency. Yet, the year FEs do not solve selection on unobservables between a project being low-carbon energy and having public involvement, they only remove year-level confounding. This dissertation, therefore, interprets the coefficients as conditional associations, much like the initial linear regression.

Finally, for its control variables, these regressions use variables that are supposed to be drivers of public finance involvement, with public finance supposedly being more attracted to high-risk projects that bring about public benefit, often through social or environmental means. Moreover, as public finance institutions tend to focus on emerging markets, this regression includes a variable that examines the proportion of deals in a country as compared to all deals in the dataset, or the historical deal share of a country. All variables found within the model are elaborated on in Table 2:

**Table 2: List of Variables included in FE Logit Regressions**

Variable Names	Description
$ECA_i$	Dummy variable for ECA involvement on a deal $i$
$DFI_i$	Dummy variable for DFI involvement on a deal $i$
$LCE$	Dummy variable for a project being low-carbon energy on a deal $i$
$PCOST$	The overall cost of a project that deal $i$ covers
$RISK$	The country risk rating at the time of deal $i$ closure
$SHARE$	The proportion of deals that occurred in a country compared to all deals across all countries
$SOCIAL$	Dummy variable for if deal $i$ is considered social
$\lambda_{t(i)}$	The fixed effect of the year deal $i$ closed
$\varepsilon_i$	The error term for deal $i$

The two FE logistic regressions can thus be represented as:

$$\text{Logit} ( \text{Pr}(ECA_i = 1 | X_i, \lambda_{t(i)}) ) = \beta_1 LCE + \beta_2 PCOST + \beta_3 RISK + \beta_4 SHARE + \beta_5 SOCIAL_i + \lambda_{t(i)} + \varepsilon_i \quad (2)$$

$$\text{Logit} ( \text{Pr}(DFI_i = 1 | X_i, \lambda_{t(i)}) ) = \beta_1 LCE + \beta_2 PCOST + \beta_3 RISK + \beta_4 SHARE + \beta_5 SOCIAL_i + \lambda_{t(i)} + \varepsilon_i \quad (3)$$

After creating the model, a variance inflation factor test was performed with no multicollinearity being found.

### 3.1.3. Quantitative Analytical Method

For the quantitative results, this dissertation will perform regressions in stages based on the independent variables' thematic groups. For the first stage, the models are run with only the main independent variable of interest. In the second stage, the models bring in the project-level characteristics, such as LCE, INST, and PCOST. In the third stage, the models add either deal-level characteristics, for the linear regression, or macroeconomic level characteristics, for the logistic regressions. In the fourth stage, the model will then introduce the first FE, which, for the logistic regressions, will be the final stage, as they only have the FE of time. In the fifth stage, this model will introduce the second FE of risk for the linear regression. Finally, this model will finish off with having both FEs for the linear regression.

Amongst all these regressions, this dissertation employs heteroscedasticity-consistent, or robust, standard errors, due to there being a substantial treatment effect heterogeneity and the sample consisting of a large portion of the population of interest (Abadie et al., 2022).

### 3.1.4. Quantitative Data

For this dissertation, this author compiled cross-sectional datasets utilizing resources from a private intelligence providers, TXF Limited and Proximo, for which this author signed an NDA for. While TXF Limited data has been used in one prior study this year, the inclusion of additional Proximo data makes this the first usage of this full dataset for research.

Within the full dataset, there are 10,364 unique energy and power sector deals across 158 countries from 2012 to 2025. These deals were facilitated by 1,000 different financiers, from private lenders to DFIs to ECAs, from 110 different countries. Moreover, these deals financed 5,323 unique projects over 41 energy subindustries, inclusive of production and generation of energy from traditional fossil fuels and low-carbon energy.

After choosing variables of interest, the dataset was then cleaned for any missing values in the dependent variables, independent variables, and the FEs of deal closing year and risk. From there, this cleaning reduces the dataset to 644 unique deals across 366 different projects in 52 countries between 2015 and 2025. The summary statistics for the dataset, excluding the finance model three-level factor variable, can be found as follows:

**Table 3: Summary Statistics**

Summary Statistics				
Statistic	Mean	St. Dev.	Min	Max
<i>ECA</i>	0.19	0.39	0	1
<i>DFI</i>	0.19	0.39	0	1
<i>SPREAD</i>	306.15	196.15	7.75	1,350.00
<i>LCE</i>	0.58	0.49	0	1
<i>PCOST</i>	2,690.45	4,923.30	1.81	30,000.00

<i>TENOR</i>	13.23	7.36	1.00	47.00
<i>INST</i>	2.01	1.44	1	8
<i>DURATION</i>	911.09	2,029.19	1	24,873
<i>SHARE</i>	0.09	0.11	0.0002	0.28
<i>SOCIAL</i>	0.24	0.43	0	1
<i>RISK</i>	2.04	2.32	0	7
<i>Note: N = 644.</i>				

### **3.2. Qualitative Methods**

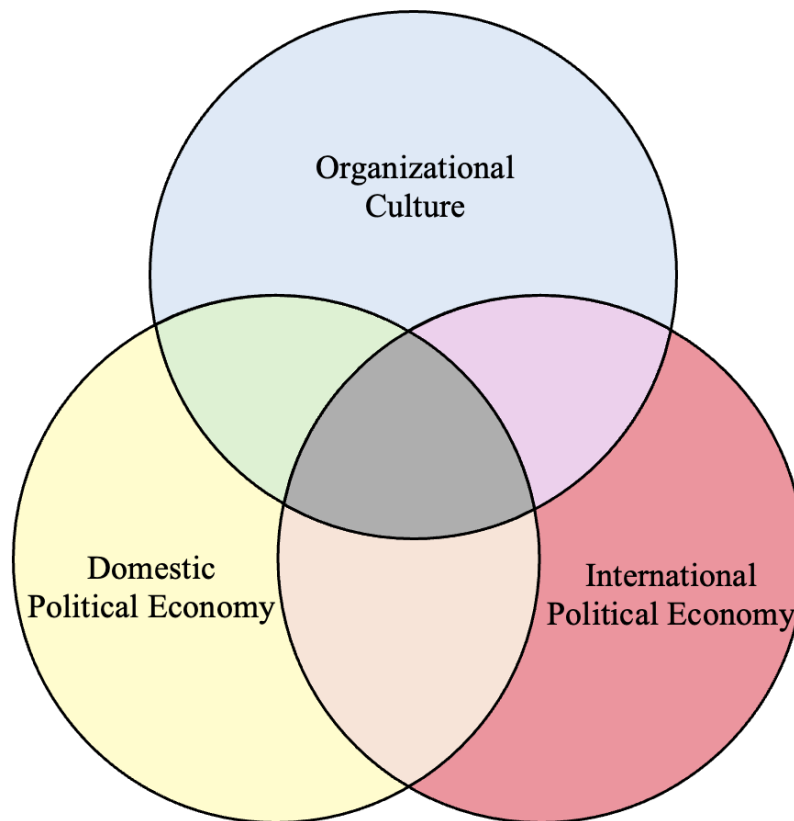
Following an explanatory approach, this dissertation backs up the quantitative analysis with qualitative semi-structured interviews that took an inductive approach. These stakeholder interviews are used inter alia to validate the direct effects this dissertation found in the econometric analyses as well as to determine indirect effects that cannot be captured by quantitative analysis.

#### **3.2.1. Interview Framing**

Interview questions were crafted under the frame of organizational theory and political economy. As ECAs are public institutions that are beholden to a government, it is best to examine them under theories fit for public administration as opposed to private organizations since they are focused on a wider set of public interests by nature (Allison, 1983). However, as ECAs are also uniquely situated to deliver domestic economic goals and be a beacon for domestic and international political priorities and contexts, they are often positioned at the crossroads of domestic and international political economy issues that other public administrations might not be (Peterson & Downie, 2024). This qualitative section thus must employ theories that can both

determine how internal organizational structure, as well as external trade and environmental policy dynamics, affect ECA operations, internationally or nationally, and the ways in which these three dynamic pressures may overlap.

**Figure 4: Schematic of Dynamic Pressures Affecting ECAs**



Within organizational theory, the qualitative section employs a cultural perspective to explore the ways in which the cultures and norms have developed and changed over the last century within ECAs (Selznick, 1959). In doing so, this dissertation can examine how the institutionalization process of ECAs, exploring the initial grounding for ECA values and norms that creates the unified cultural identity, and whether the cultural heterogeneity that exists between ECAs causes or circumvents inter and intra-agency path dependency (Christensen, 2019). This dissertation then takes this one step further by employing a political economy

perspective, examining the way in which the three-sided interaction of domestic political economy pressures, international political economy pressures, and ECA organizational culture allows ECAs to respond and alter issues like OECD focus on sustainable development measures.

