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Reinsuring Export Credit Agencies: What Drives Demand?

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We assess factors influencing the demand for private reinsurance by public export credit agencies and export-import banks (ECAs), focusing on their specific characteristics. Supporting more than $2.5 trillion of payment risk protection for trade and foreign direct investment together with private actors in 2023, ECAs play a crucial role in bridging market gaps by offering trade credit insurance and investment guarantees, as well as equity and export financing. Our findings show that there is a strong relationship between reinsurance demand and the intervention principle, full faith and credit, managerial discretion, services of risk transfer and business diversification. The influence of regulation and financial strength is less clear. Our findings lead to the development of a framework outlining the contextual factors affecting the demand for reinsurance of public export credit agencies. This exploratory study contributes to existing theories of reinsurance demand and integrates practical feedback into the theoretical framework. Furthermore, it provides important recommendations for policymakers, public financial institutions and private actors supporting global trade and foreign direct investment.

Keywords: trade promotion, foreign direct investment, trade finance, export credit insurance, export credit agency, export-import bank, insurance demand, private reinsurance

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1 INTRODUCTION

Export credit agencies and export-import banks (ECAs) play a critical role in supporting and enabling their country's international trade and foreign direct investment (FDI). ECAs are governmental or quasi-governmental organizations, granting, guaranteeing or insuring financing for foreign trade and investment. Together with private market actors, ECAs provided approximately USD 2.5 trillion of payment risk protection to banks, exporters and investors in 2023. This is equivalent to 13% of world cross border trade for goods and services (Berne Union, 2024). The current global landscape poses significant challenges for ECAs. Geopolitical shifts, increasing multipolarity and growing nationalism, alongside realignments of global economic governance, are fuelling new subsidy battles and intensify regional competition, all of which have major consequences for trade and investment promotion. At the same time, effects of climate change, digital transformation and sustainability policies particularly on net-zero and a just green transition are impacting global supply chains (Hale et al., 2021; Peterson and Downie, 2023; Klasen et al., 2024). In response, governments are relying on ECAs to support their internationally oriented firms through these complex challenges, while they are also required to coordinate their responses and to act on additionality as well as to maintain a level playing field.

The evolving global context increases uncertainty in the financing and insurance portfolios of ECAs, requiring them to place greater emphasis on effective risk management strategies. Reinsurance and coinsurance with public counterparts have long been established mechanisms for ECAs to transfer peak risks or portions of their portfolios. The interdependencies between ECAs and government budget also influences ECA risk management needs. Their exposures might translate into potential liabilities for the governments and their financial sustainability directly affects public finances. As a result, ECAs are incentivised to adopt rigorous risk management frameworks that include reinsurance and risk-sharing mechanisms to protect both their balance sheets and the public budget. In this context, private reinsurance becomes an essential tool for ECAs to manage peak or catastrophic risks, reduce the burden on government guarantees, and sustain their capacity to support exporters. However, most of these transactions still occur between ECAs themselves or with multilateral institutions, with relatively few involving private reinsurers. While some treaty reinsurance exists, private market actors typically engage in lower-risk, short-term transactions, leaving non-marketable risks predominantly with public institutions.

We explore benefits of private reinsurance for ECAs and analyse which factors influence need and demand. While there is established research about corporate insurance and reinsurance demand (e.g., Mayers and Smith, 1982; Mayers and Smith, 1990; Cole and McCullough, 2006; Altuntas, Garven and Rauch, 2018), this is less well understood for public organizations and government agents. We therefore aim to close a gap in the literature about (re)insurance demand with respect to these organizations. ECAs are particularly relevant to our study due to their unique characteristics: First, analysing ECAs' behaviour with respect to reinsurance demand can provide a deeper understanding of how organizations manage risk. Second, it offers insights into how different types of organizations – beyond the corporate sector – approach reinsurance. Furthermore, ECAs operate in a distinct context as public entities and government-backed agencies, making them an ideal subject for exploring reinsurance demand in a not-for-profit setting where the government often acts as the "insurer of last resort", supports financing and the governance framework, and/or is the main shareholder and stakeholder.

What are the drivers of private reinsurance demand from ECAs? Guided by this research question, our study analyses relevant elements of public institutions' risk management appetite and other functions through the use of private reinsurance. We assess ECA models, looking at full faith and credit as well as intervention principles. We also explore if financial strengths are drivers for private reinsurance and look at elements related to real services and business diversification. Furthermore, we assess the regulatory environment and analyse managerial discretion of ECAs. To answer our research question, we use an inductive and interpretive paradigm with qualitative-explorative research to develop a comprehensive model for understanding ECA reinsurance demand. Our study is based on a multiple case study with 21 countries.

The contributions of our study are threefold: First, the research fills a gap in the literature by examining reinsurance demand within public institutions, particularly ECAs. Most research up to date focuses on corporate insurance demand, with little attention to how government-backed entities manage risk. The multiple case studies across 21 countries adds to an empirically grounded framework for understanding organizations' (re)insurance demand, which can be applied to future studies of both public and private entities. Second, the study provides ECAs with an enhanced understanding of how reinsurance can be strategically used to manage risk portfolios more effectively, particularly in response to emerging and developing global challenges like geopolitical shifts, climate change and digital transformation. The study also supports ECAs to refine their decision making on risk-sharing arrangements and clarify the balance between relying on public versus private funding and insurance mechanisms to encourage more collaboration between public and private entities. Third, the study helps policymakers understand the benefits of explore potential partnerships between public institutions (such as ECAs) and private insurers, leading to new frameworks that ensure an optimal sharing of risks between public budgets and the private sector.

The remainder of the article is structured as follows: In chapter 2, we provide the theoretical background before chapter 3 presents the methodological approach. In chapter 4 we discuss our analysis and findings that build the underpinning for a framework of insurance demand for ECAs described in chapter 5, including a discussion of implications and recommendations. The article ends with a conclusion and outlook in chapter 6.

2 ORGANIZATIONAL REINSURANCE DEMAND AND THE ROLE OF ECAS

2.1 REINSURANCE BENEFITS AND FUNCTIONS

Reinsurance provides significant benefits by allowing primary insurers to transfer a portion of their underwriting risk, thereby reducing their exposure to potential losses. This transfer helps to reduce uncertainty and claims volatility for the primary insurer, contributing to more stable financial performance. This is critical when risk carriers face large-scale capacity challenges, such as absorbing massive losses on individual policies. By spreading risk across multiple entities, reinsurance ensures that no single insurer is solely responsible for large claims, thereby preventing financial distress. Reinsurance also minimises the impact of catastrophic losses, such as natural catastrophes, by spreading the financial burden across a number of insurers. This risk-sharing mechanism not only protects the solvency of the primary insurer, but also enhances its ability to offer competitive and reliable insurance products to its customers (Swiss Re, 2015; Cummins et al., 2021).

