ATRX STRATEGY & ECONOMICS

INTERNATIONAL FINANCIAL CONSULTING

northumbria UNIVERSITY NEWCASTLE

Newcastle Business School

Assessment of the Operation, Impact and Risks of the Officially Supported Export Financing System and State Guarantee Granted for the Fund Acquisition of Export Credits

Report

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Executive Summary

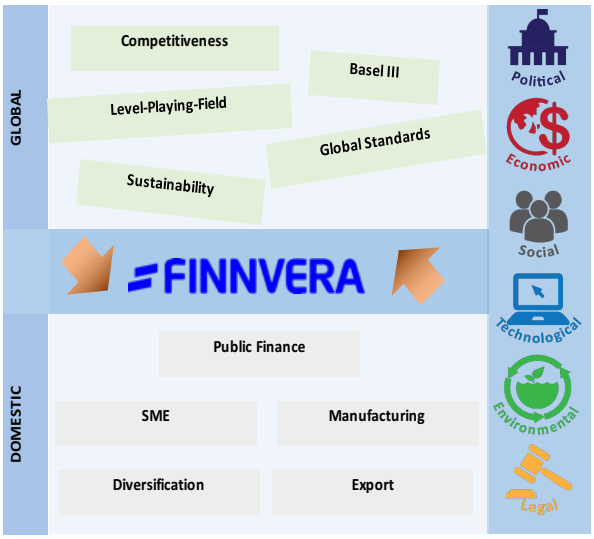
Finnvera (FV) is a specialised financing company owned by the State of Finland and under the supervision of the Ministry of Economic Affairs and Employment (MEE). FV's main goal is to promote the competitiveness of Finnish enterprises by providing financing solutions. As Finland's official export credit agency (ECA), Finnvera offered export credit guarantees and special guarantees worth €6.5 billion in 2015, covering 4.3% of Finland's total exports. FV's subsidiary Finnish Export Credit Ltd. (FEC) facilitates financing for export credits and ship credits. FEC also administers Finland's official interest equalisation system. ATRx, IFCL and NU (the Consultants) have been assigned to assess the "operation, impact and risks of the officially supported export financing system and state guarantee granted for the fund acquisition of export credits" in November 2016.

The assignment commissioned by the MEE includes an assessment of selected aspects of FV's export financing operations (sub-task 1), a discussion of the impact of export financing and adequacy of assessments (sub-task 2), the risk assessment of export financing including the state guarantees (sub-task 3), and the drawing of conclusions and making recommendations (sub-task 4). The overall goal of the assessment is to look at selected ways to improve Finland's export financing system in order to increase impact and to manage related risks. The purpose is to "obtain an impartial assessment on how Finland's current export financing system should be developed", and how "related risks are sufficiently managed". The evaluation "is not meant to be an overall description" and full assessment. Rather, the focus is on how to meet challenges arising from the structure and the operation of the finance market with a focus on risk management.

Context and Environment

Export oriented countries benefit from improved allocation of scarce resources, advantages of sharing know-how as well as more innovation. Trade promotion is an essential part of the policy strategy of many countries. Government credit insurance schemes play an important role in financing and insuring export business, and there is a significantly positive effect of insured or directly financed transactions on trade. Although trade performance alone is not an indicator for being a competitive nation, a causal link

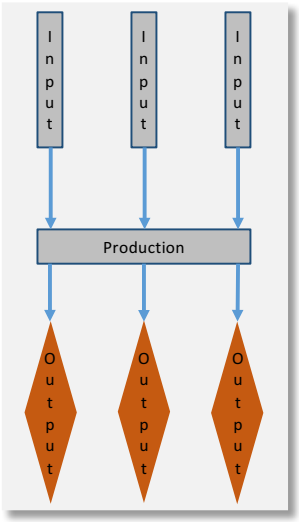
FV and the Competitive Nation



between ECA support and merchandise exports as well as job creation has been discussed by several scholars. Domestic and global drivers such as the consideration of public interest, Basel III and support for small and medium-sized enterprises (SMEs) are key as well for export credit agencies such as Finnvera.

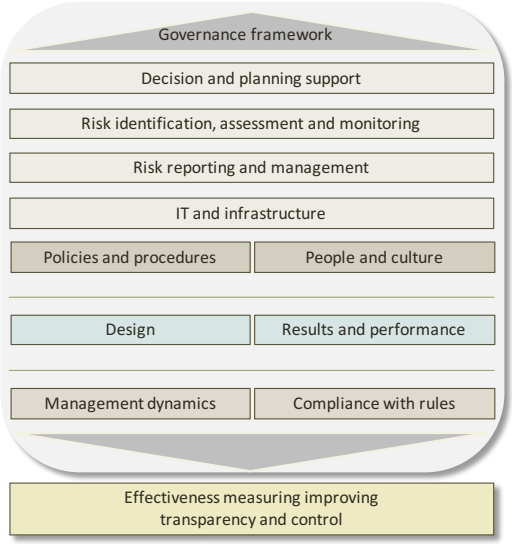
When firms export their products and services or set up foreign manufacturing operations, they are exposed to several dimensions of risk: Political risk, commercial risk, currency exposure as well as cross-cultural risk. Exporters often require insurance cover for political and commercial risks linked to export transactions. International trade is also strongly connected with a well-developed and functioning financial environment. Financing is crucial for trading partners in order to bridge the time lag between export order and payment for goods and services produced. With an increasingly short-term nature of private financial markets, the role of government agencies and public financial institutions has become more important. Innovative and integrated government financing instruments have the potential to substantially support the competitiveness of companies in the global economy. To ensure relevance and a continued capacity to support the international competitiveness of domestic companies, effective economic promotion measures require regular impact assessments. A common approach employed to assess impacts adopts the input-output modelling of economic impacts. These occur at three levels: direct, indirect and induced impacts.

Input-Output Analysis



While ECAs are instruments for export promotion in their countries, they are also fundamental financial institutions operating as insurers or lenders, or both. Similar to commercial organisations, ECAs require a robust risk management framework and systems or enterprise risk management (ERM) linked to business strategy and objective-setting in order to identify, assess, monitor and manage their risks. However, many ECAs still have not developed their risk functions as there is no global regulatory framework. Risk control and accounting is heterogeneous and often subjective, e.g. following IFRS, Basel or Solvency II or simple state guarantee approaches. Few ECAs have advanced in developing an economic capital

Enterprise Risk Management (ERM) in Insurance Companies



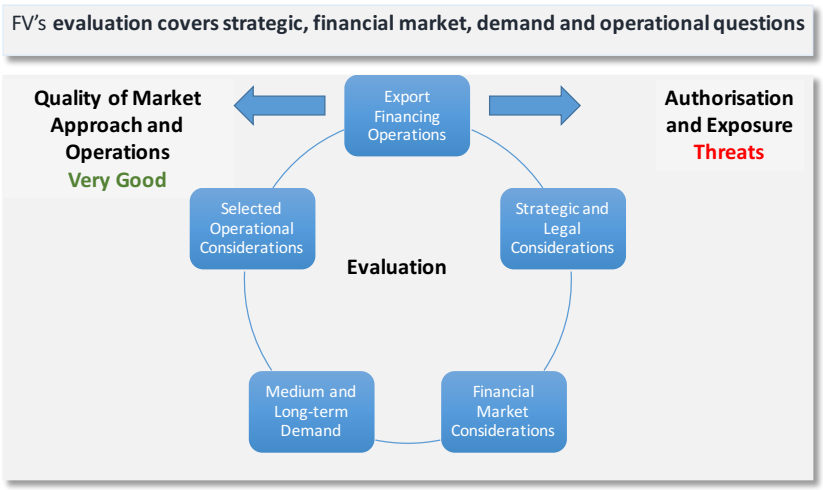
model, which is recognised as the minimum regulatory capital requirement, even if the government is the ultimate backer.

Assessment

Finland is a small and open economy with a government focused on building a global marketplace. Although having an enormous potential for economic growth, the country's output is stagnating at a low level since the 2007-8 financial crisis. Compared with previous recessions, export and imports contracted much deeper and more broadly-based with foreign trade values declined for all key goods categories and trading partners. In order to foster growth through trade, Finland has established a comprehensive export financing system. FV acquires its funds mainly from the capital market. By providing guarantees, insurance and financing, FV's role is to promote the business of start-up and growth enterprises, as well as companies focusing on exports and foreign direct investment (FDI). This assessment focuses on Finnvera's export related services.