Through these views, questions are formed surrounding three areas: (1) ECAs' traditional purpose, (2) ECAs' effect in facilitating the green transition, (3) domestic and international policies' relationship with ECAs' roles in the green transition. Furthermore, this dissertation utilizes the same flexible topic guide, found in Appendix A, with questions for all interviewees in line with common practice in semi-structured interviews (Knott et al., 2022). To accommodate the different positions and experiences in blended finance, this guide is only utilized as a base, rather than a strict question sheet, and follows up with non-listed questions to allow for open explorations of participant perceptions (Saunders et al., 2009). This guide was given to all participants ahead of the interview along with the participant form and the consent form, and this author assured all participants of their anonymity.

### **3.2.2. Stakeholder Selection**

Stakeholders are selected based on high-level expertise, with interviewees either possessing highly specialized knowledge in the confluence of climate and blended finance, board-level positions within their organization, or both. In selecting this way, this dissertation ensures that the involvement of those who have had experience across the blended climate financing landscape, working with ECAs, DFIs, and private institutions, and that the participants possess the board-level strategic thinking and experience that allows them to fully analyze ECA strategic direction and culture.

### **3.2.3. Qualitative Analytical Method**

Taking an inductive approach, the qualitative analysis employs thematic analysis following that of Braun and Clarke (2006) to understand the overarching narratives and perceptions that emerge from the data. This analysis initially begins by utilizing NVivo to clean and examine the content of the data, identifying salient quotes and grouping them into the initial codes. This analysis then specifically performs descriptive coding, which is translated into themes and sub-themes following the example of David Byrne (2021).

It should be noted that this means of analysis does have several limitations. First, there is bias inherent in interviews, both from the participants and the interviewer, such as social desirability bias and confirmation bias, respectively. Second, there is bias from the interviewer, this author, who was the only individual coding these interviews, thus making the data solely subject to this author's interpretation.

**Table 4: The Thematic Analysis Process**

Phase	Description
<b>1. Familiarizing yourself with your data:</b>	Transcribing data (if necessary), reading and re-reading the data, noting down initial ideas.
<b>2. Generating initial codes:</b>	Coding interesting features of the data in a systematic fashion across the entire dataset, collating data relevant to each code.
<b>3. Searching for themes:</b>	Collating codes into potential themes, gathering all data relevant to each potential theme.
<b>4. Reviewing themes:</b>	Checking if the themes work in relation to the coded extracts (Level 1) and the entire dataset (Level 2), generating a thematic ‘map’ of the analysis.
<b>5. Defining and naming themes:</b>	Ongoing analysis to refine the specifics of each theme, and the overall story the analysis tells, generating clear definitions and names for each theme.
<b>6. Producing the report:</b>	The final opportunity for analysis. Selection of vivid, compelling extract examples, final analysis of selected extracts, relating back of the analysis to the research question and

literature, producing a scholarly report of the analysis.

Source: Taken from Braun & Clarke (2006).

### 3.2.4. Qualitative Data

After gathering the interviewees through a TXF conference, this author performed a series of 16 semi-structured interviews over the months of July 2025 to August 2025 all over the platform of Microsoft Teams. In every instance, the interview was recorded to produce a readily made interview transcript through Microsoft Teams' transcription tool. Almost all interviewees had significantly long careers within the trade finance or climate finance landscape, except for two interviewees who possessed highly specialized climate and trade finance knowledge but only had ~ 4 years of experience, and one with ~ 7 years of experience.

Within the qualitative data, there exists the issue of stakeholder imbalance and the issue of sample representativeness. With no DFI representatives interviewed and limited clean energy interviewees, there is likely to be skewed findings towards ECA and bank perspectives, limiting the results' ability to fully capture DFI-ECA dynamics. Furthermore, with the sample mainly consisting of European institutions, there is a clear limitation as to the generalizability of ECA organizational strategy beyond Europe.

**Table 5: Table of Respondents**

Respondent	Position	Organization	Experience (years)	Interview Duration (minutes)
#1	Executive Leader	Middle Eastern ECA	~33 years	49 minutes
#2	Executive Leader	Private Finance Insurer	~33 years	56 minutes
#3	Executive Leader	Clean Energy	~23 years	58 minutes

		Company		
<b>#4</b>	Executive Leader	Asian ECA	~31 years	58 minutes
<b>#5</b>	Executive Leader	European ECA (1)	~22 years	46 minutes
<b>#6</b>	Management Leader	European Bank (1)	~11 years	43 minutes
<b>#7</b>	Management Leader	European ECA (2)	~ 4 years	57 minutes
<b>#8</b>	Executive Leader	European Bank (2)	~33 years	58 minutes
<b>#9</b>	Executive Leader	European ECA (3)	~39 years	48 minutes
<b>#10</b>	Executive Leader	African Bank	~29 years	51 minutes
<b>#11</b>	Executive Leader	European ECA (4)	~30 years	52 minutes
<b>#12</b>	Executive Leader	European ECA (5)	~23 years	52 minutes
<b>#13</b>	Management Leader	European Bank (3)	~23 years	47 minutes
<b>#14</b>	Management Leader	European ECA (6)	~7 years	45 minutes
<b>#15</b>	Executive Leader	International Financial Initiative	~27 years	49 minutes
<b>#16 (1)</b>	Climate Finance Researcher	International Think Tank	~ 4 years	62 minutes
<b>#16 (2)</b>	Climate Finance Researcher	International Think Tank	~ 19 years	62 minutes

#### IV. Results

The following results across mixed-methods attempt to answer all three proposed research questions. For the quantitative section, the descriptive statistics and the logistic regressions attempt to answer RQ1 and RQ3, surrounding the role of ECAs in facilitating clean energy financing and the possible convergence of ECAs and DFIs, while the linear regression attempts to answer RQ2, surrounding the association between ECAs and pricing. For the qualitative section, all three questions are answered to provide further elaboration and contextualization of the quantitative findings.

The quantitative results demonstrate how ECAs operate in the energy financing landscape, how ECAs' involvement is associated with credit spread, and how ECAs might diverge in role from DFIs in energy deals. In a complementary manner, the qualitative results demonstrate why ECAs are considered important in clean energy financing, why ECAs might provide risk mitigation, and why ECAs and DFIs diverge.

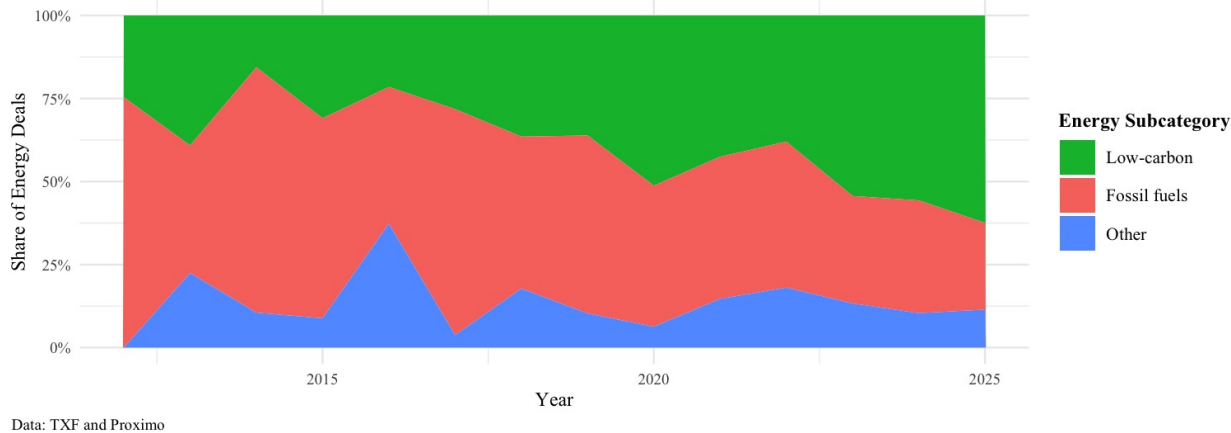
#### **4.1. Quantitative Descriptive Statistics**

Through the results of these descriptive statistics, this author aims to determine energy financing flows and the specific contribution of DFIs and ECAs within them. The full dataset is thus employed to provide the most representative overview of the energy financing landscape so that this dissertation may maximize the external validity of its descriptive findings. Additionally, as the recent study from Censkowsky et al. (2025) supplied several descriptive statistics from part of the dataset, this author aims to provide novel descriptive statistics that highlight new aspects of the dataset.