Reinsurance plays a critical role in risk financing by increasing the underwriting capacity of primary insurers and optimising the use of capital. By transferring or reducing underwriting risk, primary insurers can take on more insurance risks that would otherwise be too large for their financial resources. This increased capacity allows them to expand their business and accept larger or more diverse contracts because not all underwriting risk is retained, enabling to write policies without excessive risk. Reinsurance can also address premium capacity constraints. Furthermore, reinsurance can substitute for risk capital, providing an efficient way to strengthen an insurer's financial base without requiring additional equity. This capital substitution not only increases underwriting capacity but also allows insurers to use capital more effectively, thereby improving overall financial management. In addition, stabilising effects of reinsurance on profits ensure that insurers maintain consistent financial performance, even in the face of significant claims or market fluctuations. This stability is essential for long-term business sustainability. Reducing the volatility of earnings and the cost of financial distress is also an important signal to stakeholders (see, e.g., Mayers and Smith, 1990; Culp and O'Donnell, 2009).

Reinsurance is a valuable source of knowledge and information for primary insurers, providing critical services that improve risk management and business operations. Reinsurers bring expertise in risk transfer, helping primary insurers to accurately price and manage their risks. Their deep understanding of the market enables them to provide guidance in the development of new insurance products tailored to emerging needs and trends. Reinsurers also provide claims handling support, using their experience to ensure fair and efficient resolution. In addition, they conduct comprehensive risk assessments to help primary insurers identify potential threats and implement effective mitigation strategies. This wealth of information and support not only strengthens primary insurers' capabilities, but also promotes innovation and stability in the insurance industry (Mayers and Smith, 1990; Doherty and Smith, 1993; Hoyt and Khang, 2000).

In addition, the (re)insurer has a comparative advantage in risk taking. Research by Eeckhoudt, Schlesinger and Gollier (2005) shows that transferring risk to a (re)insurance company leads to a more efficient allocation of risk. In the absence of risk mitigation measures, the presence of risk is costly for any organization and stakeholders take this into account. This can be related to higher interest rates on loans, higher expectations of returns on investments and dividends, and/or higher remuneration and salary expectations for managers and employees. These additional stakeholder risk charges could be (over)compensated by the loading charges of the insurance contract, making the purchase of an insurance contract worthwhile.

2.2 DRIVERS FOR (RE)INSURANCE DEMAND

The first academic study of corporate demand for reinsurance was provided by Mayers and Smith (1990), who extended their earlier seminal research on corporate insurance demand (Mayers and Smith, 1982). They examine the demand for reinsurance through the lens of theories of corporate insurance demand and highlight that motives behind primary insurers' reinsurance purchasing behaviour are similar to those of non-financial firms seeking coverage. They emphasise that ownership structure plays a crucial role in determining the demand for re-insurance, with factors such as firm size, industry concentration and geographic concentration having a significant impact (Mayers and Smith, 1990). More recent research has supported several factors and added further aspects such as mitigation of agency and bankruptcy costs, portfolio diversification and tax purposes (Shortridge and Avila, 2004; Cole and McCullough, 2006; Bernard and Tian, 2009; Yanase and Limpaphayom, 2015; Altuntas et al., 2018).

Ownership structure influences the approach to managing insurers' earnings volatility; as suggested by Krummaker (2019). Companies with broader ownership, such as widely held listed companies, have more incentives to purchase insurance as it is an important signal to investors, analysts and shareholders. For closely held organizations, protecting equity is more important to owners and stakeholders. Insurance is a means of mitigating the impact and cost of financial distress caused by unsystematic (insurable) risk, thereby reducing the volatility of earnings and hence the likelihood of insolvency (Mayers and Smith, 1982; Smith and Stulz, 1985; Froot, Scharfstein and Stein, 1993).

Furthermore, previous research gives evidence for size as a relevant demand driver. Reinsurance purchase transfers a portion of the insurer's risk to the reinsurer, thereby reducing the probability and/or anticipated cost of bankruptcy (Hoerger, Sloan and Hassan, 1990; Cole and McCullough, 2006). Several studies have examined the impact of bankruptcy costs on the corporate demand for insurance, using size as a proxy. Mayers and Smith (1982) argue that expected bankruptcy costs are less than proportional to firm size, suggesting that smaller companies purchase more insurance. This is because of relatively higher direct costs of bankruptcy and also due to the fact that insurance is able to reduce a firm's bankruptcy probability from a large insurable loss (Core, 1997; Cole and McCullough, 2006). The relevance of the size has also been discussed with regard to export credit insurance (Fitzgerald and Monson, 1989; García-Alonso, Levine and Morga, 2004; Klasen, 2014).

The demand for reinsurance services is also driven by real services that reinsurers provide to ceding companies. These services include claims handling, pricing support and risk assessment, which are critical to efficient operation of primary insurers. Reinsurers often have specialised knowledge and expertise that enables them to manage complex risks and claims more effectively than primary insurers. In addition, economies of scale allow reinsurers to provide these services at a lower cost, further enhancing their value proposition. This expertise and efficiency not only help ceding companies reduce their operational burden, but also contributes to improved risk management and financial stability. Organizations with a less sophisticated risk management approach benefit more from additional services, as they cannot replicate them easily in house. Size often can be used as a proxy indicator as smaller firms or young insurers have fewer dedicated resources and structures to evaluate and manage risk or less balanced portfolios, thus benefit more. The provision of these real services thus plays a crucial role in driving demand for reinsurance, as ceding companies seek to leverage reinsurers' capabilities to optimise their own performance and mitigate potential risks (Mayers and Smith, 1990; Doherty and Smith, 1993; Hoyt and Khang, 2000; Krummaker, 2019).

2.3 THE ROLE AND RELEVANCE OF ECAS

Trade finance is a vital component in enabling international trade. Exporters require sufficient, reliable, and affordable sources of financing as over 80% of global trade relies on loans or risk mitigation solutions. Nevertheless, gaps in financing, insurance, or guarantee coverage result in barriers to exports and FDI, and an insufficient range of commercial offerings. Demand among exporters encompasses both funded and non-funded products (Chor and Manova, 2012; Auboin and Engemann, 2014; Oramah, 2020). Governments play a significant role in bridging market gaps by offering officially supported export credits through equity, loans, insurance, or guarantees. Government interventions through ECAs furnish financial support to firms with international orientations, encompassing pre-shipment, post-shipment and FDI stages (Dewit, 2001; Blackmon, 2016; Chatterjee et al., 2020).

These interventions in trade and investment are aimed at promoting international business and economic growth by reducing market failures and addressing imperfections (Stiglitz and Weiss; 1981; Stiglitz and Walsh, 2006; Krummaker, 2020; Klasen and Schedler, 2024). The traditional principle guiding the intervention is to act as “lenders or insurers of last resort” (Coppens, 2009; Dawar, 2020; Kim, 2020; Jennekens and Klasen, 2022). However, the role of governments in the economy has evolved from marginal to central in recent years. Industrial policy seems to be rising (Peneder, 2017; Criscuolo et al., 2019; Wigger, 2019; Aiginger and Rodrik, 2020; Chang and Andreoni, 2020; Dolfsma and Mamica, 2020). States around the globe have introduced broad toolboxes of economic promotion. Many ECAs are increasingly offering products aimed at “trade creation” or “growth promotion”, indicating a departure from traditional products and dealing with risky markets to create more impact. Certain entities have achieved significant impact by supporting business volumes equivalent to more than 25% of their country’s foreign trade. Previous studies demonstrate that a 1% increase in export credit is correlated with an additional 0.5% to 12% of exports (Morris and Shin, 2006; Greenaway, Guariglia and Kneller, 2007; Badinger and Url, 2013; Felbermayr and Yalcin, 2013; Choi and Kim, 2021).