Export Financing Operations

The assessment looks at the functionality of the public system in the long run, estimated financing demand, faults and positive aspects of the system, and the private sector engagement in export financing (sub-task 1). The different aspects and perspectives of the assigned evaluation are covered through the following four dimensions:



Strategic and Legal Considerations

With regard to export credit support, MEE's Enterprise and Innovation Department is responsible for Finnvera's industrial policy steering. The MEE ascertains that FV's corporate strategy is in line with the policy goals of the Finnish government and the ministry. Looking at **policy goals and**

supervision, our evaluation shows the following: Strategic goals set by the Ministry of Economic Affairs and Employment seem to be too broad. More specific criteria focusing on innovation and high-value exports are missing. Finnvera's strategy is in line with MEE's general policy goals, and FV has implemented a strong vision, mission and values to increase Finnish exporters' competitiveness. MEE successfully manages supervision and monitoring roles assessing the implementation. However, MOF and Treasury expect a better involvement and understanding.

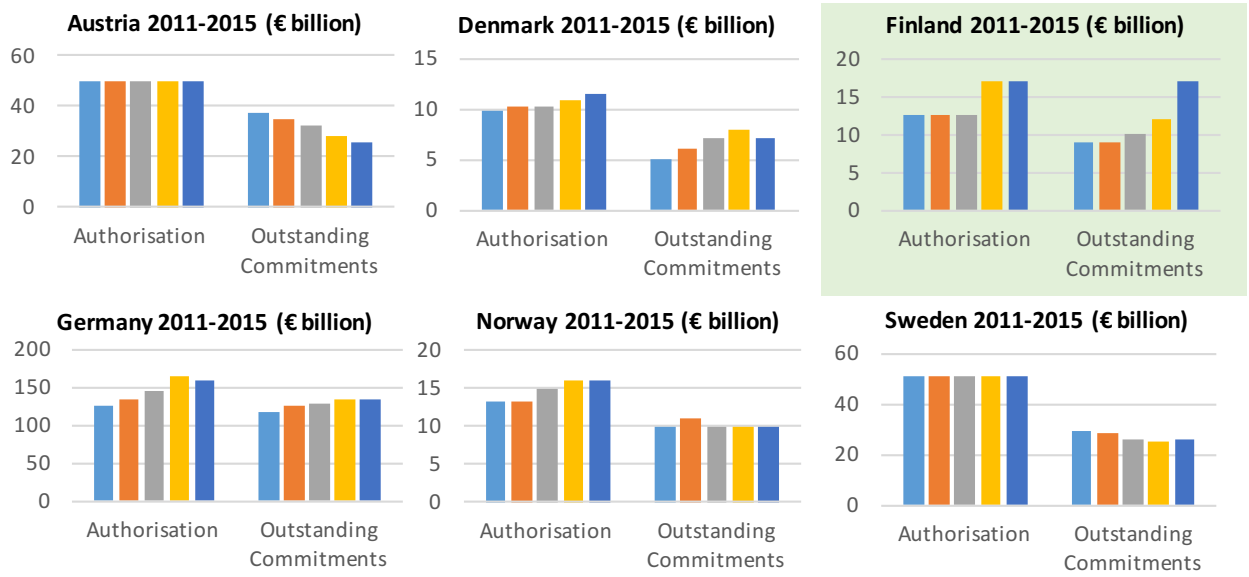
Finnvera's **legal framework** is based on several international, European and national disciplines and regulations. According to our evaluation, international disciplines binding on Finland are taken into account when export credit guarantees are granted. Finnvera is an active participant and strong supporter of international rules and global standards. Exporters recognise that FV's contribution is supporting the goals of the relevant Finnish Parliamentary acts. FV's national content policies are less prohibitive compared with many other ECAs. However, the current status is not very transparent, and there is no consistent understanding of the Finnish interest policies at different stakeholder level.

Financial Market Considerations

Finnish corporate financing remains bank-centred. The banking sector in Finland shows good results and strong capital adequacy despite a weak economy and a challenging market environment. Although the health of financial systems improved especially after 2012, our assessment shows that Finnish banks are less or not willing to provide **export financing**, and exporters must rely on foreign banks. However, even still, there is a lack of interest and thus credit offering from the side of foreign banks as well. Despite improved lending conditions with comparatively low borrowing costs for banks active in export finance in European markets, transaction costs are considered too high, and cross-selling does not offer great potential. Interviewees mention a substantial market failure for export credits both for very large transactions and small tickets, in particular with longer maturities and in risky markets. This is also related to the challenges of Basel III and amended capital requirement, in particular under the non-risk based leverage ratio.

Authorisation and exposure are two main measures for an analysis of the level of government support and business development, but also for demand and portfolio risk management. Our evaluation shows that there are significant increases of Finnvera's authorisation, and FV provides large amounts of export credit guarantees and special guarantees. In other European countries such as Austria, Germany and Sweden, there is either a relatively stable development or a decrease in authorisation and/or exposure. Finnvera's lack of portfolio diversification is obvious, but there is no short-term alternative due to required support for ship financing in order to compete with foreign shipyards.

Authorisation and Outstanding Commitments (€ billion)



Finnvera's competitive position in use of the commercial interest reference rate (**CIRR**) is largely driven by the creativity/flexibility with respect to CIRR's application. The construction of the CIRR is clearly defined in the OECD Agreement. However, the application of the CIRR varies by country, there is room for interpretation and limited harmonisation of approaches. With regard to CIRR cost and FV's competitive position, there is an inherent cost to the free optionality offered by FV in offering and fixing the CIRR prior to disbursing a loan. In a low interest rate, low volatility of interest rates environment has been the case in the last years, there is a significant risk facing the State Treasury should rates go up. The cost of this risk is best measured by the intrinsic cost of options, should Finnvera have purchased these hedges. FEC states these free options are offered under competitive pressure and risks associated to them pointed out to MEE and State Treasury.

In 2015, Finnvera introduced a **'refinancing guarantee'** in addition to the buyer and supplier credit offering. A refinancing guarantee is an important instrument for ECAs to address market failure. However, the introduction in Finland was too late for this addressing. The pricing for refinancing guarantee might be appropriate, but is not attractive for commercial market participants.

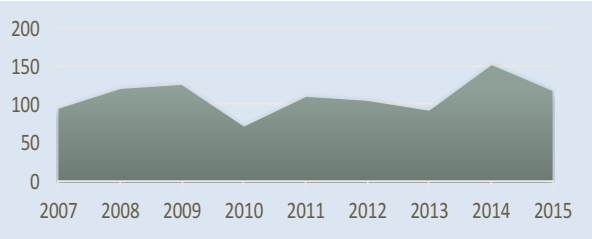
Finnish Corporates' Medium and Long-Term Demand

With regard to Finnish corporates' medium and long-term demand in the context of export financing operations, the Consultants examined FV's functionality in the long run based on estimated financing demand in the near future for core Finnish export industries. Looking at the **enterprise landscape and government support**, Finland has many strengths, and SMEs are the backbone of the economy. In addition to financial constraints, there are challenges regarding start-ups as well as innovation and R&D creating doubt for a successful development of a knowledge-

based economy in the future. The Finnish government successfully works on a coherent strategic ecosystem, for example with the creation of Team Finland.

Interviewees mention that **SMEs** show an increasing demand for public support, in particular with regard to **small transactions**. Despite substantial efforts, FV's intervention for SMEs is stagnating and seems to address the sector only partially. Interviewees emphasise the need of a fully-fledged direct lending programme for SMEs. As there is an ongoing discussion in other countries about direct lending programmes, also in combination with innovation funds, there can be also a future need to neutralise rival export credit agencies although SME direct lending entails accepting increased risk levels compared to present risk levels. Interviewees comment that the structure with FEC and the financial institution arranging the credit via a co-operation agreement and supplemental agreements for every single transaction can be a deterrent for small and medium-sized enterprises. The same applies for the combination of borrower base rate, FEC margin, handling fee and commitment fee.

Finnvera's SME Export Guarantees (€ m)



For **large transactions**, decreasing levels of demand in OECD countries reflect the availability of sufficient medium and long-term funding capacity in the commercial bank and debt capital markets. On the other hand, emerging economies such as China and Brazil have substantially increased volumes over the past five years. Export credit financing for cruise ships is expected to remain high, and all interviewees expect no substantial change of market offering. A fully-fledged direct lending programme should also be considered for large transactions.

Selected Operational Considerations

Assessing Finland's public export financing system function with regard to selected operational considerations, the benefits and limitations of the current system were examined. The assessment covers selected strengths and weaknesses with regard to the client performance, but also looking at process and organisational perspectives as well as product offerings.

- **Customer Perspective**: Finnvera's strategy is client-focused with professional and competent service aiming at the best customer experience in the reference group. However, interviewees mention a lack in proactivity and a defensive risk attitude. Some midsize and large exporters perceive that they are partly neglected by Finnvera.
- **Organisational and Process Perspective**: The "one-stop-shop" integration of Team Finland is a benefit for the client. Targeting SMEs via a national network of offices and a special unit is viable. However, international presence targeting buyer countries could be

improved, for example with representative offices. Interviewees mention that documentary requirements can slow the process down.