To start, the descriptive statistics explore trends in energy financing over time. Including only deals with closing dates, the following figures look at 5,323 unique deals from 2012 to 2025.

Notably, there has been an increased number of deals being input into the database over time, but this work examines the proportion of deals within each of three energy subcategories over time: low-carbon energy, fossil fuels, and other<sup>(1)</sup>. These results thus corroborate earlier findings from the literature review that demonstrate the decreasing trend of fossil fuel investments in trade financing, not only within ECAs but as a whole. In particular, these figures demonstrate a steady downward trend since 2015, which has seemed to accelerate since 2022.

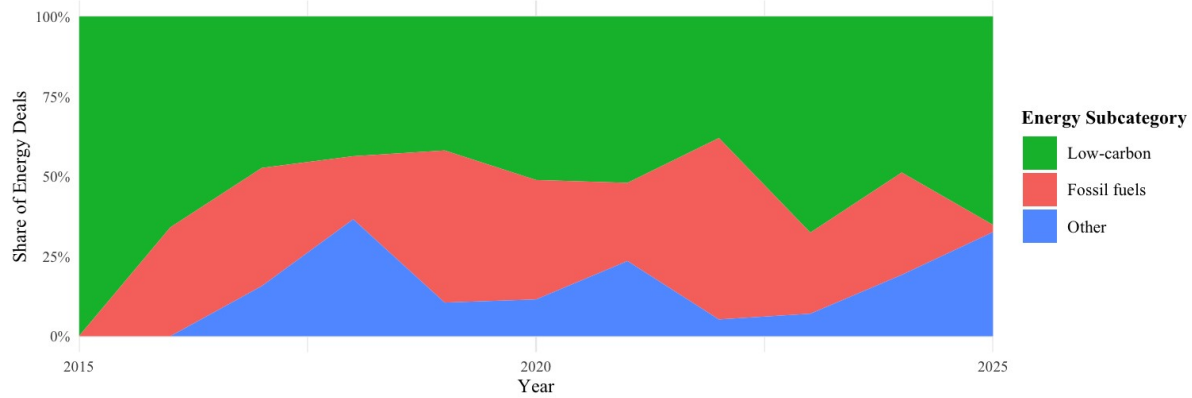
**Figure 5: Share of Deals by Energy Subcategory, 2012-2025**



This author then breaks down the share of energy deals even further, looking at energy deals ECAs and DFIs participate in over time. With limited blended finance data before 2015, these figures use 2015 as the minimum for the x-axis. From this, a clear disparity in funding for energy projects can be seen, with much of DFI financing going to low-carbon energy while the majority of ECA financing goes to fossil fuels. However, interestingly, while the share of fossil fuel financing seems to become proportionally less over time for ECAs, it has grown for that of DFIs.

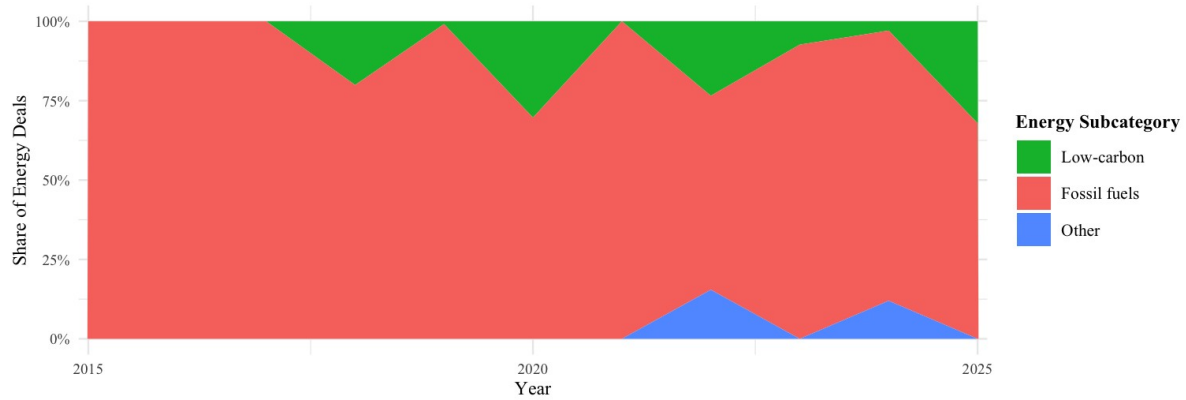
**Figure 6: Share of DFI Deals by Energy Subcategory, 2015-2025**

<sup>1</sup> The category of other contains everything not considered explicitly low-carbon energy or fossil fuels, such as transmission lines.



Data: TXF and Proximo

**Figure 7: Share of ECA Deals by Energy Subcategory, 2015-2025**



Data: TXF and Proximo

## 4.2. Quantitative Correlational Statistics

### 4.2.1. FE Linear Regression Results

This dissertation now presents the results of various specifications for the FE OLS in Table 6, aiming to determine ECAs' risk mitigation ability through their conditional association with credit spread.

Across models, the results support the idea that ECA involvement improves financing terms, with ECA involvement being correlated with a slashing of average credit spread almost in half across all versions of the regression at a 99% confidence interval and having the largest effect size. Moreover, when controlling for risk, a similar effect is seen to a lesser extent with that of

DFI involvement, also at a 99% confidence interval and at the second largest effect size.

Additionally, the fact that ECAs seem to decrease spread by 50% more than DFI involvement might indicate that the specific financing instruments they offer are more effective in decreasing costs.

The second most significant variable, across models 2 through 6, is tenor, which marginally increases the credit spread at a 99% confidence interval but with a small effect size. This relationship coincides with what we have seen in the literature, as increased tenor means more time a project will stay on a lender's books, which increases risk.

The final significant variable is that of low-carbon energy projects. While fluctuating to a confidence interval of 90% when solely controlling for risk, it remains between the 95% to 99% confidence intervals across all other models and demonstrates a decrease in basis points from around 12% to 22%. This may be a demonstration of the concentrated effort to facilitate low-carbon energy projects through more favorable terms, or a possible recognition of the lower risk of low-carbon energy compared to traditional fossil fuels.

Finally, it seems that the variables of project cost, instrument diversity, and deal duration have no notably significant association with credit spread. This suggests that variables such as the cost or size of the project, risk-sharing efforts like syndication, and deal complexity do not have an effect on a deal's pricing. Moreover, while it could be suggested that there is a case of multi-collinearity between project cost and syndication, the previous multi-collinearity tests rule this out.

Thus, this model provides tentative evidence that blended financing models are associated with better financing terms, with a basis point differential from 88 bps to 175 bps for ECAs in

particular. Moreover, this model provides tentative evidence that low-carbon energy projects receive better financing terms than those of fossil fuel projects within trade finance deals, with a basis point differential of 49 bps to 70 bps. Finally, this model finds that the inclusion of longer tenor does increase credit spread, but only marginally, with a basis point differential of 4 bps.

**Table 6: FE Linear Regression Results**

Variable	Equation 1: OLS	Equation 2: OLS w/ Project Variables	Equation 3: OLS w/ All Variables	Equation 4: OLS w/ FE RISK	Equation 5: OLS w/ FE YEAR	Equation 6: OLS w/ FE RISK & YEAR
(Intercept)	325.562** *	311.194** *	317.976** *			
	(9.991)	(17.438)	(19.991)			
$D_i^{BF=2}$	- 88.764***	- 137.149** *	- 125.491** *	- 175.666** *	- 116.471** *	-164.745***
	(19.946)	(25.715)	(25.026)	(30.021)	(24.164)	(28.869)
$D_i^{BF=3}$	-15.24 (17.501)	-16.798 (21.155)	-11.541 (21.177)	- 114.587** *	-10.81 (21.75)	-100.865*** (28.299)
$LCE$		- 64.674*** (16.196)	- 59.125*** (16.721)	-37.445* (16.595)	70.327*** (16.719)	-49.086** (16.76)
$PCOST$		0.003 (0.002)	0.004 (0.003)	0.006* (0.003)	0.003 (0.003)	0.005 (0.003)
$TENOR_i$		4.013*** (1.037)	4.098*** (1.033)	4.390*** (1.046)	4.745*** (1.031)	4.740*** (1.05)
$INST$			-10.430* (1.033)	-5.083 (1.046)	-9.048 (1.031)	-6.581 (1.05)

<i>DURATIO</i> <i>N<sub>i</sub></i>			(5.157)	(5.57)	(5.103)	(5.584)
			0.005	0.005	0.006	0.006
			(0.005)	(0.004)	(0.004)	(0.004)
Num.Obs.	644	644	644	644	644	644
R2 Adj.	0.027	0.07	0.075	0.142	0.116	0.178
FE: RISK				X		X
FE: YEAR					X	X

Note: \*\*\* designates statistical significance at 0.01, \*\* designates statistical significance at 0.05, and \* designates statistical significance at 0.10.