Current trends show a broader focus on facilitating the internationalization of companies to enable them to succeed in foreign markets. Geopolitical tensions, the “weaponization of trade” and wider socio-political issues are important drivers of this adjustment. Countries are increasingly adopting a holistic strategy, combining different elements of intervention through a “whole-of-government” approach. By combining grants, equity investments and debt instruments such as loans, insurance and guarantees, public financial institutions can leverage each other to finance infrastructure projects and other exports, thereby strengthening industrial sectors. In addition, there is growing recognition of the importance of aligning ECA activities with the Sustainable Development Goals (SDGs), which underscore a commitment to climate action, inclusive trade and economic prosperity on a global scale. With few exceptions, however, ECA claims have been relatively low in recent years (Figure 1). This is surprising, not only because of growing economic pressures and significantly increased political risks, but also because many ECAs are now much more proactive and customer-focused, as well as driven by national economic interests with increased risk appetite.

[insert figure 1 about here]

ECA products are traditionally divided into funded and unfunded products for domestic support, pre-shipment, post-shipment and FDI. Pre-shipment products refer to equity, mezzanine finance, loans, insurance or guarantees provided to exporters prior to the shipment of goods to fulfil an export order. Related products are often innovation and capital expenditure (CAPEX) investments, as well as working capital financing required to carry out specific export transactions. CAPEX is financing used to acquire, improve or maintain capital assets. Working capital financing is financing that companies use for short-term cash needs and day-to-day operations. These offerings can also be import-related, or there are specific guarantee or insurance solutions, for example for critical raw materials. Other pre-shipment products are, for example, manufacturing risk insurance or bid bonds. Post-shipment products include short-term and medium and long-term supplier credit insurance, direct lending through export credits, buyer credit insurance, project finance or sectoral guarantees such as aircraft guarantees. Short-term financing is the use of credit that is repaid in one year or less (two years or less under the definition of the Arrangement on Officially Supported Export Credits (Arrangement) of the Organisation for Economic Co-operation and Development (OECD)). A buyer credit or export loan is a loan provided by an ECA to an exporter's foreign buyer for the purchase of goods or services from an exporting country. Project finance is the financing of projects based on the projected cash flows of the project rather than the balance sheets of its sponsors. Unlike buyer credit guarantees, which require that the financing be used to purchase from the exporter's country, untied offers provide greater flexibility. Investment guarantees are financial protection offered to investors against specific risks such as expropriation, political instability and non-convertibility of currency in foreign investments (Salcic, 2014; Grath, 2016; Klasen and Janus, 2023; Klasen and Schedler, 2024).

3 METHODOLOGY AND CASES

The aim of our study is to identify the factors influencing the reinsurance decision of ECAs and to uncover interdependencies between these factors. We employ an explorative-qualitative approach to add to existing theories and to explore where public sector organizations such as ECAs might differ in terms of decision making and process. The strength of this methodology is its bottom-up perspective and grounding of the emerging concepts in the empirical reality of companies (Gioia, Corley and Hamilton, 2013; Bell, Bryman and Harley, 2019; Krummaker, 2019). Drawing on purposive sampling, participants were intentionally selected to represent a wide diversity of ECAs (Bell, Bryman and Harley, 2019). The selection of cases was guided by several dimensions to explore a wide range of situations and contexts, such as mandates, intervention models, organizational structures, products offered, portfolio sizes, as well as geographical and economic aspects of their country. Our sample includes ECAs from high, upper-middle and lower-middle income countries. The institutions are geographically dispersed. In total, we included agencies and banks from 21 countries in Africa, Asia, Europe, Northern America and Oceania, as well as two multilateral agencies (Table 1).

[insert table 1 about here]

The data collection involved semi-structured interviews in English via online video MS Teams meetings between December 2023 and July 2024. Interviewees included senior executives such as chief executive officers, chief financial officers, chief risk officers and managing directors, as well as senior managers and policy officers. Interviews lasted between 20 and 50 minutes, and recordings and notes were taken for reference. We shared the interview questions in advance to ensure familiarity with more complex or sensitive topics. This semi-structured interview approach enabled us to gather a wealth of qualitative primary data and information. In addition, we collected secondary data by analysing annual reports, policy documents and other relevant. In order to address our research question on how decisions on reinsurance are made and what impacts on these decisions, we followed a thematic qualitative analysis of the data collected. Thematic analysis is a recognised means of evaluating interviews and documents by identifying patterns and holistic perspectives in relation to a particular coded theme (Braun and Clarke, 2006). Following initial data reduction, themes were explored in relation to the coded data and any non-coded data. In line with previous research, a deductive coding phase of the first cycle was followed by an inductive coding phase in a second step. An interpretive approach was used to capture meaning by decomposing the narrative into its constituent parts and then describing the content of each decomposed component (Beck, Campbell and Shrives, 2010).

4 FINDINGS AND ANALYSIS

We analyse ECA interview responses as well as a comprehensive range of documents to uncover the most relevant factors for risk management and reinsurance. Our findings, though emergent from the data in our analysis, are interpreted through the lens of Krummaker's (2019) framework on firms' insurance demand. This approach enables us to assess whether the insights align with existing theory while also accounting for the unique characteristics of ECAs as public entities, which may extend or adapt the framework to better reflect the specificities of public sector organizations.

4.1 INTERVENTION PRINCIPLE

ECAs are traditionally driven by additionality and catalytic effects when it comes to the definition of their risk appetite within their public mandate. The concept of additionality is based on the theory of market failure. It drives the development of the Arrangement, providing a regulatory framework for the orderly use of officially supported export credits without subsidies, seeking to foster a level playing field and preventing a race to the bottom (Coppens, 2009; Dawar, 2020; Klasen and Vassard, 2023). The standard principle of intervention for ECAs is to not compete with commercial institutions in the provision of the product, thereby only filling a need that otherwise would not be met. The doctrine of catalytic finance is guided by the principle that government assistance, for instance for a specific export transaction, encourages private actors to participate in the same transaction. ECAs play a crucial role in mobilising financing from private-sector sources, creating these catalytic effects in export development. While the approach until the early 2000s was often to act only as an "insurer or lender of last resort", the evolving focus is to actively respond to the changing dynamics of world trade. Many agencies and banks have expanded their public mandate over the past five years and are very proactive now in their origination approach as a "trade facilitator" or "trade creator". Some ECAs have even become "growth promoters" due to their role as key players in their country's industrial strategy or climate policy.

There is a consensus among ECAs in the sample on the importance of private reinsurance to support a proactive intervention principle. These institutions, which are actively seeking new markets and trade opportunities as "trade creators" for internationally oriented companies, indicate a higher demand for reinsurance when it comes to effectively managing the associated risks to reduce uncertainty. Conversely, ECAs acting as "insurers or lenders of last resort", or as conservative "trade facilitators", primarily provide support when the private market finds the risks too high or unprofitable, and do not actively seek private reinsurance. These trends are consistent regardless of country risk classification or size of institution, indicating a broad consensus on the strategic use of private reinsurance among proactive ECAs. Several respondents, however, criticise private reinsurers for sometimes not being sufficiently supportive of their proactive approach, particularly for large transactions with longer maturities. This lack of support can hamper efforts to expand into new and riskier areas and limit their ability to facilitate international trade effectively. This leads to the following proposition (1): *Private reinsurance demand is determined by the intervention principle of an ECA*.