- **Product Perspective:** Finnish exporters benefit from a broad and competitive product portfolio. Interviewees mention that Finnvera is very innovative in developing new products focusing on exporters' needs. A fully-fledged direct lending offering would be highly appreciated but is missing.
- **People Perspective**: Finnvera has qualified and committed staff as well as low fluctuation. Interviewees mention FV's ageing workforce as a challenge because one in five of employees will retire within the next five years

Economic Impact Measurement

With regard to the economic impact of export financing in Finland, the assessment examines whether the goals set in the Parliamentary Acts have been met not only from an individual exporter's view, but also more globally (sub-task 2). This assessment assesses earlier impact reports, looking at the kind of impact but also examining whether the impact of export financing has been measured in a sufficient way.

Appropriate Approach Goals/Impact

Our assessment finds that an appropriate approach exists to support the internationalisation of Finnish enterprises, competitiveness and support export financing for growth. Traditional metrics tracking economic impact are well covered within existing studies (standard indicators like employment creation, production outputs and enterprise creation track the quantifiable impacts generated by FV's activities). As a result, goals identified within the Parliamentary Acts are broadly met. Goals are broadly defined with flexibility and room for interpretation, and specific criteria on innovation and competitiveness absent. Evidence of considerable direct, indirect and induced economic impacts is demonstrated. The measurement of existing economic impacts is appropriate and comprehensive in tracking for a range of wider impacts.

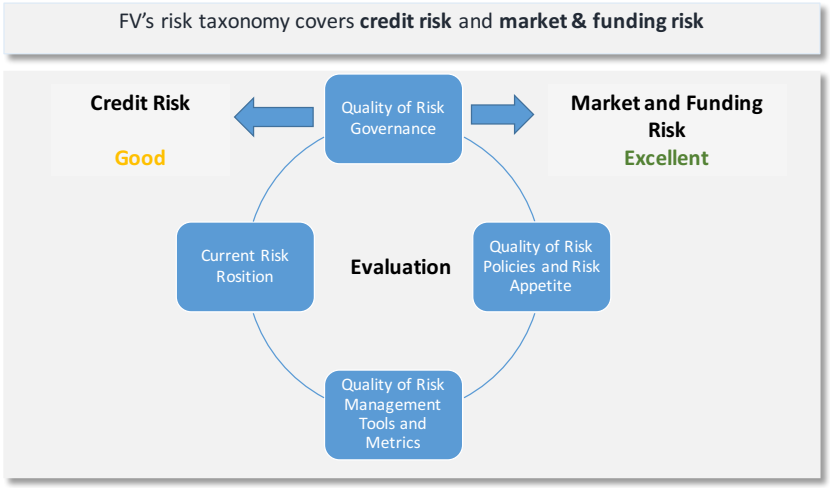
Sufficient Measurement

With regard to sufficient measurement, conventional measures of economic impact are appropriately covered within existing assessments. A primary focus on quantitative impacts, while important, may miss out on qualitative or intangible impacts occurring as a result of Finnvera's activities. Existing studies, for example, do not appear to sufficiently capture the hidden innovation occurring in the Finnish export sectors through participation in international markets. In addition, there is a need to track qualitative impacts alongside the conventional quantitative metrics. There is also a need to identify transitory (short-lived) impacts alongside the more persistent (long-

lived) impacts to meet policy goals. Finally, some areas for improvement to enhance current impact assessments have been identified.

Risk Management

This assessment also looks at FV's optimal way of risk management, the appropriate way of fund acquisition and the investment risks and risk concentrations with a perspective of the systems used by competing countries. In addition, the question of total state risk and state balance with regard to large export deals and state-backed guarantees is discussed. As a result, Finnvera's risk management compares favourably, not only to their ECA counterparts, but even compared to commercial bank best practices.



Quality of Overall Risk Governance

The quality of Finnvera's risk governance is excellent. Finnvera has in place all the necessary policies, practices and procedures required by international best practices

Market and Funding Risk Management

The quality of Finnvera's market risk policy and risk appetite is adequate. Finnvera has developed risk limits for all elements of market and funding risks (liquidity risk, interest rate risk, FX risk) and is managing these risks. For example, Finnvera is very liquid as its current liquidity profile (plotting current and committed business) - barring unforeseen credit losses - shall not cause cash deficits until the end of 2022.

Dimension	Evaluation
Quality of risk policy / risk appetite	• Pursues maturity matching • Conservative approach as includes disbursed loans, and lending commitments • Funded by MTN program with State Guarantee • Cash flow forecast tool used is simple but dynamic
Quality of risk management tools and metrics	• Cash flow forecast tool used is simple but dynamic
Current risk position	• Very comfortable liquidity position • Barring unforeseen credit losses, no cash deficits until end of 2022

Finnvera's economic capital framework currently only covers the credit counterparty risk and it has yet to aggregate individual risk limits for market and funding risks into its global risk framework. Such an integration would allow Finnvera to have a holistic view on risk and risk appetite. Finnvera is explicitly stating that it is not an active risk taker on the market risk side but rather an institution hedging its risks.

Credit Risk Management

The quality of Finnvera's credit risk management is adequate. At the portfolio management level, the Risk Policy is adequate for now but should integrate the prospective growth of the loan book. Risk metrics and tools are adequate. The quality of its individual credit risk assessment is strong, comparable to best in class commercial banks. Finnvera has developed a risk appetite taking into account: 1) expected losses (the average amount of credit losses through an economic cycle); 2) unexpected losses (the volatility of expected losses to cover tail risk); and 3) concentration limits on country and obligor level.

Risk Framework

Indicator	Risk Appetite/Limit	Actual 31.12.2015
Expected Loss, EL	Max net income before guarantee losses; committed exposure	EL €83 m vs. net income € 89 m
Total exposure, VaR 99	Max 90% of capital; Finnvera and State G. Fund	VaR 99 was €1,130 m, 85% of capital
Share of a single exposure	LGD x Exposure < 50% of total capital	Tui Cruises 51%, others below 50% level
Share of a single political risk country	Max 10% of total exposure	Brazil 10.5%, Russia 9%
Risk contribution on a single risk concentration	Max 10% of total exposure	Tui Cruises 25%, others below 15%
Sum of a political risk country's risk contributions	Max 20% of total exposure	Brazil 19%, Russia 3% (Germany 26%)

Capital Management and Capital Adequacy

Finnvera uses an economic capital framework to manage its risks. However, the concentrations in its portfolio in terms of sectors and single obligors means that Finnvera is vulnerable to a single event wiping out its capital.

Effects on State Risk and Risk Balance

Using an economic capital calculation, Finnvera currently has sufficient capital available to cover the credit risks it assumes. Assuming full utilisation of the new authorisations, Finnvera would need around €2.6 billion of capital (or an additional €1.3 billion on top of existing levels), as a buffer, to maintain its implicit standalone credit rating of BBB-, assuming a recovery rate of 55% and a stand-alone BBB- target. The following table applies in terms of economic capital (€ billion):

Capital Required to Support New Authorisations

€m		Recovery Rates					
Target rating	Probability of Occurrence	90%	80%	70%	60%	50%	40%
BB-	1.31%	269	539	808	1078	1347	1617
BB	0.78%	349	697	1046	1394	1744	2093
BB+	0.55%	455	909	1364	1819	2273	2728
BBB-	0.30%	586	1174	1761	2348	2934	3522
BBB	0.19%	667	1332	1999	2666	3331	3998
BBB+	0.13%	746	1492	2237	2983	3729	4475
A-	0.08%	852	1703	2556	3406	4258	5109
A+	0.06%	878	1756	2634	3512	4391	5269

Conclusions and Recommendations

The assessment gives evidence that the Finnish export financing system has a high market standing and has been able to integrate innovation regarding products and business processes into the strategic management agenda. FV has carried out the largest reorganisation in its history during the past couple of years, and there is an appropriate culture to support business excellence with elements such as customer focus, systems approach, continuous improvement and teamwork. Although Finnvera has often been characterised as a 'benchmark institution' and 'innovation leader', the Consultants recommend several improvements and enhancements. This includes activities to foster economic development, boost efficiency and effectiveness, enhance economic impact measurement and ensure a sound risk management.

Recommendations

1. Export Financing Operations
   - MEE should clearly define and develop a long-term policy strategy.
   - MEE and Finnvera should implement practical 'national interest' guidelines.
   - In the long run, FV has to reduce and/or mitigate outstanding commitments.
   - MEE and FV should explore a fully-fledged direct lending programme.
   - FV should develop a more proactive approach regarding individual transactions.
   - Finnvera should enhance the education of unexperienced exporters.
   - FV should strengthen business relationships with a broader range of companies.
   - FV should further invest in HR succession and knowledge management.