#### 4.2.2. FE Logistic Regressions Results

This dissertation now presents the results of the specifications for the two FE logistic regressions presented in Tables 7 and 8, aiming to answer how ECAs operate in the energy financing landscape and how this operation compares to that of DFIs. The logit models are presented with the odds ratios and the confidence intervals for ease of interpretation; regular coefficient versions can be found in Appendices B and C.

The results of the first model demonstrate a significant negative relationship between a project being low-carbon energy and having ECA involvement at a confidence interval of 95% for the last three models. With a decreased odds of ECA involvement from ~74% to ~53%, the largest effect size, this suggests that ECAs are much more likely to be involved in energy projects with fossil fuels over clean energy. This coincides with both the initial descriptive statistics and findings in the literature.

Furthermore, this model finds that project cost has a significant positive relationship with ECA involvement, with a confidence interval of 99%. For every additional 1 million USD in project cost, there is a 0.0098% increase in the odds of ECA involvement, or a ~10.3% increase in odds for every additional billion USD. Therefore, while the relationship is clearly positive, increased odds of ECA involvement only start to manifest when it comes to mega infrastructure projects.

Similarly, having more deals in a country has a significant negative relationship with ECA involvement at a 99% confidence interval. As such, since global share is in itself a fraction, we can interpret that every additional 1% increase in global share results in a 14% decrease in the odds of ECA involvement. However, as the confidence interval is inclusive of 0, there is also the strong possibility that deal share has no association with the odds of ECA involvement.

This model also finds that a country’s risk rating has a significant positive relationship with ECA involvement at the 99% confidence interval. For every additional increase in risk rating, utilizing the OECD risk rating system, there is an increase of ~31% to ~34% in the odds of ECA involvement. This further reinforces the descriptive results finding about global deal share and coincides with the literature, as the purpose of ECAs is to assist riskier markets.

**Table 7: FE ECA Logistic Regression Results**

Variable	Equation 1: Logit	Equation 2: Logit w/ Project Variables	Equation 3: Logit w/ All Variables	Equation 4: Logit w/ FE YEAR
(Intercept)	0.444*** [0.344, 0.575]	0.261*** [0.184, 0.370]	0.211*** [0.114, 0.389]	
<i>LCE</i>	0.264*** [0.174, 0.354]	0.471** [0.274, 0.808]	0.455** [0.263, 0.790]	0.399** [0.213, 0.746]

	0.402]			
<i>PCOST</i>		1.0000979***	1.0002221***	1.0002113***
		[1.0000603, 1.0001355]	[1.0001165, 1.0003277]	[1.0001052, 1.0003175]
<i>SOCIAL</i>		0.644	0.576	0.826
		[0.311, 1.335]	[0.282, 1.177]	[0.361, 1.890]
<i>RISK</i>			1.317***	1.343***
			[1.170, 1.482]	[1.179, 1.531]
<i>SHARE</i>			0.0000005***	0.0000011***
			[0.0000000, 0.0001438]	[0.0000000, 0.0002473]
Num.Obs.	644	644	644	641
R2 Adj.	0.063	0.103	0.29	0.301
FE: YEAR				X

Note: \*\*\* designates statistical significance at 0.01, \*\* designates statistical significance at 0.05, and \* designates statistical significance at 0.10.

For DFI involvement, the second model finds the opposite relationship with low-carbon energy projects. The existence of a low-carbon energy project in a trade deal increases the odds of DFI involvement by ~163% to ~530%, a very large effect size, with a confidence interval of 99%. This strong significance and high effect size are in line with the descriptive statistics and the literature, demonstrating the strong preference for clean energy projects in energy financing from DFIs (Kim & Tam, 2024).

Additionally, DFIs also have the opposite relationship to project cost as opposed to ECAs. At a 95% confidence interval, the model finds that for every additional million USD, there is a

0.059% decrease in the odds of DFI involvement, or a ~44.6% decrease in the odds for every additional billion USD. This is opposed to the literature, which suggests that DFIs in fact “rarely financ[e] less than few million dollars”, suggesting that DFIs may fund large-scale projects but not necessarily infrastructure mega projects like ECAs (Leon, 2025).

Similarly to that of ECAs, this model finds that DFIs have a positive and significant relationship with country risk rating, at a 99% confidence interval. With every additional increase in risk rating comes a doubling in the odds that DFIs will be involved, exhibiting a strong relationship between country risk and DFI involvement.

**Table 8: FE DFI Logistic Regression Results**

Variable	Equation 1: Logit	Equation 2: Logit w/ Project Variables	Equation 3: Logit w/ All Variables	Equation 4: Logit w/ FE YEAR
(Intercept)	0.075*** [0.047, 0.119]	0.223*** [0.134, 0.370]	0.013*** [0.003, 0.048]	
<i>LCE</i>	5.207*** [3.099, 8.751]	2.629*** [1.518, 4.552]	6.308*** [2.728, 14.588]	5.409*** [2.228, 13.132]
<i>PCOST</i>		0.9994094** [0.9990168, 0.9998022]	0.9996681** [0.9994598, 0.9998765]	0.9996006** [0.9993225, 0.9998788]
<i>SOCIAL</i>		1.017 [0.640, 1.614]	0.62 [0.346, 1.111]	0.628 [0.304, 1.300]
<i>RISK</i>			2.09*** [1.712, 2.552]	2.017*** [1.632, 2.494]

<i>SHARE</i>			0.768 [0.037, 15.931]	0.718 [0.026, 20.081]
Num.Obs.	644	644	644	642
R2 Adj.	0.076	0.138	0.381	0.367
FE: YEAR				X

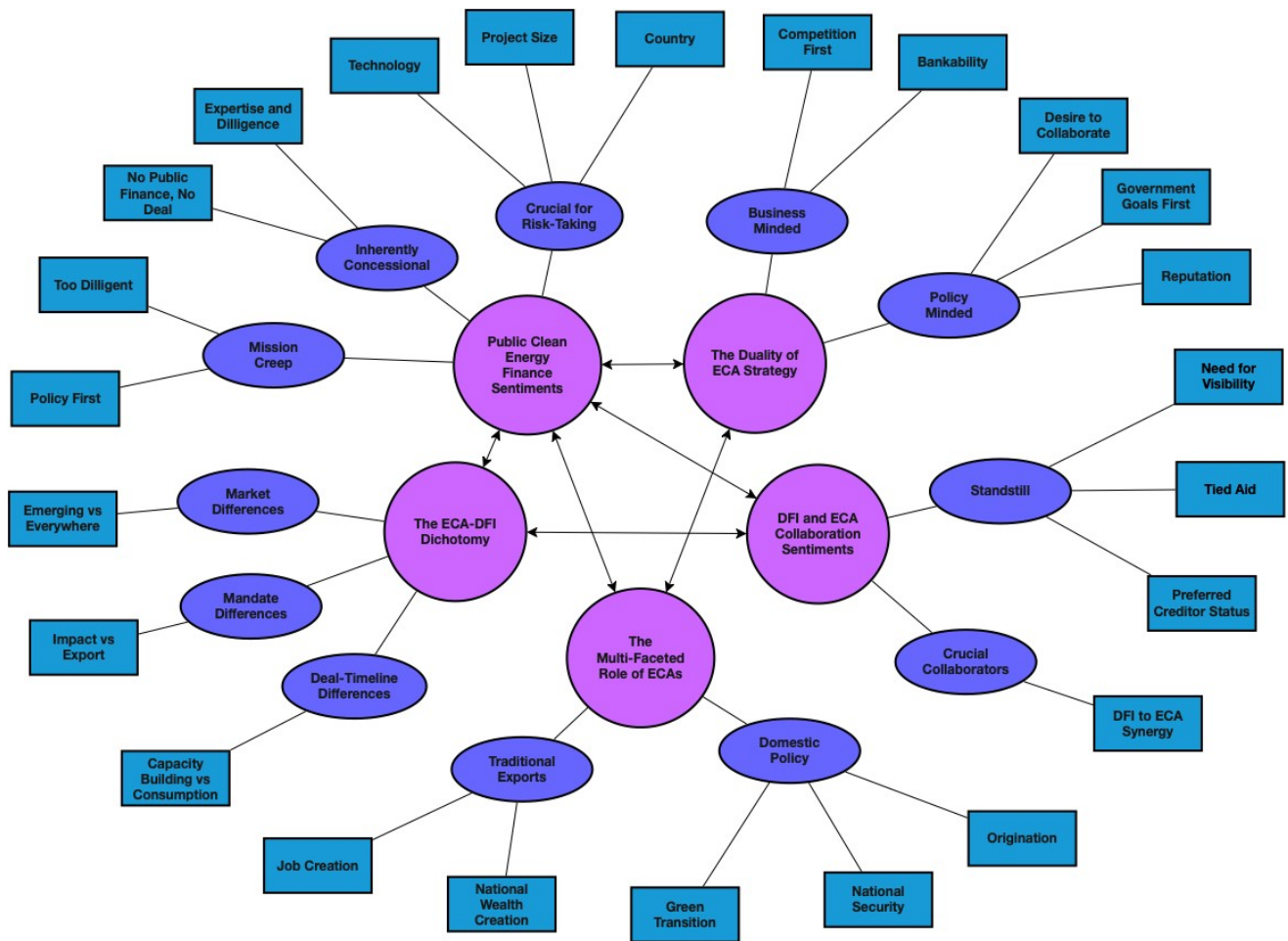
Note: \*\*\* designates statistical significance at 0.01, \*\* designates statistical significance at 0.05, and \* designates statistical significance at 0.10.