4.2 FULL FAITH AND CREDIT SPECTRUM

Full Faith and Credit

It is international best practice for ECAs to rely on full faith and credit of their government, which means that the state bears the obligation to be fully responsible for the actions and resulting financial obligations of its institutions (Klasen and Janus, 2023). ECAs lacking this often have lower credit ratings and insurance as well as capital requirement regulations regarding commercial banks' export financing activities than those which are closely related to a government guarantee for an ECA. There are different approaches: First, commitments create a direct obligation of the government. Second, entities may have an explicit or de-facto legal commitment of the government through a letter of confirmation or the respective legal act. Third, agencies can have full faith and credit for specific activities but not for all commitments. There are several ECAs, often in middle or low-income countries and more recently established institutions, that lack a direct and unconditional guarantee although they are government-owned and have a public policy mandate.

The data show that the presence of full faith and credit of an ECA can influence their private reinsurance strategy. According to interviewees, robust government support combined with strong credit ratings significantly reduces the need for extensive private reinsurance in most high-income countries. In contrast, for ECAs in middle-income countries, the lack of full faith and credit makes private reinsurance much more relevant. Several respondents emphasized that the lack of full government support is a concern, and, in its absence, private reinsurance becomes essential to reduce uncertainty and claims volatility. Interestingly, the data also suggest that the size of the ECA is not a particularly relevant factor related to full faith and credit. As agencies and banks are usually fully owned by their government, several interviewees mentioned that not ownership, but full faith and credit can play a crucial role in determining the demand for reinsurance. This leads to the following proposition (2): *Private reinsurance demand of ECAs is determined by full faith and credit of the respective government.*

Regulation

The ECAs in the sample often operate outside the regulatory frameworks of Basel for banking and Solvency II for insurance. These frameworks are designed to ensure financial stability and sound risk management within the commercial banking and insurance sectors. However, many ECAs are exempt from these regulations due to their unique status as governmental or quasi-governmental organizations often with full faith and credit, creating a relationship between regulation and full faith and credit but not to necessarily to a concise proposition. In high-income countries, few ECAs have policies and procedures in place to comply with Solvency II requirements. Although some agencies are following this regulatory framework, activities related to officially supported export credits are mostly excluded from the calculation of capital requirements. On the other hand, younger agencies and banks or institutions in middle-income countries are often supervised by their central bank or insurance regulator. In addition, most ECAs benefit from various tax exemptions, such as insurance tax, profit tax or corporate income tax. This regulatory and fiscal flexibility allows ECAs to more effectively support national export strategies and fill gaps where private trade credit insurance participation is limited. Another effect of country-level regulatory regimes is legal certainty in ECA buyer countries. Altuntas et al. (2018) show that insurers with more business in countries with low levels of contract enforcement buy more reinsurance. However, the proportion and level of high-risk destinations in ECA portfolios may differ, triggering different levels of reinsurance needs.

Interviewees mentioned a variety of perspectives on the impact of regulatory frameworks and institutional oversight on the demand for reinsurance by ECAs. One institution indicated that the lack of central bank regulation renders such oversight irrelevant to its reinsurance demand. Similarly, another interviewee confirmed that the ECA does not comply with the Solvency II framework, suggesting that it does not drive reinsurance. In contrast, an export-import bank supervised by a banking regulator emphasised the importance of the capital adequacy ratio, suggesting that regulatory capital requirements have an impact on reinsurance strategies. In addition, it was noted that regulators might mandate reinsurance with specific requirements, underscoring the regulatory influence in some contexts. Conversely, one multilateral institution dismissed the relevance of these regulatory considerations to its demand for reinsurance. These findings suggest that while regulatory frameworks such as Solvency II might drive reinsurance demand for some ECAs, the role of regulatory oversight varies significantly. Prior theories are also not fully consistent on the impact of regulation on insurance demand although a relevant strand of literature states that highly regulated and supervised industries and organizations have a lower probability of insolvency, thus their need to (re)insure is lower (Mayers and Smith, 1982; Grillet, 1992; Hoyt and Khang, 2000). The mixed results lead to the following proposition (3): *The existence of an insurance or banking regulatory framework for ECAs can influence the demand for reinsurance*.

Financial Strength

Typically, ECAs receive their funding either through government authorization with allocations from the national budget, or through government-owned shares. Figure 2 shows recent developments of the government authorization of ECAs with data availability. Usually fully owned by their government, this provides a core financial base that is critical to operations. In addition, some agencies and banks expand their financial capacity by accessing capital markets and using various financial instruments to strengthen their balance sheets. This approach allows to diversify funding sources and increase financial resilience. In addition, a small number of ECAs operate special accounts aligned with national interests or policy objectives.

[insert figure 2 about here]

The financial status seems to have limited influence on the demand for reinsurance; with different agencies and banks having different perceptions. Two patterns of behaviour emerge based on country classification: Decision-makers in lower-middle income countries and multilateral institutions indicate that financial constraints are a challenge, and that the financial situation is influencing their reinsurance strategies. This is mainly driven by a lack of full faith and credit, manifested in factors such as a limited ability to take higher retentions or the need for reinsurance to cover high frequency risks. Conversely, interviewees from high-income and upper-middle income countries claim that the financial situation of their agency does not have a significant impact on the decision to insure more or less because a transfer of underwriting risk does not increase their underwriting. In the context of financial strength, this lack of demand can clearly be linked to the existence of full faith and credit of the respective government, because there is limited need to substitute for risk capital. It can be concluded that while reinsurance is important for commercial insurers as a signal to markets about insolvency risk, earnings uncertainty or cost of capital, this seems to be less relevant for ECA as they are mostly not dependent on external funding, are authorised by national budgets, or benefit from full faith and credit of their government. There is no significant difference in the size of institutions which is echoed in previous literature (Froot, Scharfstein and Stein, 1993; Grace and Rebello, 1993; Adiel, 1996; Breeden and Viswanathan, 1998). This leads to the following propositions: *The existence of full faith and credit influences the financial strength* (4a). *The financial status of an ECA can influence the demand for reinsurance* (4b).

4.3 MANAGER DISCRETION

Manager discretion at economic promotion instruments in the public sector relies heavily on theories of public sector governance. Principle-agent theory focuses on the challenges that arise when principals (government) delegate responsibility to agents (public agencies or private agents). Stewardship theory posits that managers prioritise organizational goals over personal gain (Waterman and Meier, 1998; Schillemans and Busuioc, 2015; Pierre and Peters, 2017). In ECAs, managerial decision-making may be constrained depending on the governance model, and some research suggests that public authorities are more risk-averse than public sector organizations (Chen and Bozeman, 2012; Nicholson-Crotty, Nicholson-Crotty and Fernandez, 2017). In several countries, ministers or Interministerial Committees have the power to intervene directly in the activities of ECAs. This intervention of ministerial representatives can range from influencing directions via strategy letters to operational decisions. Government ministries are also often represented at the supervisory board or board of director level of ECAs. Globally, different ECA legal set-ups and ownership models related to manager discretion can be identified. This includes a "ministerial approach", i.e., an ECA as a ministerial department or part of a ministry, a private company, acting as a "private agent" on behalf and for account of the government, a "less independent" ECA, with a distinction of less independent institutions governed by public law, and less independent state-owned enterprises, and a "more independent" entity.