2. Economic Impact
   - MEE and FV should develop specific criteria for innovation in impact measurement.
   - MEE and FV should adopt a holistic view of impact assessments.
   - The durability of reported impacts alongside their incidence should be monitored.

3. Risk Management
   - State Treasury should develop a formal risk interest risk/rate return framework.
   - State Treasury should require FV to develop an economic model to calculate costs of hedging.
   - FV should develop a shadow financial reporting integrating cost of optionality.
   - FV should adopt a slightly less conservative liquidity policy.
   - FV should refine a liquidity gap table for expected claims and expected credit losses.
   - Finnvera should estimate the liquidity impact from lending commitments.
   - Interest rate and FX VAR should be calculated and be integrated, and the interest rate risk policy has to be reviewed.
   - FV should fine-tune its credit assessments.
   - Finnvera's economic capital framework should be updated.

As mentioned above, there are a number of limitations to this assignments because of the invitation to tender, as well as time and data constraints. Further assessments might use the opportunity to undertake an evaluation in a broader context, in particular with regard to operational considerations and economic impact.

1. Introduction

1.1. Introduction

Finnvera (FV) is a specialised financing company owned by the State of Finland and under the supervision of the Ministry of Economic Affairs and Employment (MEE). FV's main goal is to promote the competitiveness of Finnish enterprises by providing financing solutions such as loans, domestic guarantees, export credit financing, export credit guarantees and interest equalisation. Finnvera supports domestic companies with financing in the start-up and growth phase. As Finland's official export credit agency (ECA), the role is also to promote foreign trade supporting internationalisation and exports. In 2015, Finnvera offered export credit guarantees and special guarantees worth €6.5 billion, covering 4.3 % of Finland's total exports. FV's subsidiary Finnish Export Credit Ltd. (FEC) facilitates financing for export credits and ship credits. FEC also administers Finland's official interest equalisation system.

Antitrust&TradeRx GmbH (ATRx), International Financial Consulting Ltd. (IFCL) and Northumbria University (NU) (together the Consultants) have been assigned to assess the "operation, impact and risks of the officially supported export financing system and state guarantee granted for the fund acquisition of export credits" in November 2016. The assignment commissioned by the MEE comprised the following sub-tasks:

- The assessment of selected aspects of FV's export financing operations (sub-task 1),
- a discussion of the impact of export financing and adequacy of assessments (sub-task 2),
- the risk assessment of export financing including the state guarantees (sub-task 3), and
- the drawing of conclusions and making recommendations (sub-task 4).

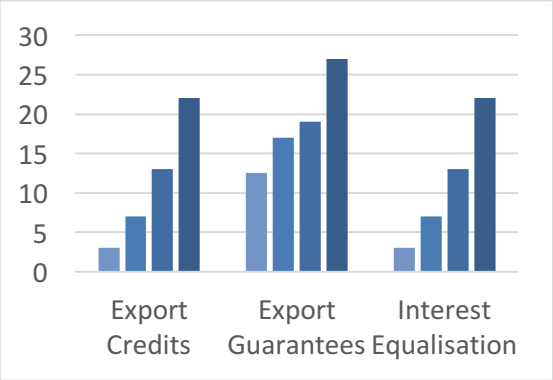
The Consultants reviewed scores of documents and facilitated numerous individual and group discussions with the Ministry of Economic Affairs and Employment, the Ministry of Finance, State Treasury, Finnvera's management and team as well as exporters, commercial banks, private credit insurers and public export credit agencies. In addition, this Report builds on the expertise as well as the passion of the Consultants for MEE to reach the full potential of the Finnish export financing system.

The core project team consisted of Mr. Werner Claes, Professor Andreas Klasen, Dr. Simone Krummaker, Ms. Diana Smallridge and Dr. Roseline Wanjiru.

1.2. Background and Objectives

In line with the programme of Prime Minister Juha Sipilä's Government and the key project for strengthening competitiveness, authorisations, terms and level of export financing in Finland are to be set to at least matching those of competing countries. According to the Invitation to Tender for this assignment, it has become necessary to increase export financing authorisations in order to maintain competitiveness of export financing and meet the strong demand for export credit from FEC. The legislative changes for the latest increase entered into force in April 2016. The financing authorisation of both export credits and interest equalisation rose to €13 billion. Export guarantee authorisation increased to €19 billion, and state guarantee authorisation was increased to €15 billion. In September 2016, the government proposed a further significant increase under the Export Credit Guarantee Act raising FV's export guarantee authorisation to €27 billion. Export credit financing authorisation and interest equalisation are both intended to increase to €22 billion.

Figure 1: Authorisation 2011-2016 (€ billion)



Source: Finnvera, 2016

The goal of the increased authorisations is to improve the competitiveness of Finnish enterprises leading to significant positive impacts on the national economy via increased exports and employment in various regions and sectors. Increased authorisations will not directly lead to increased liabilities. However, the changes result in increased state risks. Since 2014, the Parliament's Commerce Committee has required that the MEE monitors functionality and impact of Finland's export financing system. In 2015, the Government's Cabinet Committee on Economic Policy recommended an assessment and proposed that the report should be prepared by a third party, looking into the risks of export financing as a part of the state's economy.

The overall goal of the assessment is to look at selected ways to improve Finland's export financing system in order to increase its impact and to manage the related risks. As mentioned in the Invitation to Tender, the purpose of the "assessment on the operation, impact and risks of the officially supported export financing system and on the operation of the state guarantee" is to "obtain an impartial assessment on how Finland's current export financing system should be developed so that the system works in the best possible way, is functional and has an impact, and so that the related risks are sufficiently managed. In the future, public authorities will be increasingly paying more attention to ensure that a functional process for managing state risks is in place and that the risks included in the system have an impact that brings significant benefits for the

society. In line with the Invitation to Tender, "the assessment is not meant to be an overall description" and full assessment of Finland's export financing system. The focus is on "how to meet the challenges arising from the structure of the system and the operation of the finance market".

1.3. Analytical Framework

Similar to practitioner-oriented research, the analysis of an organisation's environment and the assessment of a government economic promotion instrument have to be embedded in a sound analytical framework following appropriate methodologies and methods. The Consultants' course of action encompassing a body of methods has been driven by a variety of quantitative and qualitative approaches. An explorative-qualitative methodology influenced by grounded theory was applied and complemented with quantitative elements. The aim was to gain a better insight and to base the insights on concepts emerging out of Finnvera's empirical reality.

Therefore, a comprehensive analysis of FV's external environment and an internal assessment of capabilities and challenges were performed. Profiles of Finnvera's and other ECAs' strategy, policies and product offerings were created based on documents available in the internet and in print. Internal documents provided further input and were an important source for this assignment. In addition, documents from multilateral and international institutions such as the World Bank Group, the World Trade Organization (WTO) and national governments were analysed. Statistics and analyses from publicly available sources such as the Organisation for Economic Co-Operation and Development (OECD) and the Bank of Finland (BOF) were examined as well.

Qualitative data via interviews was collected from FV, e.g. from Paul Heikkilä, Topi Vesteri, Anita Muona, Ulla Hagman and Pekka Karkovirta, via open-ended, semi-structured individual interviews and group discussions. In addition, the team conducted several meetings and calls with Kari Parkkonen, Inkalotta Nuotio-Osazee and Timo-Jaakko Uotila from MEE. Discussions and interviews were also conducted with representatives of the Finnish Ministry of Finance (MOF) and State Treasury. Furthermore, there were numerous interviews and discussions with export credit and trade finance experts from international organisations, e.g. the Berne Union and the Aman union, Finnish exporters such as Andritz, Konecranes, Meyer Turku, Nokia and Wärtsilä, and commercial banks such as Deutsche Bank, HSBC, KfW, Nordea, Santander and Société Générale. The same applies for senior management staff from other export credit agencies, e.g. EKF, EKN, EH, GIEK and OeKB. We were also able to include anonymised results from ongoing research.

The analysis of qualitative data was led by elements of grounded theory that offered a set of several coordinated methods supporting the development of new or the enrichment of existing approaches for aspects of FV's strategic, business, financial and organisational performance.

Adapted from social sciences, interviews dealt directly with narrative to understand FV's environment. As a result, findings of primary and secondary sources were analysed to identify best practices in order to assess strengths and weaknesses arriving at a set of recommendations.

1.4. Structure of this Report

This Report is divided into four chapters. Following the introduction to the assessment in the first chapter, Chapter Two gives an overview of Finnvera's context and environment. This includes an insight of public export financing in the global economy, as well as the Finnish corporate environment and demand for export credit guarantees and export credit financing. This is followed by a discussion of the importance of an economic promotion framework and economic impact. The relevance of risk management for export credit agencies is also explained.