These logistic regressions find that, across models, a deal having some social objective or being classified as social proved to have no impact on ECA or DFI involvement. This could be due to the public finance institutions' concentration on whether an energy deal is 'green' more so than if a deal is 'social', leaving energy deals to be less often classified as social or social objectives to be overtaken by green concerns.

### 4.3. Qualitative Results

Within the qualitative results, there are five overarching main themes and 12 sub-themes that emerge from the stakeholder interviews. These results are exemplified first through thematic mapping in Figure 8, which illustrates the themes, sub-themes, and their related codes. The results then delve into the thematic findings to determine first why ECAs specifically are useful for clean energy financing, why ECAs take such an organizationally unique role in clean energy financing, and why DFIs and ECAs are different institutions but complementary institutions.

**Figure 8: Thematic Mapping of Stakeholder Interviews**



From the map, it is clear that the theme that ties all other themes together is that of public finance in clean energy financing sentiments. From there, there is a clear divergence in themes. On one side, several themes delve specifically into ECAs and their operations, illustrating ECA's organizational culture and the roles it takes on both in and outside its traditional mandate. On the other side, several themes come together to elaborate on the differences, similarities, and opportunities for collaboration between ECAs and DFIs. Thus, to fully examine ECA's position in the clean energy finance landscape, as a whole and as opposed to DFIs, this author will follow this natural thematic grouping that has emerged from the data.

#### 4.3.1. Public Finance in Clean Energy Financing Sentiments

Stakeholders found that the use of public finance in climate-focused projects is necessary for the development of clean energy infrastructure, with a preference for ECAs' risk mitigation over DFIs'. The combination of financial support and thorough due diligence to assess the viability of a project from public financial institutions was seen as a positive addition to and, depending on the amount of risk, a necessary part of clean energy project development. Yet, risk cover, like guarantees which ECAs mainly provide, was seen much more favorably than other forms of financial support, with private financiers claiming that “it's one of the reasons we love the ECAs because they typically provide guarantees, but they need a bank to provide the liquidity and to administer... that for us is a perfect model because there's a role for us whilst we get sort of a risk mitigation from the ECA” (Stakeholder #10, African Bank).

Amongst the offerings that both DFIs and ECAs provide, due diligence and expertise are seen as one of the most useful elements these public financial institutions provide. Due to the size, strict mandates, and years of experience public finance institutions often possess, they are often much better equipped to do thorough due diligence that determines if a project is bankable or has any glaring issues that might cause a project's delay, such as a lack of social license to operate by a local community, as compared to a private financier.

At the same time, this diligence can be seen as overbearing. With many public finance institutions needing to meet a high bar to finance projects, the due diligence and underwriting process can easily take multiple years as public finance institutions aim for the perfect deal. Yet, while this poses an issue for both ECAs and DFIs, this tends to be a larger issue for DFIs, as once ECAs “get into due diligence and underwriting, they tend to be much more commercial than multilaterals or development banks” (Stakeholder #3, Clean Energy Company). This issue can become further exacerbated with DFIs, especially as they might steer clean energy projects

too close to their own mandate of development, leading the “underwriting process [to] become like a Frankenstein's monster where it's entirely out of control” (Stakeholder #3, Clean Energy Company).

Yet, despite increased trust in and preference for ECA-specific risk mitigation, stakeholders generally found that across markets, “without public funding support, the early projects would not have been possible” (Stakeholder #13, European Bank). The role of public finance support is even more prominent in emerging markets where the cost of capital is extraordinarily high as “comparable financing is simply not available from the private sector, then it's sort of inherently concessional if an Export Credit Agency or any public agency is providing it regardless of what the price is” (Stakeholders #16, International Think Tank).

#### **4.3.2. ECA Organizational Culture and Roles**

##### **4.3.2.1. The Duality of ECA Strategy**

Within their more business-focused departments or roles, ECAs are driven to acquire as many deals as they can on their books, raising revenue and competitiveness. This side of the ECA is often focused on the bankability of projects and winning projects that might go to other ECAs, as “everyone wants to be top of the leaderboards” (Stakeholder #6, European Bank). This arm of the ECA thus strengthens its own operations as a business and excels at its goal of export promotion, as it may only support deals that meet a certain amount of domestic content requirements. They do this in two ways: matchmaking and better financing terms. In matchmaking, a buyer might approach an ECA for financial support with little domestic content of the ECA country, and the ECA “refers back to the potential sellers” (Stakeholder #1, Middle Eastern ECA). Alternatively, ECAs might try to offer more robust or better support than another

ECA, for instance if there was “a project in Germany, say, and the supplier is or the developer is considering using equipment from the United States and from Japan, the US EXIM Bank is going to be thinking about competition from the Japanese Export Credit Agency and trying to counter that.” (Stakeholders #16, International Think Tank). As such, this side of the ECA operates much like a traditional private financier, single-minded in acquiring as many deals as possible and demonstrating how “competition amongst ECAs is increasing” (Stakeholder #5, European ECA).

Conversely, within their more policy-focused departments or roles, ECAs are motivated to bring about the most possible social return, often centered around larger national and international political agendas. The view of this part of the agency is that “the ultimate objective is not to make a profit out of [deals]”, but rather to make “enough to pay the expenses and somebody else will benefit out of it” (Stakeholder #1, Middle Eastern ECA) when it comes to the deals they make. This attitude inherently makes this side of the institution more collaborative, seeing multi-ECA agreements as a “great experience of risk sharing with other ECAs” (Stakeholder #7, European ECA), and more focused on meeting international goals and agreements, claiming that they utilize their “climate policy [to] align [their] work with the Paris Agreement and national climate goals” (Stakeholder #14, European ECA).

#### **4.3.2.2. The Multi-Faceted Role of ECAs**

ECAs' paradoxical organizational culture is reflective of its growth outside of its traditional role of lender of last resort. ECAs have now grown to be more “flexible and wide in the way that they can provide support through many different and new means” (Stakeholder #12, European ECA). Thus, while ECAs still have a particular focus on job creation and national wealth promotion

through “enabling the [X country] supply chain to be involved in a transaction by providing export financing” (Stakeholder #9, European ECA), they have become a broader force in domestic policy delivery and market redirection.

As a driver of domestic policy, ECAs were highlighted to be utilized for three main goals: accelerating the green transition, enhancing national security through self-sufficiency, and facilitating new projects through origination. Of these goals, the most aligned with traditional export promotion goals are the latter two; however, these policies take it one step further by providing particular support to “priority sectors” and “looking out for deals” rather than “waiting for the phone to ring” (Stakeholder #9, European ECA). Thus, ECAs are specifically engaging with different countries and suppliers to make deals happen and do so especially for key sectors that they believe are necessary for “diversifying [a country’s] industry” and “its competitiveness and future” (Stakeholder #7, European ECA). The most different policy push from traditional ECA export promotion is the focus on promoting the green transition. While this is partially a competitiveness measure, this focus on promoting the “energy transition has become part the mission” (Stakeholder #10, African Bank) of ECAs alongside that of export promotion as an almost separate goal. This is clear in the way that ECAs “lessened the requirement of domestic content” (Stakeholder #7, European ECA) for green projects in particular, and have brought about more favorable terms and programs “dedicated to accelerating green projects” (Stakeholder #14, European ECA).