The data shows a spectrum of approaches to the use of private reinsurance among ECAs related to manager discretion. Several interviewees indicated their proactive stances in seeking to transfer credit risk through reinsurance from the private market, highlighting their operational independence and an active risk mitigation strategy. The management of one "more independent" institution recognised the usefulness of private reinsurance in underwriting decisions, demonstrating strong internal support for using private market solutions to manage risk. Furthermore, some interviewees expressed reluctance to take on many risks themselves where private reinsurers play a critical role in supporting better decision making. The majority of ECA managers either use broker houses or deal directly with reinsurers as these methods provide efficient access to reinsurance markets and tailored risk management solutions. Key criteria for selecting brokers for private reinsurance are their expertise in the specific market, their established relationships with leading reinsurers, and their track record of successful risk placement and management. According to interviewees, working directly with reinsurers allows managers for more tailored and potentially more cost-effective reinsurance arrangements. In contrast, "less independent" entities noted that their ministries primarily make transaction decisions; private reinsurance is not a significant consideration, suggesting a more government-centric approach with less reliance on external risk transfer. The same applied for an ECA following the "agency" model, where private reinsurance is not relevant for their government.

These findings suggest that the demand for private reinsurance among ECAs varies according to governance structures and internal attitudes towards risk management; with more independent ECAs with higher manager discretion actively pursuing private reinsurance as a strategic tool, while others with low manager discretion are more influenced by government decision making. Contrary to previous research, which emphasises that public authorities are more risk averse, "ministerial" and "private agent" models, as well as "less independent" agencies and banks, do not seem to require lower levels of claims and earnings volatility, and thus demand less private reinsurance. This leads to the following propositions: *The legal set-up and ownership influence manager discretion of an ECA* (5a). *The private reinsurance demand of ECAs is determined by manager discretion* (5b). It should also be mentioned that legal set-ups and ownerships are often related to full faith and credit of the government for the respective ECA. However, interviewees were not able to specify which direction the influence takes.

4.4 SERVICES OF RISK TRANSFER

The evolution of new total commitments in the sample reflects a diverse landscape related to the size of ECAs. Several countries show significant increases in new commitments in the last decade (Figure 3). Only a small number of ECAs have seen substantial reductions. These upward trends represent the efforts of agencies and banks in the economies to expand the scope and scale of insurance, guarantee, and lending activities, indicating a proactive approach to supporting international business and economic development. They also highlight the dynamic nature of the global trade and investment landscape, and the different strategies ECAs are using to adapt to evolving market conditions and priorities. However, the number of new transactions undertaken has remained relatively stable in most of the countries in the sample.

[insert figure 3 about here]

There are arguments in the data to suggest that the size of an ECA influences the professionalism of its reinsurance strategy. Statements from several senior executives and a reinsurance manager indicate that there are differences depending on the size of the organization. Larger ECAs tend to have more professional underwriting departments and standardised processes for managing reinsurance contracts, risk assessment and claims. This supports the notion that these agencies or banks are using more sophisticated methods to calculate their risk appetite and cost of risk, and to manage risk transfer, which may result in less demand for private reinsurance. Other respondents agreed but stressed that the real services provided by reinsurance companies in terms of risk transfer are the main incentive to purchase reinsurance. In addition, the data in this study suggest that size may serve primarily as a proxy for operational competence in risk assessment and claims management. Several interviewees emphasised that they benefit from reinsurers' expertise in different sectors and that there is a need to exploit this knowledge and experience by effectively optimising reinsurance strategies. This suggests that smaller or medium-sized and younger ECAs with fewer resources and staff expertise benefit more from risk transfer services than larger ECAs, particularly in high-income countries. The importance of additional services related to the purchase of a (re)insurance contract, such as risk assessment, loss prevention and claims management as key motives for smaller organizations is also supported by Mayers and Smith (1982) and (1990), as well as empirical studies by Doherty and Smith (1993), Hoyt and Khang (2000), Cole and McCullough (2006) and Krummaker (2019). This leads to the following propositions: *The size of an ECA influences the relevance of real services* (6a). *The relevance of real services influences ECA demand for reinsurance* (6b).

4.5 BUSINESS DIVERSIFICATION

The data provide additional insights into the influence of the size of an ECA on its reinsurance strategy, particularly related to business diversification. Some results suggest that larger institutions are able to achieve internal diversification, where income and profitability is supported from several lines of business or markets allowing for a better portfolio balance. This is particularly the case for large ECAs with multiple lines of business. However, geographical or sectoral diversification can also reduce the need for reinsurance. Besides prior literature (e.g., Krummaker, 2019), several interviews in the study support this view, suggesting that it is not only the size of the institution that affects the demand for reinsurance, but rather the ability to effectively diversify business sources. As this influence of size differs from previous theories, the ability to diversify and manage risk internally might play a more crucial role in determining reinsurance demand than size alone. It can also highlight the importance of strategic risk diversification in shaping reinsurance strategies of larger ECAs.

The demand for different types of private reinsurance contracts is driven by product offerings. Quota share in the form of treaty reinsurance is most relevant for multi-buyer short-term trade credit insurance. Several interviewees mentioned that at least 50% and sometimes up to 80%, and thus significant percentages, of these risks are reinsured in the private market in order to reduce underwriting risk through risk. For medium and long-term export credit financing, facultative reinsurance is used on a regular basis to mitigate credit risk and minimise the impact of large losses. Interviewees noted that private market facultative reinsurance is particularly relevant for large transactions, subject to a cost-benefit analysis. Reinsurance via treaty agreements is limited for this product category although one interviewee mentioned that its ECA effectively hedges 40% of larger guarantees via private reinsurance. These results transcend country classification and affect ECAs worldwide. Furthermore, private reinsurance remains essential for investment guarantees provided by some public entities. It provides a safety net that enables ECAs to support investment in volatile environments by transferring some of the risk to financially capable commercial entities. Interviewees mentioned that private reinsurers can also sometimes struggle with single risk export transactions involving longer durations or larger amounts in challenging markets according to interviewees. These difficulties might stem from increased global policy uncertainty and potential for significant losses, which can deter private market actors from engaging in high-risk scenarios.

Our findings are in line with previous research on insurers' products showing an impact of the business mix and the demand for reinsurance (Mayers and Smith, 1990; Garven and Lamm-Tennant, 2003; Cole and McCullough, 2006). In particular, claims in long-tail business may take many years to be finally settled and closed. The need for higher reserves in certain lines of business is increasing the demand for reinsurance among ECAs as it allows them to free up capital and manage risks more efficiently. Reinsurance helps these agencies and banks maintain operational flexibility by transferring high reserve risks to reinsurers. This leads to the following propositions: *The size of an ECA influences the opportunity to diversify the portfolio* (7a). *Business diversification influences the demand for reinsurance* (7b).