Chapter Three focuses on the assessment of the Finnish export financing system. This includes an analysis of how the functionality of the public system can be ensured in the long run (**sub-task 1**, led by ATRx). In particular, challenges and opportunities of the current system and Finland's export financing system functions in relation to core industries and the financial market will be discussed. Sub-task 1 also includes the question if increased authorisations are the only option for competitive financing. In addition, it will partially cover the assessment of the functionality of Finland's system in relation to other OECD countries such as Austria, Denmark, Germany, Italy and Sweden focussing on an assessment of fixed-rate export credits based on CIRR (led by IFCL).

The impact of government supported export financing will then be analysed, in particular whether the goals set in the Export Credit Act and the Export Guarantee Act have been met (**sub-task 2**, led by NU). Based on previous reports, in this section will be discussed what kind of impact Finland's export financing system has, and if this impact has been measured in a sufficient way.

In addition, FV's risk taxonomy covering credit risk as well as market and funding risk will be assessed (**sub-task 3**, led by IFCL). This includes the question of Finnvera's quality of risk policies and appetite, the quality of risk management tools and metrics, and an analysis of the current risk position with regard to liquidity risks, interest rate risks, FX risks and credit risk. Tithe assessment will also discuss how portfolio risk management has been taken into account. Finally, it will be examined how the financing of large export deals and state-backed guarantees affect the fund acquisition, and what the effects on state risk and state balance are.

Chapter Four will conclude the Report (**sub-task 4**). Strengths and weaknesses of Finland's public export financing system will be discussed, and recommendations will be made on how the system could be developed to be competitive in the future. The final chapter will also present limitations as well as recommendations for future studies.

2. Context and Environment

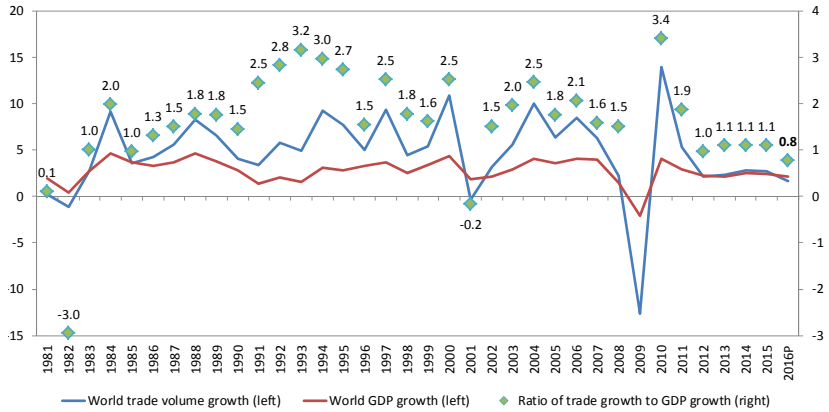
2.1. Introduction: Public Export Financing in the Global Economy

The benefits and harms of economic interaction across borders have been the subject of political and economic discussion for decades. World merchandised trade has substantially grown during the last decades, and foreign trade contributes considerably to the sustainable development of the global economy. The opening up of trade in a multilateral trading system with rules and regulations on an international basis has provided one of the major pillars for economic growth enjoyed by developed and emerging countries during the last century (Cotter, 2015; Klasen and Bannert, 2015). Today, global trade and foreign investments are major drivers for economic growth. Emerging countries such as China and India have developed competitive export industries and have been rewarded with substantial growth in trade. A global economy producing, trading, and consuming goods and services across borders is reality for billions of people and firms.

But despite numerous gains from free trade between countries, multilateral efforts to enhance the global governance of trade seem to have come to a standstill (Destradi and Jakobeit, 2015; Lee, 2012). Broader trends are also putting the global trading system into question. In some industries, digitalised processes and procedures, new forms of production involving automation or three-dimensional printing are eroding the economic rationale for cross-border production. The rise of nationalist and populist politicians in many key economies has put in question the political consensus around “embedded liberalism” (Ruggie, 1982) that sustained economic openness for much of the postwar period.

While global trade remains at historically high levels, its rate of growth has slowed. World trade was expected to grow more slowly in 2016, expanding by just 1.7 % being the slowest pace of trade and output growth since the 2007-8 financial crisis (WTO, 2016). And although trade-related indicators such as export orders have improved, the overall momentum in trade remains fragile. Figure 2 shows the substantial weakening in the relationship between trade and GDP growth.

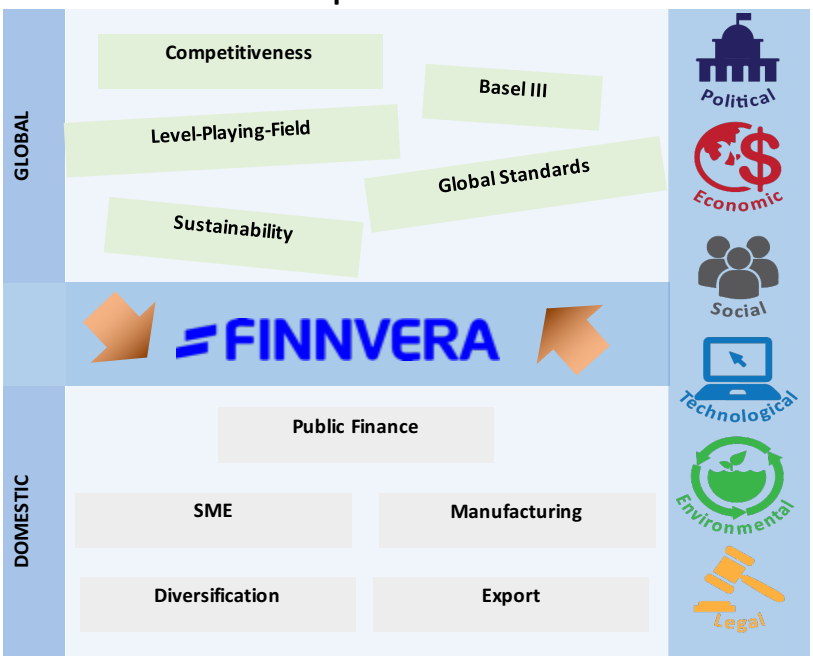
Figure 2: World Merchandise Trade Growth to Real GDP Growth, 1981-2016 (% change ratio)



Source: WTO, 2016

Because export oriented countries benefit from improved allocation of scarce resources, advantages of sharing know-how as well as more innovation (Klasen, 2012; Lipsey and Chrystal, 2011), trade promotion is an essential part of the policy strategy of many countries. Government credit insurance schemes play an important role in financing and insuring export business, and there is a significantly positive effect of insured or directly financed transactions on trade. Although trade performance alone is not an indicator for being a competitive nation (Mutsune, 2008), a causal link between ECA support and merchandise exports as well as job creation has been discussed (Badinger and Url, 2013; Felbermayr and Yalcin, 2013; Haniotis and Schich, 1995). Domestic and global drivers such as the consideration of public interest, Basel III and support for small and medium-sized enterprises (SMEs, (EU definition)) are key as well for export credit agencies such as Finnvera (Figure 3).

Figure 3: Finnvera in the Context of a Competitive Nation



Source: Developed for this Report

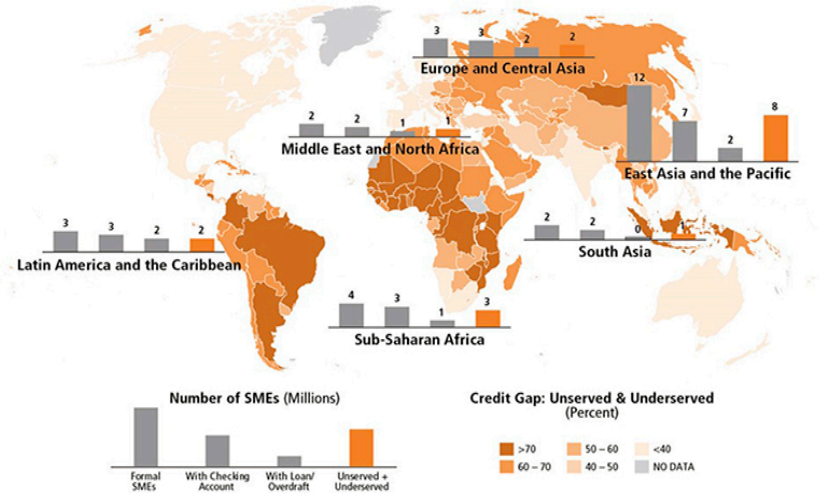
Auboin and Engemann (2014) show a significantly positive effect of insured transactions on international trade. Other research has also provided a causal link between ECA support and merchandise exports (Moser, Nestmann and Wedow, 2006; Egger and Url, 2006). Authors such as Chor and Manova (2012) as well as Amiti and Weinstein (2011) have shown the effect of trade credit on trade. In collaboration with other economic development instruments, export credit agencies are able to foster innovation, diversify the economy and support foreign direct investment (Klasen, 2012). They are both traditional and up-to-date instruments for public intervention in financial markets and can be justified when significant and persistent externalities or market failures persist. Ellingsen and Vlachos (2009), for example, mention that public support of trade finance volumes can be more effective than support for other types of credit. The level-playing-field is a further dimension, i.e. if similar financing and insurance programmes are offered by other countries. As a result, many countries in both developed and developing economies have set up export credit agencies to finance or insurance exports and alleviate market failure.