### **4.3.3. ECA-DFI Dichotomy and Synergy**

#### **4.3.3.1. The ECA-DFI Dichotomy**

While this dual organizational culture and multi-faceted strategy have led ECAs to become more flexible organizations, they still are a “long way away from convergence” (Stakeholder #9, European ECA) with that of DFIs. Despite having overlap in financing projects in emerging markets, especially clean energy projects, ECAs and DFIs have several mandates, market, and deal time-line differences that make these two institutions fundamentally different from one another.

ECA deals can and are often driven to “match SDGs, [they] obviously have a very specific mandate that needs to be taken into account” (Stakeholder #7, European ECA). This means that, even when ECAs and DFIs appear to have similar objectives through supporting the same projects, they actually do not “look at the project from the same perspective” (Stakeholder #13, European ECA), with ECAs focused on how this benefits exporters and domestic policy goals and DFIs “car[ing] about development goals” (Stakeholder #3, Clean Energy Company).

Moreover, this mandate difference leads to ECAs and DFIs operating in different markets. For DFIs, their focus on development leads them to mainly operate in emerging markets where there is a very limited pool of liquidity, such as Africa, where “there is a bigger role for DFIs to play” (Stakeholder #10, African Bank). Conversely, ECAs may operate in all markets, developed, emerging, and, recently, domestic despite being “historically very big in frontier markets” (Stakeholder #6, European Bank). This is due to ECAs “go[ing] where the exporters go” (Stakeholder #14, European ECA), which has shifted over time as ECAs have begun to accommodate industries that may be more popular but still risky for developed or domestic markets, such as clean energy.

Finally, ECAs and DFIs often come in at very different points of a deal. DFIs often “come in earlier than [ECAs]” to do “capacity building” (Stakeholder #14, European ECA), offering to “buy the equipment, warehouses, you know, whatever makes [a country] do the job and sustain their living for that matter” (Stakeholder #1, Middle Eastern ECA). On the other hand, ECAs come in at a later point as “they're supporting the trade at from a short-term angle” (Stakeholder #1, Middle Eastern ECA), offering what is needed to get an existing project over the deal finish line with instruments like guarantees.

#### **4.3.3.2. DFI and ECA Collaboration Sentiments**

Working in different areas of a deal, with different instruments, but for the same projects, ECAs and DFIs have complementary approaches that leave “room for a kind of strategic coordination when it comes to intermediated finance” (Stakeholders #16, International Think Tank). In this way, ECAs and DFIs each have “a clear gap to fill” (Stakeholder #10, African Bank) for one another, operating to perform a kind of co-financing. This is especially useful in emerging markets where they both operate, where there is such a need for additional financing support that these institutions might even use the same instruments to support a deal with an ECA covering “85% of the project and then the [X] DFI covering the remaining 15%” (Stakeholder #11, European ECA).

However, despite the desire from all sides to collaborate and the need for collaboration, collaboration between these institutions can be exceedingly difficult. Firstly, while these institutions have and do collaborate with each other, the cases in which they do are few and far between, making it difficult to formulate a guide to collaboration and causing the institutions to have to “start anew every time” (Stakeholder #11, European ECA) when they collaborate.

Secondly, it can be difficult for ECAs and DFIs to collaborate because of the DFI having preferred creditor status. Some ECAs cannot “go into deals where they don't have the same seniority status as the other lenders” (Stakeholder #3, Clean Energy Company), causing the preferred creditor status of ECAs “to hang up almost every inter-creditor negotiation”(Stakeholder #3, Clean Energy Company) and preventing collaboration between the two agencies. Finally, even in cases where they can and know how to collaborate with one another, ECAs may be prevented from collaborating due to the issue of tied aid. This form of aid is “development aid that is tied to the exports of the country that's providing the aid” (Stakeholders #16, International Think Tank) and is considered “a pretty bad form of aid” (Stakeholders #16, International Think Tank), which is one of the main reasons for the separation between ECAs and DFIs.

## **V. Discussion**

Together, the quantitative and qualitative results demonstrate the unique and complex role that ECAs take on within the clean energy financing landscape. In this discussion, this author will go through the individual results for each of the research questions and discuss the implications of them, followed by recommendations to strengthen the positive impact of ECAs on clean energy financing at the end.

### **5.1. The Role of ECAs in Facilitating Clean Energy Infrastructure (RQ1)**

The results demonstrate that ECAs are considered crucial players across the energy transition and are expanding their role in facilitating the transition but lack in full financial support of the green transition.

ECA involvement is seen as crucial across domestic, developed, and emerging markets when it comes to clean energy projects. With unique risk cover and comprehensive due diligence that ECAs provide as compared to other financial institutions, stakeholders made it clear that ECA involvement in clean energy was not only effective but necessary for the facilitation of clean energy projects across markets. From stakeholders and previous literature, this dissertation finds that the need for ECA involvement is a result of the combination of the specific large overlapping risks that clean energy infrastructure projects face in all markets, as well as the overwhelming demand for accelerating the speed and scale of clean energy worldwide (Strinati et al., 2024; UNFCCC, 2024). This is opposed to fossil fuel projects where ECA involvement has been and still is concentrated in emerging markets and suggests that ECAs are moving into a new era of energy financing (Maurer, 2002).

Additionally, ECAs' role in clean energy seems to be growing, with stakeholders claiming that ECAs have continued to become more focused on environmental aims in recent years, further corroborating evidence of growing investments in the result's descriptive statistics as well as previous research documenting the rise of environmental and social standards in the ECA space (Hale et al., 2021; Schaper, 2007; Wright, 2011). Therefore, ECAs are not just becoming large supporters of the clean energy industry due to financiers and suppliers asking them to assist in various risks that these projects face, but due to a specific desire to bring about an environmental public good, domestically and internationally.

Still, ECA clean energy financing is relatively small in comparison to its continued fossil fuel support. The descriptive statistics demonstrate that while ECAs did experience a sizable bump in clean energy financing post-2015, the proportion of clean energy financing as compared to total financing has hardly grown over the last decade. Yet, this suggests not that the total amount of

clean energy financing has not grown, but that, instead, fossil fuel financing has continued to grow at an equal or faster rate than clean energy financing. Furthermore, the logistic regression results suggest that even since the Paris Agreement, ECAs favor traditional fossil fuel projects, with ECA involvement odds decreasing by a substantial ~74% to ~53% when a project is clean energy. These results are in line with all previous studies on ECAs, suggesting that ECAs are still the premium fossil fuel financier amongst public financial institutions (O'Manique et al., 2024). Furthermore, this aligns with the traditional business-focused strategy side of an ECA described by stakeholders, which still drives ECAs to invest in large, revenue-raising, and competitive projects, such as fossil fuels, suggesting that this lag is due to structural factors rather than institutional preference.

Through the results, we find that ECAs take on a contradictory role of both an upcoming clean energy promoter and legacy fossil fuel financier due to their unique tools and services, their increasing environmental focus, and their inherent paradoxical strategy.

## **5.2. The Effect of ECA Involvement on Risk Mitigation (RQ2)**

ECAs are a desirable partner in energy financing deals. The results show provide initial evidence that ECAs possess a unique ability to de-risk energy projects, demonstrate that clean energy projects are receiving more favorable pricing compared to fossil fuel projects, and provide tentative evidence that ECAs may be one of the most useful institutions to crowd-in the private finance needed for the energy transition.

ECAs are demonstrated to be a powerful risk mitigation tool through their significant negative correlational association with credit spread in the quantitative results and the reaffirmation of their effect by being consistently identified as an essential facilitator for clean energy projects by

stakeholders. This is in line with previous literature, which demonstrates that blended finance models, and ECAs in blended finance specifically, are viewed as crucial for bringing about clean energy infrastructure (IEA, 2025; Pereira, 2017; Randall, 2022; Yahmed et al., 2024). The linear regression presents new evidence to the extent of that effect, demonstrating that ECA partnered financial deals bring about the most amount of risk mitigation and the least expensive pricing compared to all other tested financial models. Still, stakeholder interviews highlighted ECA's focus on bankability, thus suggesting that ECAs might have a selection bias towards projects that are less risky, which might result in initial favorability towards lower credit spreads. In tandem, this would suggest that DFIs, which are known to favor riskier projects, would have a higher credit spread in comparison to that of private-only financiers, which they do not (Al-Akhali, 2022). This indicates that, as stakeholder interviews corroborate, ECAs might have a special impact on risk mitigation that is not only a result of its inherent selection bias or the use of well-known elements of public financing, like long tenor and due diligence, but due to the unique instruments that ECAs offer and the strong trust ECAs have built with private financiers and energy infrastructure providers.