4.6 OTHER FACTORS

Previous research on reinsurance demand in the context of private actors has highlighted the importance of earnings volatility as a factor influenced by ownership structures at the organizational level and managers' attitudes to risk at the individual level (see, e.g., Krummaker, 2019). However, due to the lack of consistent and comprehensive data on these factors in the context of export credit agencies, this dimension of reinsurance demand could not be assessed in the present study. The findings therefore remain focused on the determinants assessed above, leaving this potentially important aspect for future research.

5 TOWARD A FRAMEWORK OF PUBLIC ORGANIZATIONS' REINSURANCE DEMAND

This chapter develops a conceptual framework to model the demand for reinsurance within ECAs based on empirical evidence and theoretical insights. By identifying and examining critical variables such as intervention principle, the existence of full faith and credit of the government, manager discretion influenced by the legal set-up and ownership, as well as services of risk transfer and business diversification influenced by size of an ECA, this model sheds light on the determinants that drive ECA reinsurance strategies. The influence of regulation and financial strength are less clear. While most of our findings are in line with previous research, we propose several adjustments and extensions to capture public organizations' specifics. The framework is intended to serve as a basis for understanding and predicting reinsurance demand in the public sector, providing a structured approach to assessing the operational contexts that influence reinsurance decisions (Figure 4).

[insert figure 4 about here]

5.1 FRAMEWORK DIMENSIONS

The expanded framework, building on Krummaker (2019), focuses on key dimensions that are particularly relevant for public entities or organizations acting as agents of the government, such as export credit agencies. Given the role of ECAs in providing insurance and financing to exporters, the framework outlines how these dimensions influence their participation in global reinsurance markets. This extension does not contradict the original framework, which also incorporates empirical evidence from private insurers and non-financial services companies.

The intervention principle addresses the strategic orientation and risk appetite of ECAs, reflecting their role in fulfilling public mandates. Traditionally, ECAs fill market gaps by underwriting risks that private sector insurers are unwilling to take, thereby creating additionality in trade finance. The intervention principle captures the continuum of ECA roles, from "insurers of last resort" to "trade facilitators", proactive "trade creators" and "growth promoters". ECAs that play a proactive role in facilitating trade and developing industrial strategies face increased demand for reinsurance as it enables risk transfer and expansion into new, riskier markets. Conversely, ECAs that act primarily as "insurers of last resort" require less reinsurance because of their limited exposure to riskier transactions. Thus, the intervention principle is a fundamental determinant in the model of reinsurance demand, with greater ambition in market facilitation correlating with greater reliance on private reinsurance.

The presence or absence of full government support emerges as a critical variable influencing reinsurance demand. ECAs with full government guarantees tend to have higher credit ratings, reducing their need to seek private reinsurance to mitigate risk. In contrast, ECAs without full sovereign backing, particularly those in middle-income and emerging markets, face increased demand for reinsurance to compensate for the absence of government guarantees. In these cases, reinsurance serves to stabilise financial operations and manage underwriting risks. The model suggests that full faith and credit is a key determinant, with ECAs without full support more likely to seek private reinsurance as a substitute for the security provided by government guarantees.

The managerial discretion dimension reflects the legal set-up, ownership and governance structure as well as operational autonomy of ECAs, which in turn affects their reinsurance strategies. ECAs with greater managerial autonomy, often structured as independent entities, tend to be more active in private reinsurance markets, as their autonomy allows them to tailor risk management solutions to their strategic needs. In contrast, ECAs with limited managerial discretion, usually under direct government supervision, have lower reinsurance demand due to centralised decision making aligned with government risk preferences. The model suggests that greater managerial autonomy is driving reinsurance demand, as it facilitates proactive risk management and strategic engagement with private reinsurers.

Finally, the model incorporates business diversification and reliance on risk transfer services as key determinants of reinsurance demand. Larger ECAs, particularly with portfolios diversified across different products, often require less reinsurance due to their ability to internally diversify risk. Conversely, smaller or less diversified ECAs rely more heavily on reinsurance to access specialised risk management services such as risk assessment, claims management and underwriting support. Business diversification thus acts as a moderating variable, with ECAs with less diversified portfolios being more dependent on reinsurance for both risk transfer and additional risk management services.

The regulatory environment, which includes frameworks such as Basel for banks and Solvency II for insurers, plays a complex role in shaping the demand for reinsurance among ECAs. While many ECAs operate outside these regulatory frameworks, oversight varies significantly across jurisdictions, particularly for ECAs in middle-income countries that are supervised by central banks or insurance regulators. In these contexts, reinsurance can be used to meet regulatory capital requirements. On the other hand, ECAs that are not subject to such regimes often have less demand for reinsurance as they do not have to meet stringent capital requirements. Regulatory oversight is therefore presented as a variable with a differential impact on reinsurance demand, with the degree of regulatory compliance influencing the use of reinsurance as a risk management tool.

The same applies for the financial strength. While many ECAs rely on direct government support as their primary funding base, others enhance financial capacity through capital market access and specialised financial instruments. The role of financial strength varies, shaping reinsurance demand differently. ECAs in lower-middle-income countries and multilateral institutions face financial constraints, prompting higher reliance on reinsurance for risk management due to limited retention capacity and restricted government guarantees. Conversely, ECAs in high-income and upper-middle-income countries, benefiting from full faith and credit, exhibit reduced reliance on reinsurance, as government backing mitigates the need for external risk capital.

5.2 IMPLICATIONS AND RECOMMENDATIONS

Our framework conceptualises reinsurance demand of ECAs as a function of key institutional and strategic dimensions. By structuring these determinants into a coherent model, the framework provides a basis for understanding reinsurance demand in different ECA contexts. Given the integral role of ECAs in supporting international trade and investment, governments are encouraged to strengthen their support frameworks, particularly for ECAs that do not have full faith and credit guarantees. By providing explicit government support, either through financial guarantees or legislative support, governments can reduce the need for ECAs to seek reinsurance solely as a risk mitigation measure. This would allow ECAs to focus on expanding their reach and supporting exporters, particularly in high-risk markets where government-backed insurance is essential. Governments should also consider incentivising collaboration between ECAs and private reinsurers by fostering an environment that facilitates the transfer of knowledge, risk management practices and technological advances in underwriting and risk assessment.

ECAs themselves should improve their internal risk management practices by using private reinsurance not only as a risk transfer tool but also as a mechanism to access real services such as risk assessment, underwriting expertise and claims management. ECAs with a high degree of managerial discretion and a proactive intervention policy should explore tailored reinsurance solutions that are in line with their strategic mandates, allowing them to take on more ambitious projects without compromising financial stability. Smaller or less diversified ECAs, which often lack the operational sophistication of larger institutions, can particularly benefit from these real services to better manage their underwriting and claims processes. Developing partnerships with reinsurers can help ECAs adopt innovative reinsurance structures suited to their specific operational needs.

For private reinsurers, working closely with ECAs offers a valuable opportunity to diversify their portfolios by taking on government-backed risks that are different from traditional commercial insurance. This collaboration allows reinsurers to tap non-marketable risks, which are often characterised by lower default rates due to government backing, thereby stabilising their risk profiles. Reinsurers should consider tailoring products to meet the specific needs of ECAs, including sovereign cover and long-term political risk insurance that is consistent with the public mandates of ECAs. By expanding their product portfolios to meet the unique needs of the trade finance and investment sectors, reinsurers can position themselves as key partners for ECAs and benefit from stable, long-term relationships.