2.2. Global Financial Environment and Insurance Demand

Trade and Export Finance Offering

International trade is strongly connected with a well-developed and functioning financial environment. The dynamic growth of world trade over the past decades was only made possible by a rapid expansion in trade finance. Financing is crucial for trading partners in order to bridge the time lag between export order and payment for goods and services produced. Scholars strongly support the argument that companies need adequate provision for their export transactions (Meyer and Klasen, 2013; Chauffour, Saborowski and Soylemezoglu, 2010). Factors such as export transaction volume and credit period can considerably increase costs of financing or even make it difficult to obtain funding at all. Disruptions in export finance lead to a severe decline in companies' output on a micro level as well as a contraction in trade on a macro level. Major international banks supply a substantial percentage of the global trade finance volume. However, availability of finance is a major challenge, in particular for comparatively large and small transactions with longer maturities in risky markets. Small and medium-sized enterprises are consistently underserved. According to World Bank estimations, the overall credit gap for SMEs stands at approximately $900 billion (Figure 4).

Figure 4: Overall SME Credit Gap



Source: World Bank, 2015

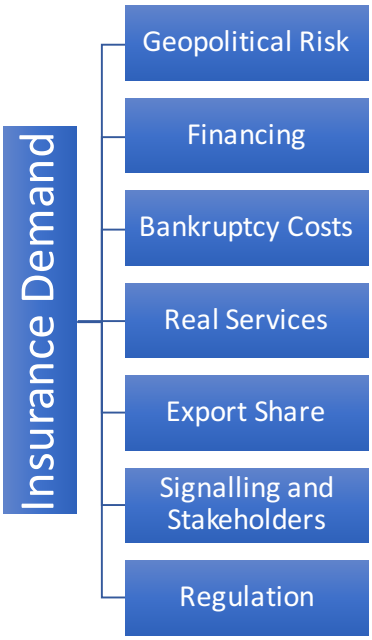
Demand for Export Credit Insurance

When firms export their products and services or set up foreign manufacturing operations, they are exposed to several dimensions of risk: Political risk, commercial risk, currency exposure as well as cross-cultural risk. Exporters often require insurance cover for political and commercial risks linked to export transactions. Export credit agencies are important to mitigate negative trade effects of financial constraints due to market failures. According to recent research on demand for credit insurance (Klasen and Krummaker, 2016; Klasen, 2014), risk aversion is significant for corporate insurance demand. Evidence indicates that there is a strong relationship between the demand for coverage against geopolitical risk and the perceived or actual risks. Financing of

the specific trade transaction is a key determinant, and firm-level evidence indicates that exporters cut back investments more than other companies if banks are not able to provide adequate credit facilities (Ahn, Amiti and Weinstein, 2011). Insurance increases the possibility for exporters to receive commercial financing and mobilise additional funds otherwise not being available (Bischoff and Klasen, 2012). Direct and indirect costs of bankruptcy provide the company with an incentive to insure because shifting risk to the insurance company lowers the probability of incurring the costs. Studies both on corporate and export credit insurance confirmed that firm size is negatively related to insurance demand (Klasen, 2014; Hoyt and Khang, 2000; Yamori, 1999).

Several studies mention insurance services as an additional argument for corporate insurance demand (Krummaker and Schulenburg, 2008). Regan and Hur (2007) describe export share of a company as relevant for the purchase of insurance, and both real services and export quota are linked to ECA product offerings. Furthermore, insurance is assumed to be a means of signalling risk of the company to markets and stakeholders, as companies with insurance contracts will have a lower earnings volatility due to insurable unsystematic risk. In addition, tightened regulations and rules internationally are expected to make foreign trade for companies more difficult and therefore will have an impact on the demand for insurance (Klasen and Krummaker, 2016). Both international and national regulatory regimes influence demand and, in particular, higher banking regulation negatively impacts the availability of small ticket loans.

Figure 5: Motives for Export Credit Insurance Demand



Source: Klasen and Krummaker, 2016

2.3. Economic Promotion Framework

Market Failures and State Intervention

With an increasingly short-term nature of private financial markets, the role of government agencies and public financial institutions has become more important. State intervention banks such as the Business Development Bank of Canada (BDC) and Kreditanstalt für Wiederaufbau (KfW) in Germany were launched more than 60 years ago for capital assistance to the industry, some of them in particular for export financing (Fergusson, 1948). However, economic development banks and government instruments recently increased their role in areas where the private sector moved back such as innovation and renewable energy. Examples are the development banks of China and Korea, the European Investment Bank, the Swiss Technology Fund or the UAE Innovation Fund. Export credit support through direct lending and insurance are also increasingly important due to significant and persistent externalities or market failures. A market failure occurs when a competitive market fails to bring about an efficient allocation of credit. The existence of limited export financing capacity allocated by commercial banks and unfulfilled demand because of a lack of private insurance offering provides *prima facie* evidence of market failure.

As discussed by Besley (1994), enforcement difficulties, information asymmetries, protection of depositors, market power as well as learning arguments have implications for government intervention. Stiglitz (1994) also covers market failures in financial markets such as monitoring, incomplete markets and imperfect competition. ECAs address many of these dimensions. Market failure due to inadequate pricing of trade finance products requires state intervention. Banks usually increase lending to targeted activities if ECAs issue guarantees or act as some sort of second-tier institutions (Chauffour, Saborowski and Soylemezoglu, 2010). However, there is substantial additionality since the 2007-8 financial crisis: Because ECAs provide more trade finance-related products and larger transaction volumes, they cover inadequate commercial credit supply to the real sector. Direct lending is a major new development providing exporters with support needed to finance their transactions. Although the vast majority of export credit agencies favours extending export credit insurance over loans, there seems to be a trend that direct lending becomes a more important instrument, in particular for small tickets.

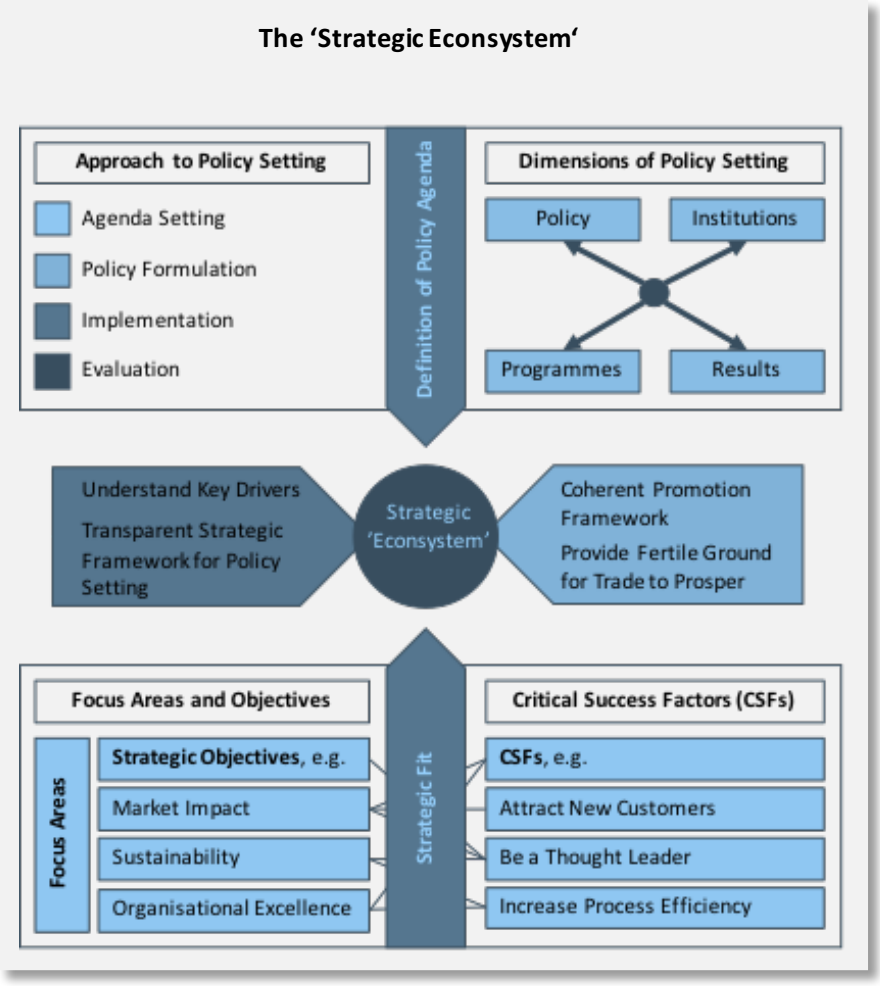
The 'Strategic Econsystem'

In addition to state intervention due to market failures in the context of a globally competitive nation, a principal success factor of an ECA is to present a concise national strategic framework to leverage opportunities and impact. There is strong evidence that effectively managing the interaction of government entities involved in export promotion and FDI is key to crafting sustainable and responsive economies. A supportive economic environment, the coherent interplay in a 'Strategic Econsystem', is capable of adapting to the needs of exporters (Meyer and Klasen, 2013). The approach of the 'Strategic Econsystem' is highlighted in Figure 6. It is crucial that, for instance, innovation funds, trade promotion agencies, export credit agencies and investment promotion

organisations work closely together in order to provide a fertile ground an economy needs to prosper.