Moreover, the linear model demonstrates that clean energy projects might be receiving more favorable pricing in comparison to fossil fuel projects. This suggests that across the trade financing landscape, there is a wider recognition of these deals as less risky than fossil fuel ones and/or a positive effect of the many tools employed by both private and public financiers to de-risk and facilitate clean energy projects. Looking back to the qualitative results and the literature, it would seem the latter is more likely as clean energy projects tend to be viewed as particularly high-risk deals and are considered less favorable by private financiers, due to a combination of size, new technology, and country risk as stated by stakeholders (Andonov et al., 2021; Fay et

al., 2021). Thus, it can be inferred that the decrease in credit spread is not a result of actual perception in a decreased risk of clean energy projects, but a reflection of a new concerted effort from public financial institutions to bring about clean energy projects as opposed to fossil fuel projects. While this is most certainly not entirely attributable to ECAs, it demonstrates that the policies that ECAs and DFIs have put in place to make the terms of clean energy deals more favorable might be working.

Therefore, in consideration of the positive effect demonstrated by public finance policies towards clean energy and the unique de-risking association found between ECAs and credit spread, it can be claimed that ECAs are one of the foremost institutions positioned to bring about clean energy infrastructure across markets. The results suggest that ECAs, as a consequence of their unique modus operandi among public financial institutions, are especially well-suited to crowd-in private financiers to bring about clean energy infrastructure and have already begun to demonstrate the positive effect they have on clean energy deal financing terms.

### **5.3. The Roles of ECAs vs DFIs in the Clean Energy Financing Landscape (RQ3)**

ECAs and DFIs operate in unique and, potentially, complementary roles in the clean energy financing landscape. While there is literature suggesting that the role of ECAs and DFIs is converging, the results demonstrate that ECAs and DFIs still operate as different institutions but have a combined potential to bring about clean energy projects (Chen, 2024).

ECAs and DFIs diverge in three ways: mandates, markets, and means. As identified by stakeholders, DFIs are strictly focused on bringing about impact and development for other countries, a philanthropic focus, while ECAs are more focused on bringing about impact for their own countries, a domestic focus, even with the growing environmental and social remit within

ECAs. Thus, ECAs and DFIs may finance similar projects, but their motivation for doing so is not the same. Moreover, ECAs operate across markets while DFIs are mostly focused on emerging markets. Therefore, while ECAs and DFIs both operate in emerging markets, ECAs, unlike DFIs, have a much wider range of markets they can be and are involved in. Finally, these two institutions, due to their different focuses on capacity building versus increasing consumption of goods, are often not even operating in the same parts of a deal. This is evidenced by previous literature on ECAs and DFIs, which demonstrates that they often offer different instruments, which are useful at different points within a deal (Kim & Tam, 2025; Yahmed et al., 2024). Thus, these two public financiers still exist in separate spaces even though they sometimes overlap in their combined interest in financing clean energy projects.

DFIs are a more devoted financier of clean energy projects as compared to ECAs. While both institutions are now looking to finance these projects, DFIs have proven to be a fruitful financier of clean energy projects, as demonstrated by the descriptive statistics. This is further corroborated by the logistic regressions, which demonstrate that clean energy projects are associated with increased odds of DFI involvement by ~163% to ~530% and decreased odds of ECA involvement. As such, while ECAs are increasing their involvement in clean energy deals and are useful financiers on these deals, they still finance far fewer clean energy projects than DFIs.

DFIs and ECAs are well-positioned to support one another in clean energy deals. While these institutions operate in different ways and have historically operated separately, they are now both pursuing the same goals of facilitating clean energy projects in emerging markets. With the difficulties these markets face in being able to finance their projects, due to large needs for

liquidity or a need for different approaches to a deal, ECAs and DFIs have a clear ability and need to participate in risk-sharing with one another to meet their mutual goals.

#### **5.4. Recommendations**

With ECAs' powerful, rising, but still lackluster role in the energy transition, this dissertation now sets out three recommendations for ECAs to increase their positive impact in the clean energy financing landscape.

First, ECAs need to bolster the amount of support they provide for the energy transition through increased origination. As identified in Downie & Peterson (2025) as well as by the dissertation's qualitative results, there is a lack of demand for export financing from clean energy providers. With only a small part of all total renewable energy exports being financed by export agencies like UKEF and USEXIM, this might suggest that clean energy does not need export finance, but rather, it is that the suppliers that do need help from export finance are unaware of its existence or how to access it (Downie & Peterson, 2025). This lack of awareness of ECAs has led ECAs to be termed by many of this dissertation's stakeholders as "the government's best kept secret", and has led to a proliferation of 'push' strategies by governments like the UK and Sweden (Klasen et al., 2024). These 'push' or origination strategies are concerted efforts by ECAs and their governments to increase awareness of available ECA financing to priority sectors, through attending large conferences, going with diplomatic delegations to other nations, and spreading information about financing. This method of increasing awareness of ECAs directly targets the concerns of producers who are unaware of ECA financing, which are often SMEs and newer sectors like that of climate-tech, and have been discussed as effective in bringing in new suppliers by stakeholder interviews (Klasen et al., 2024). Still, not all ECAs are participating in

such strategies or are necessarily targeting the clean energy sector (Downie & Peterson, 2025). Therefore, this dissertation recommends that all ECAs create origination strategies specifically aimed at the climate sector, proactively engaging with new clean energy suppliers so that they may utilize ECA financing.

Secondly, ECAs need to decrease the amount of support they provide for fossil fuels through OECD policy. As found throughout the descriptive and logistic results as well as previous literature on ECA financial flows, ECAs have continuously provided a steady and large stream of money to fossil fuels while slowly beginning to invest in clean energy (Censwosky et al., 2025; O'Manique et al., 2024). Increasing investment in clean energy is not enough to stop the flow of fossil fuels. With fossil fuels becoming more likely to be stranded assets, private financiers will increasingly require additional financial support to facilitate these projects (Chaudhary, 2024). Thus, to help prevent these projects from occurring, ECAs should no longer invest in them. By removing their support, these projects will not only be less likely to occur due to a lack of financing but also through the revocation of their social license to operate by some of the world's most trusted financiers (Rickman et al., 2024). This strategy has already begun to be implemented by ECAs, with the OECD coal financing ban in 2021 and ECAs pledging to stop financing all fossil fuel projects under coalitions like NZECA and E3F (Hale et al., 2021; Klasen et al., 2025). Thus, as many ECAs already recognize, this author believes that one of the best ways to shift investment towards clean energy is through a full-scale ban on fossil fuel financing across the ECA landscape, such as through a revision of the Common Approaches. Yet, this dissertation does acknowledge that the likelihood of such a policy is predicated upon the unanimous agreement that such a ban should occur, which would prove difficult in consideration of current political climates and emerging markets' base-load needs.

Thirdly, and finally, ECAs need to increase collaboration with DFIs and have a clear template for this collaboration. As was made clear by the lack of examples of ECA-DFI crossover in the dataset and by the qualitative results, there are very few recorded instances of ECA-DFI collaboration. Thus, while ECA-DFI collaboration is desired, the situations and manners in which this collaboration can and should occur have been previously undefined (Bilal & Klasen, 2025; Chen, 2024; Schipfer, 2019). This lack of clarity of how and when to participate was continuously identified by interviewees, along with their desire to see this collaboration. Thus, in consideration of various concerns and the benefits of possible collaboration, there is a case to be made for creating a clear template for collaboration between these two institutions, allowing them to fully support one another and the projects that require their mutual support, which are often clean energy projects in emerging markets, without jeopardizing their separate mandates and policies. Through a compilation of the case studies, this author believes such a template could be curated to define standard roles for each agency, intercreditor terms, and fast-track timelines, and allow for ECAs and DFIs to more easily accelerate clean energy projects that require combined support.