Reinsurers are also encouraged to assist ECAs in claims management and risk assessment, providing expertise that smaller ECAs may lack. This could include the development of common protocols for claims handling, shared risk analysis platforms, and the provision of training programmes to enhance ECAs' ability to manage complex risks. Such strategic collaborations would not only strengthen ECAs' risk management frameworks, but also solidify the role of private reinsurers as trusted advisors and partners in the trade finance ecosystem. By investing in these relationships, reinsurers can foster greater alignment with government-backed entities, enhancing both their market relevance and their contribution to global trade stability.

6 SUMMARY AND CONCLUSIONS

The purpose of this study was to examine the factors influencing private reinsurance demand among export credit agencies, addressing a critical gap in the literature on how these public institutions manage risk. With export credit agencies and export-import banks providing $2.5 trillion of payment risk protection globally in 2023, their strategic reliance on reinsurance to manage underwriting risks, support exporters and mitigate fiscal burdens is increasingly important. Our research focused on the following question: *What are the drivers of private reinsurance demand from ECAs*? By analysing data from 21 countries across a range of income levels and geographies, the study developed a comprehensive framework that sheds light on the determinants of ECA demand for reinsurance.

The results show that reinsurance demand is driven by a combination of institutional and operational factors. Key elements include the intervention principle, the presence or absence of full faith and credit backing, managerial discretion, services of risk transfer and business diversification. The proposed framework shows that proactive ECAs acting as "trade creators" or "growth promoters" require reinsurance to manage the risks associated with ambitious trade facilitation goals. Similarly, ECAs without full government guarantees rely on private reinsurers to enhance financial stability. The implications are profound: Governments should consider strengthening ECA support frameworks, while ECAs need to optimise their use of reinsurance to align risk management strategies with their mandates. For private reinsurers, understanding these drivers is key to tailoring services and products to ECA-specific needs. The propositions are summarized in Table 2.

[insert table 2 about here]

This research makes a significant contribution to the fields of trade finance and insurance demand by extending theoretical insights into reinsurance demand to the public sector. While previous studies on insurance demand have predominantly focused on corporate insurance, this study provides a nuanced understanding of how ECAs, as public institutions, navigate risk management within unique operational and governance contexts. The proposed framework provides a valuable tool for policymakers, ECA managers and reinsurers to evaluate and improve risk-sharing mechanisms. It also bridges the gap between academic research and industry practice, providing actionable insights that address the dynamic challenges of global trade and investment.

The study has limitations that point to avenues for further research. The qualitative approach, while rich in detail, limits the generalisability of the findings. Future studies could use mixed methods approaches to quantitatively test and refine the proposed framework. In addition, longitudinal research could explore how reinsurance demand evolves in response to global economic, geopolitical and environmental changes. Other factors such as earnings volatility and managers' individual risk attitudes can be other aspects for future research. Exploring the supply side of private reinsurance markets for ECAs, including reinsurers' strategies and constraints, would further enrich the understanding of this critical aspect of global trade finance. These directions promise to deepen theoretical and practical insights into the interplay between public institutions and private risk markets.

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Tables and Figures

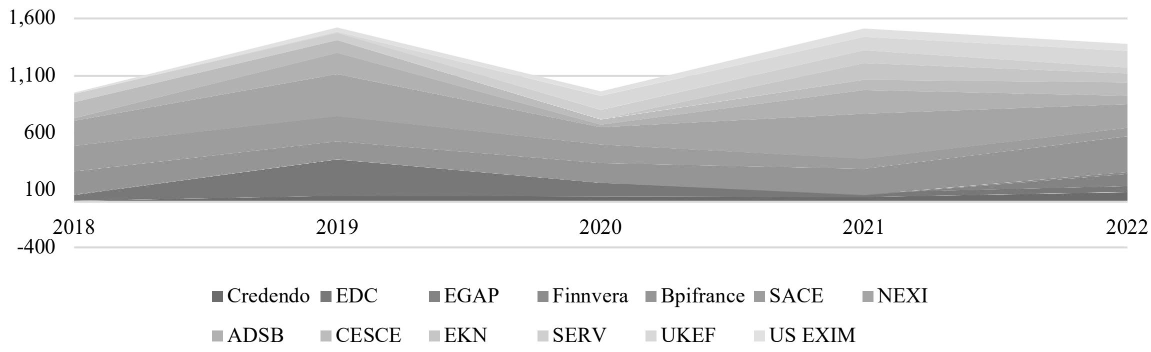
Table 1: Study Participants

Country	Institution	Abbreviation
Australia	Export Finance Australia	EFA
Austria	Oesterreichische Kontrollbank	OeKB
Belgium	Credendo	Credendo
Canada	Export Development Canada	EDC
Denmark	Export and Investment Fund	EIFO
Egypt	Export Credit Guarantee of Egypt	EGE
France	Bpifrance	Bpifrance
Germany	Euler Hermes	EH
India	Export Credit Guarantee Corporation of India	ECGC
Japan	Nippon Export and Investment Insurance	NEXI
Korea	Korea Trade Insurance Corporation	K-Sure
Kazakhstan	KazakhExport	KazakhExport
Mongolia	Mongolian National Reinsurance	MongolianRe
Norway	Export Finance Norway	Eksfin
Spain	Compañía Española de Seguros de Crédito a la Exportación	CESCE
Sweden	Exportkreditnämnden	EKN
Switzerland	Swiss Export Risk Insurance	SERV
Türkiye	Export Credit Bank of Türkiye	TürkEXIM
United Arab Emirates	Etihad Credit Insurance	ECI
United Kingdom	UK Export Finance	UKEF
United States	Export-Import Bank of the United States	US EXIM
Multilateral	African Trade & Investment Development Insurance	ATIDI
Multilateral	The Arab Investment and Credit Guarantee Corporation	Dhaman