Innovative and integrated government financing instruments have the potential to substantially support the competitiveness of companies in the global economy. Therefore, introducing and following a straightforward approach as well as implementing future-oriented focus areas and strategic objectives is a key success factor. For example, different economic promotion programmes in Germany are based on contingent liabilities having the advantage of not using subsidies, but covering default risks associated with liquidity from financial institutions (Klasen, 2012). Through such mechanisms, governments are able to strengthen their industries without generating new budgetary burdens.

Figure 6: The 'Strategic Econsystem'



Source: Meyer and Klasen, 2013

For other instruments, support is also associated with equity investments, conditional repayments and direct lending. These programmes cover R&D, innovation, bonds and working capital facilities, untied loan guarantees as well as export related transactions. Countries such as Ireland and Singapore serve as models for smaller emerging economies having transformed themselves into fast growing countries during past decades. In Asian, trade as well as progressive foreign investment policies and instruments enabled countries such as Singapore and the UAE to overcome limitations of a small domestic market and a narrow resource basis (Feridun and Sissoko, 2011; Siddiqui, 2010).

2.4. Economic Impact

Importance of economic impact

To ensure continued relevance and the capacity to support the international competitiveness of domestic companies in the global economy, effective economic promotion measures require regular impact assessments. Key drivers for impact assessments in economic policymaking are predicated on the following concerns: First, how can the benefits or costs arising from ECA activities be evidenced in order to inform existing or future policy? Secondly, how do policymakers ensure that public support provided to exporters is used effectively for maximum impact and that not too much is paid for minimum public returns?

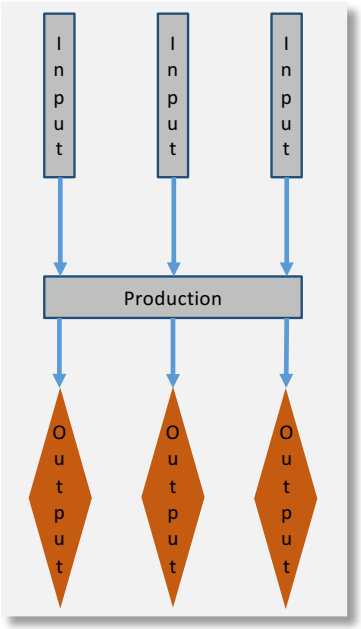
As discussed in Phelps, Power and Wanjiru (2007), this challenge of balancing the public good with private business interests highlights the need for credible evidence of development impacts from economic promotion. Accurate assessments of wider development impacts can inform the appropriate level of government intervention to correct market failure where greater economic and social benefits are generated in comparison to the costs incurred to support such promotion efforts. Key indicators of economic impacts include employment generation, incomes, and expanded production output in the form of enhanced business sales or revenues in order to meet the policy aims of maintaining national competitive advantages.

Measurement

The achievement of wider economic impacts requires effective monitoring of changes in key economic sectors, including their upstream and downstream linkages to the rest of the economy. In this study, measurement of economic impacts is focused on key exporters and their linked industries. An industry's relative importance within the broad economy is based on selected indicators, including its relative contribution to national output or direct employment. In addition to these direct contributions, the extent of linkages with other industries impacts on wider economic performance.

Quantitative approaches are preferred in economic impact studies due to their focus on tangible or quantifiable impacts to the economy. Impact studies trace changes in specified indicators (direct employment creation, enterprise creation or export volumes) and tend to be retrospective in nature. A range of methodologies can estimate actual or potential impacts. However, when applied with differing levels of expertise, the diversity of approaches sometimes results in contradictory impact estimates. A standard approach to assessing economic impacts is the input-output (I-O) approach (e.g. Raa 2010; Jansen and Raa, 1990; Devarajan, 2002) which measures the economic impacts *(outputs*) resulting from given investment (*inputs*).

Figure 7: Input-Output Analysis



Source: Developed for this Report

Economic impacts in input-output models occur at three levels: direct, indirect and induced impacts. Direct impacts are the quantifiable and directly attributable changes in given indicators within key industries, such as employment creation, enterprise formation rates, export volumes or input volumes. In addition to direct impacts, a key industry's interactions with related industries lead to indirect impacts on the economy. Inter-industry purchases stimulate additional economic activity in linked sectors, resulting in further indirect impacts such as employment or production output. Inter-industry purchases involving key exporters are a quantifiable indicator of the relative strength of sectoral linkages, the value of which can be quantified in currency terms through economic impact analysis. Further induced impacts result when employees and suppliers in linked industries spend their incomes and invest in the wider economy.

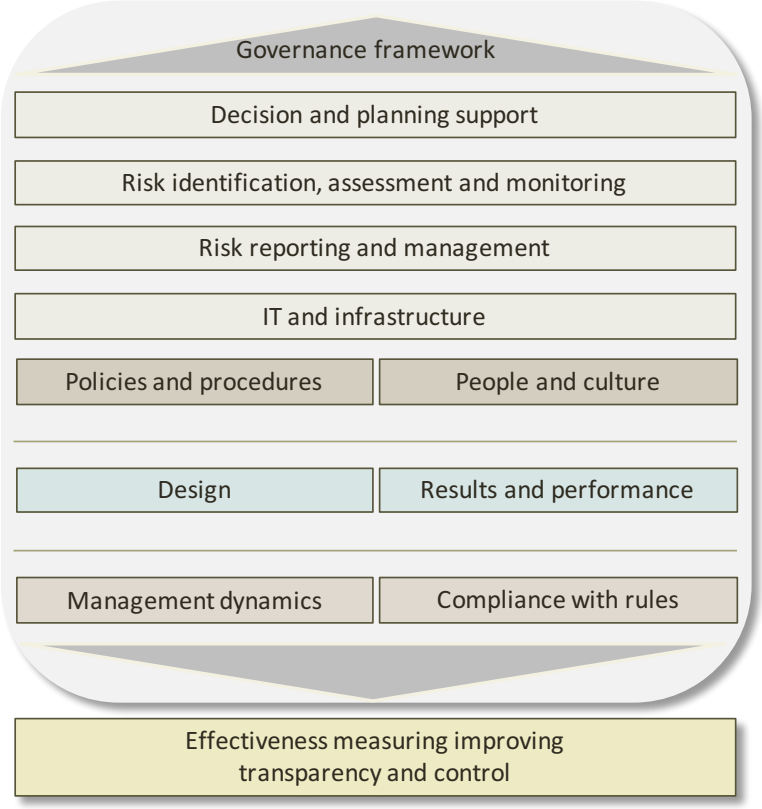
Multiple countries, employ input-output approaches for economic modelling of impacts, including all OECD countries and Nordic economies. In the Swedish current input-output model, for example, the economy is split into 30 categories/industries and approximately 40 demand categories through which the supply of value added by each industry to the economy is traceable. Their model is developed using Eviews software and builds on a long history of IO approaches since 1957 (NIER, 2016; Forsfalt and Glans, 2015). Statistics Finland compiles Finland's macro-level input-output tables (OSF, 2016). Existing assessments of ECA activities have also relied on input-output approach in line with existing international practice.

2.5. Risk Management

Importance of Risk Management

While ECAs are instruments for export promotion in their countries, they are also fundamentally financial institutions insurers or lenders, or both. Similar to commercial organisations, ECAs require a robust risk management framework and systems linked to business strategy and objective-setting in order to identify, assess, monitor and manage their risks (e.g., Arena, Arnaboldi and Azzone, 2010; Beasley, Clune and Hermanson, 2005). Credit risk is central to the risk-taking of ECAs and is a well-understood and defined risk for most. However, there is a growing importance of risk management for government ECAs, in particular looking at their own market risk and funding risk. This wider enterprise risk management is recognised as increasingly important to the long-term viability of the ECAs (Figure 8).