## **VI. Conclusion**

ECAs are the underdogs of energy financing. With little recognition and limited research, the role of ECAs in the energy financing landscape and the true effect they have has long been obscured. This has been perpetuated by the lack of research that examines ECAs in relation to DFIs, resulting in a lack of clarity around the separation and convergence of these institutions as a whole and within clean energy financing specifically. This dissertation remedies this lack of research through utilizing state-of-the-art analysis methods to determine the role of ECAs in

clean energy financing, the effect of ECAs as risk mitigators, and the dichotomy of ECAs vs DFIs.

Firstly, this dissertation uses quantitative methods to determine the role of ECAs in clean energy financing and the correlational association they have with credit spread in energy deals. These results demonstrated that deals that contain ECAs have a positive de-risking association with credit spread as compared to any other model, reducing credit spread by 88 bps to 175 bps in comparison to purely private models. Yet, the quantitative results also found that while ECA involvement in clean energy deals is growing, it is significantly less compared to that of DFIs, which have increased odds of involvement by ~163% to ~530% as compared to ECA's decreased odds of involvement when a project is clean energy, from ~74% to ~53%. Thus, while ECA involvement clearly has a powerful and positive association with energy deals, this de-risking is being utilized to accelerate climate change rather than the green transition.

Secondly, this dissertation employed qualitative methods to elaborate on quantitative findings on the role of ECAs in clean energy financing, the usefulness of ECAs as risk mitigators, and the exact organizational differences between ECAs and DFIs. These results demonstrate that despite ECAs' proportional lack of clean energy financing in their portfolios, they are still viewed as crucial and useful players in facilitating the growth of clean energy infrastructure due to their unique set of risk mitigation tools and their growing environmental mandate. Additionally, results show that ECAs and DFIs are not converging but rather still operate as separate institutions despite a growing overlapping mandate to finance clean energy projects in emerging markets. Furthermore, this difference in operation makes them uniquely positioned to assist one another in bringing about clean energy projects, with the institutions having the ability to come in and support clean energy projects at different parts of project development.

Finally, this dissertation sets out a series of recommendations to enhance the impact of ECAs on clean energy project facilitation. With the ever-increasing need to bring about clean energy projects and decrease fossil fuel ones, this dissertation first sets out the recommendation of increasing support for clean energy projects through origination strategies to crowd-in clean energy producers who have been unable to take advantage of ECA financing. Second, this dissertation sets out the recommendation of an OECD fossil fuel financing ban. With increasing commitments to stop fossil fuel financing and the importance of the OECD in providing a level playing field for ECA financing, this dissertation argues that a total OECD fossil fuel financing ban would provide a strong and rapid shift away from fossil fuel infrastructure and towards clean energy, especially with the amount ECAs invest in fossil fuels. Thirdly, this dissertation suggests a clear template to be laid out for ECA and DFI collaboration, via means of case-study analysis of existing collaborations. With a desire to collaborate and clear benefits from doing so, this author argues that this template could serve to finally facilitate the collaboration needed to finance especially high-risk clean energy projects, such as those in emerging markets.

Overall, this dissertation demonstrates that ECAs have been and will continue to be important financiers in the energy transition. The question is, will they utilize their full potential to accelerate the transition through origination, cessation of fossil fuel support, and collaboration, or will they continue to be a top fossil fuel financier?

### **6.1. Limitations and Future Research**

The quantitative and qualitative methods possess several clear limitations. Within the linear regression, this dissertation accounted only for latent heterogeneity within the differences between its FEs and was unable to perform an IV model to partial out unexplained heterogeneity

due to a lack of exogenous predictors of ECA or DFI involvement. In the logistic regressions, while the conditional logit dropped years that lacked within-year variation, this dissertation recognizes the possibility of IPP affecting estimation slopes. Within the qualitative results, as many interviewees are from or interact with European markets, there is a bias towards European ECA organizational structures and political economy issues. Moreover, due to limited time and availability, this dissertation was limited mainly to interviews from banks and ECAs, with little representation of the DFI perspective, the clean energy company perspective, and other stakeholders. This author thus suggests follow-up studies that utilize IV models and perform more holistic qualitative analysis.

Furthermore, as it went outside the scope of this paper, this dissertation was unable to delve into the nuances of the specific dichotomy of emerging vs developed markets in terms of ECA financing. As highlighted in the results and in previous literature (Heard & Laryea, 2021; Maurer, 2002), there is a clear separation between financing practices in emerging markets and developed markets when it comes to energy infrastructure deals that could be explored. Moreover, this could lead to further research as to how ECAs possibly perpetuate existing neocolonial concerns of unsustainable debt accumulation for developing countries seeking to bring about robust energy infrastructure and/or create additional carbon-lock-in through carbon-intensive infrastructure in these nations.

Finally, many of the current ECA policies to support clean energy financing are relatively new in the grand scheme of the infrastructure financing landscape (Hale et al., 2021; Peterson & Downie, 2024; Wright, 2011). With the mega-projects ECAs facilitate often taking years to reach close and much longer to be in operation, the exact effects of the current ECA clean energy policy are difficult to fully determine. This author finally suggests that additional studies be

performed over the coming years to truly determine the impact of these policies, such as the OECD coal financing ban and voluntary initiatives like NZECA and E3F.

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## Appendices

### Appendix A: Questions for Stakeholders

1. Ice breaker
  - What is your role within your organization and how did you end up here?
2. Defining the landscape
  - What do you believe is the purpose of public financial institutions in funding clean energy infrastructure projects, either domestically or abroad?
    - What is the rationale for involving ECAs in clean energy finance?
3. ECA Impact
  - Do you believe any clean energy projects you have worked on/or analyzed would not have gone without ECA involvement? In cases where you have seen it be essential, what were the gaps addressed (eg. tenor, risk cover, etc)?
  - What specific factors do you think make a project most suited for ECA involvement? In particular, how does ECA support influence pricing, leverage, or risk distribution across a project’s capital stack?
4. Shift in Mandates
  - Do you believe ECAs help create demand for clean energy projects in addition to responding to existing requests? Please give examples.
  - This shift in policy also has led to questions of closer convergence of traditional ODA centered institutions such as DFIs and MDBs with that of ECAs and vice versa. Do you agree and how do you think this could shape future financing models?
5. Policy Push
  - How do recent policies (e.g. OECD coal financing ban) and initiatives (e.g. E3F, NZECA, Glasgow Statement) affect ECA behavior in green finance? How do you think initiatives compare to mandatory policy shifts?
  - What would you modify about the OECD policy to create a stronger investment push for clean projects? If not in the OECD specifically, what would you change to bring about more clean energy projects from ECAs?
6. Finishing out
  - Is there anything we haven’t covered that you think is critical for understanding ECAs' role in clean energy finance?

### Appendix B: FE ECA Logit

Variable	Equation 1: Logit	Equation 2: Logit w/ Project Variables	Equation 3: Logit w/ All Variables	Equation 4: Logit w/ FE YEAR
(Intercept)	-0.811***	-1.342***	-1.558***	

<i>LCE</i>	(0.131) -1.331***	(0.178) -0.753**	(0.313) -0.786**	-0.920**
<i>PCOST</i>	(0.214)	(0.276) 0.000098 ***	(0.281) 0.00022***	(0.32) 0.00021***
<i>SOCIAL</i>		(0.000019) -0.44	(0.000054) -0.551	(0.000054) -0.191
<i>RISK</i>		(0.372)	(0.365) 0.275***	(0.422) 0.295***
<i>SHARE</i>			(0.06) -14.436***	(0.067) -13.734***
			(2.851)	(2.77)
Num.Obs.	644	644	644	641
R2 Adj.	0.063	0.103	0.29	0.301
FE: YEAR				X

### Appendix C: FE DFI Logit

Variable	Equation 1: Logit	Equation 2: Logit w/ Project Variables	Equation 3: Logit w/ All Variables	Equation 4: Logit w/ FE YEAR
(Intercept)	-2.593*** (0.238)	-1.502*** (0.259)	-4.351*** -0.668	
<i>LCE</i>	1.650*** (0.265)	0.966*** (0.28)	1.842*** -0.428	1.688*** -0.453
<i>PCOST</i>		-0.001** (0.0002)	0.000** (0.000106)	0.000** (0.000142)
<i>SOCIAL</i>		0.016 (0.236)	-0.478 (0.297)	-0.465 (0.371)
<i>RISK</i>			0.737*** (0.102)	0.702*** (0.108)
<i>SHARE</i>			-0.264 (1.547)	-0.332 (1.7)
Num.Obs.	644	644	644	642
R2 Adj.	0.076	0.138	0.381	0.367
FE: YEAR				X