Table 2: Propositions

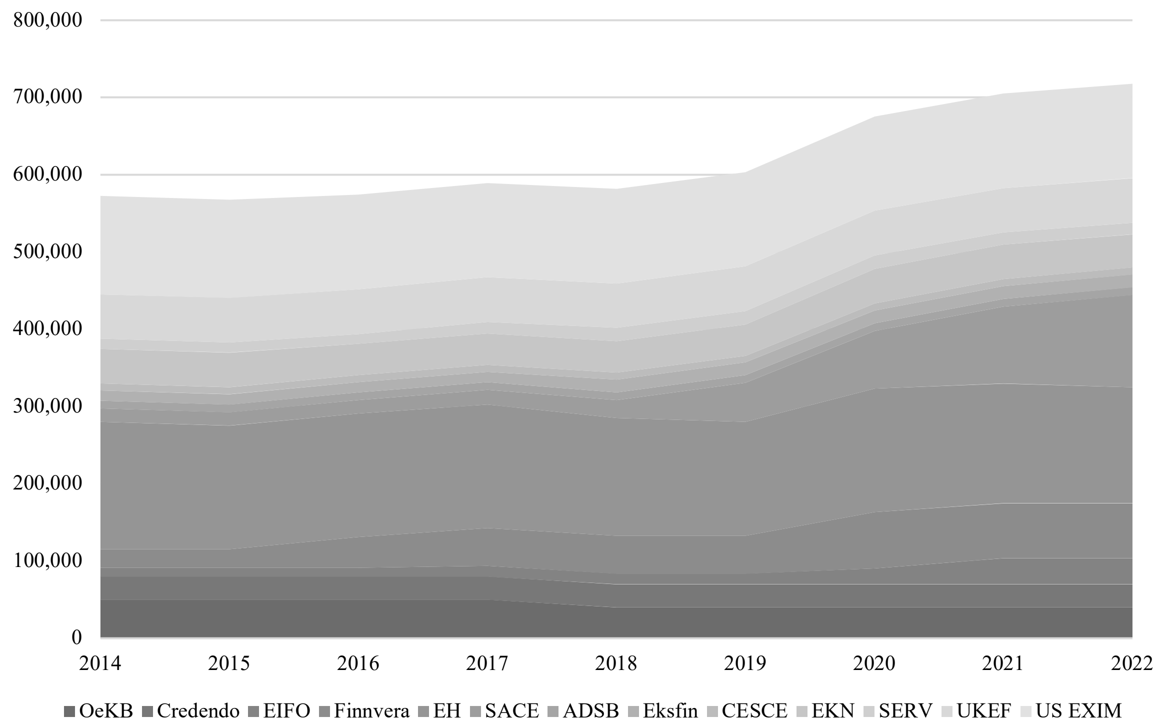
#	Proposition
1	Private reinsurance demand is determined by the intervention principle of an ECA.
2	Private reinsurance demand of ECAs is determined by full faith and credit of the respective government.
3	The existence of an insurance or banking regulatory framework for ECAs can influence the demand for reinsurance.
4a	The existence of full faith and credit influences the financial strength.
4b	The financial status of an ECA can influence the demand for reinsurance.
5a	The legal set-up and ownership influence manager discretion of an ECA.
5b	The private reinsurance demand of ECAs is determined by manager discretion.
6a	The size of an ECA influences the relevance of real services.
6b	The relevance of real services influences ECA demand for reinsurance.
7a	The size of an ECA influences the opportunity to diversify the portfolio.
7b	Business diversification influences the demand for reinsurance.

Figure 1: ECA Claims (€ million., 2014-2022)



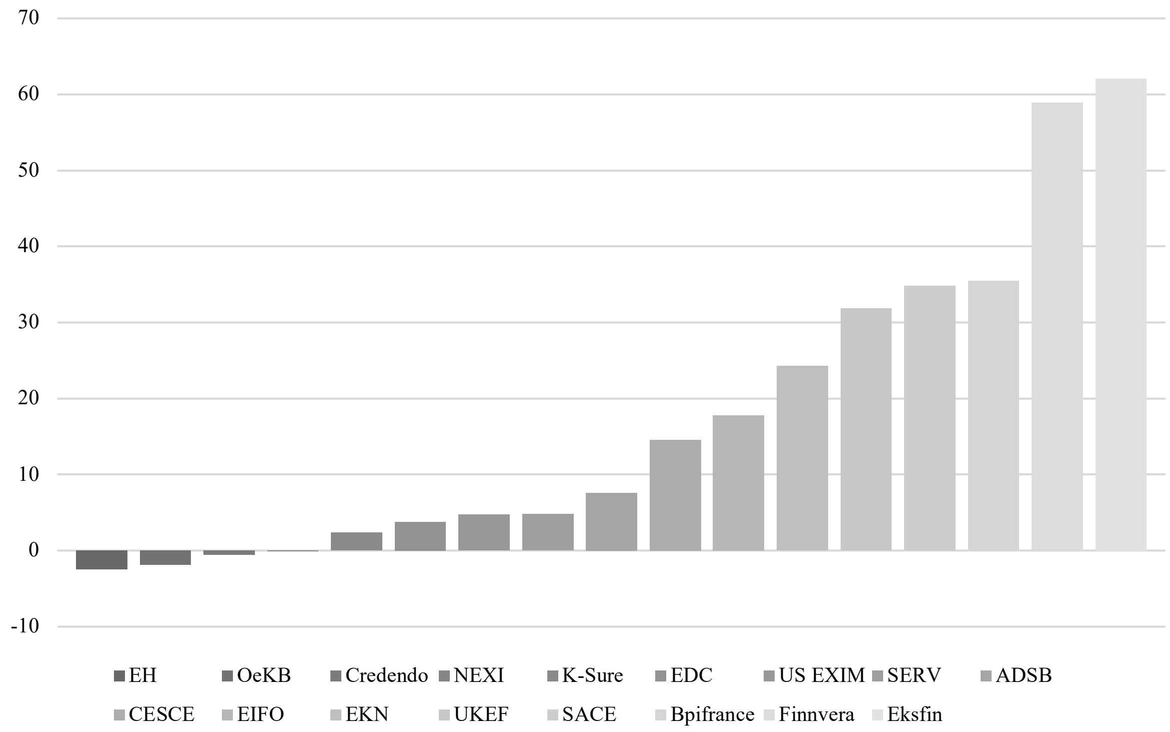
Source: Developed for this research based on respective ECAs.

Figure 2: ECA Authorisation (€ million., 2014-2022)



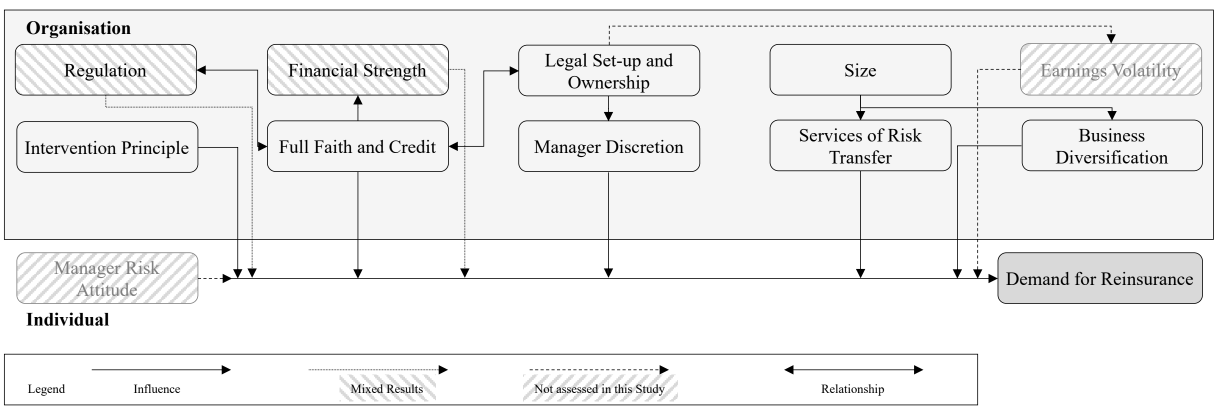
Source: Developed for this research based on respective ECAs.

Figure 3: ECA New Commitments (average annual growth in %; 2014-2023)



Source: Developed for this research based on respective ECAs.

Figure 4: ECA Reinsurance Demand Framework



Source: Developed for this research.