Figure 8: Enterprise Risk Management in Insurance Companies



Source: Developed for this Report

However, many ECAs still have not developed their risk functions as there is no global regulatory framework. Risk control and accounting is heterogeneous and often subjective, e.g. following IFRS, Basel or Solvency II or simple state guarantee approaches. Few ECAs have advanced in developing an economic capital model, which is recognised as the minimum regulatory capital requirement, even if the government is the ultimate backer.

Different Risk Management Functions

A fully-fledged enterprise risk management (ERM) has the following features: risk governance, risk appetite statement, risk policies, as well as risk management tools and metrics. The governance of risk in a best practice organisation implies that the organisation's board approves the general risk policy framework and sets a risk appetite level. One of the fundamental building

blocks of effective ERM is a clear definition of risk appetite and acceptable tolerances. The risk policies should cover the whole risk taxonomy covering credit risks, market and funding risks, operational risks, as well as risk management tools and metrics. The latter need to be developed and used, giving the Board feedback on the risk framework that they establish.

Financial Risk Management

ECAs that apply an economic capital approach to determine their level of risk taking are the most sophisticated. Economic capital can be expressed as the required protection against unexpected future losses at a selected confidence interval considering a defined time horizon (Burns, 2005). In other words, it is the required capital to withstand adverse shocks during a certain period. Expected losses, i.e. claims paid less recoveries, are the average number of losses throughout an economic cycle. Unexpected losses are the expression of the volatility of the expected losses.

The confidence interval can be viewed as the size of the shock applied against the credit risk portfolio and provides information regarding the institution's risk of insolvency under the given shock. Selecting a higher confidence interval implies one is applying a heavier shock, which, as a consequence, implies the entity would have to hold more capital. In this respect, target credit ratings show the capital required to absorb shocks. A stronger credit rating implies the rated institution is capable to withstand heavier shocks and is therefore in need of more capital as opposed to institution's targeting a lower credit rating.

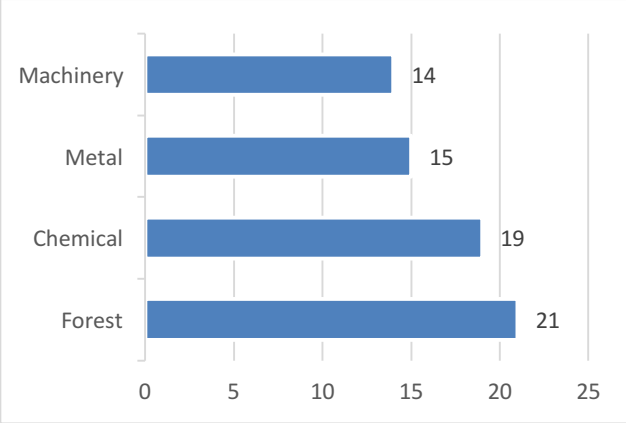
The calculation of economic capital should, ideally, cover all of the risks taken by the entity, including credit risk, but also foreign exchange risk, liquidity risk, interest rate risk and operational risk. The economic capital framework is a useful tool to determine a target credit rating and risk tolerance level. The target rating in this context is a statement with respect to an entity's risk appetite as it implicitly determines the confidence interval that the entity wants to apply to itself in a 1-year time horizon. It is a quantified statement as the target credit rating can be automatically translated into a probability of default using the default statistics of the rating agencies.

3. Assessment

3.1. Introduction: Finland's Export Financing System

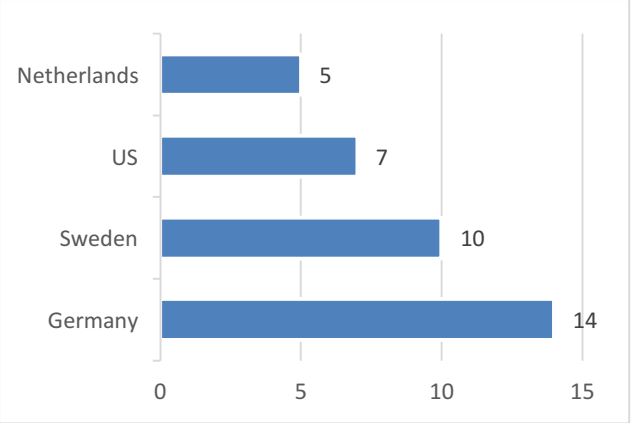
Finland is a small and open economy with a government focused on building a global marketplace. With an affluent but ageing population enjoying a high level of income, the country has been a stable economy for many years with one of the highest per capita gross domestic product (GDP) in Europe. Almost half of Finland's exports are raw material and productions supplies (Figure 9) whereas new export financing support heel to ship finance and telecommunications. Finland's largest export market in 2015 was the EU, accounting for almost 60 % of all exports, 17 % of exports went to developing countries. The largest single target markets are Germany and Sweden followed by the US and the Netherlands (Figure 10).

Figure 9: Exports 2015 per Sector (%)



Source: Statistics Finland, 2016

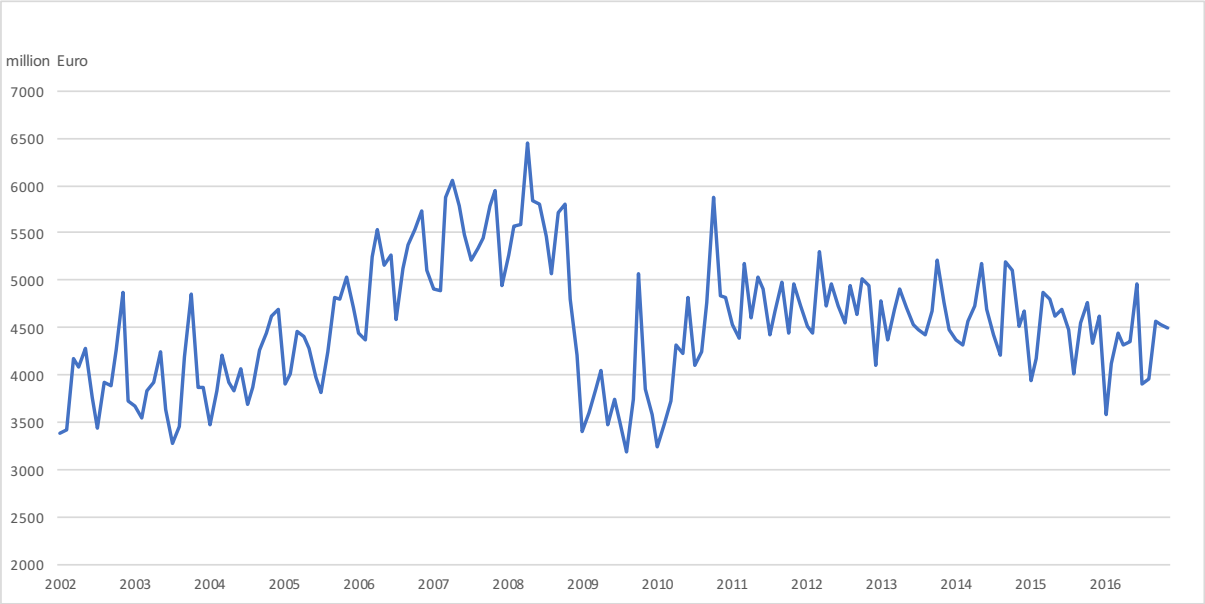
Figure 10: Exports 2015 per Country (%)



Source: Statistics Finland, 2016

Although having an enormous potential for economic growth, the country's output is stagnating at a low level since the 2007-8 financial crisis. Fluctuations in exports and imports have been a regular occurrence for the past decades. But compared with previous recessions, export and imports contracted much deeper and more broadly-based (Bank of Finland, 2015). Foreign trade values declined for all key goods categories and trading partners in the aftermath of the financial crisis and the downturn in the Russian and Chinese markets, and the decline continued in 2015 (Figure 11). Difficulties in the domestic mobile phone sector led to a collapse of mobile phone exports. In addition, the decline of imports and exports was related to lower world market prices of commodities such as crude oil and refined oil products. After a gentle economic recovery of the Finnish economy from 2016 as well as in the advanced economies in the EU, the Bank of Finland forecasts growing exports from 2017 (Bank of Finland, 2016).

Figure 11: Monthly Exports 2002 – 2016 (€ million)



Source: Finnish Customs, 2016

In order to foster growth through trade, Finland has established a comprehensive export financing system. Following the merger of Kera and the Finnish Guarantee Board in 1999, Finnvera today is the official export credit agency of Finland. FV acquires its funds mainly from the capital market. By providing guarantees, insurance and financing, FV's role is to promote the business of start-up and growth enterprises, as well as companies focusing on exports and FDI. FV's main objectives are to support economic development by providing internationally competitive financing for exports and ship deliveries. This assessment focuses on Finnvera's export related services.

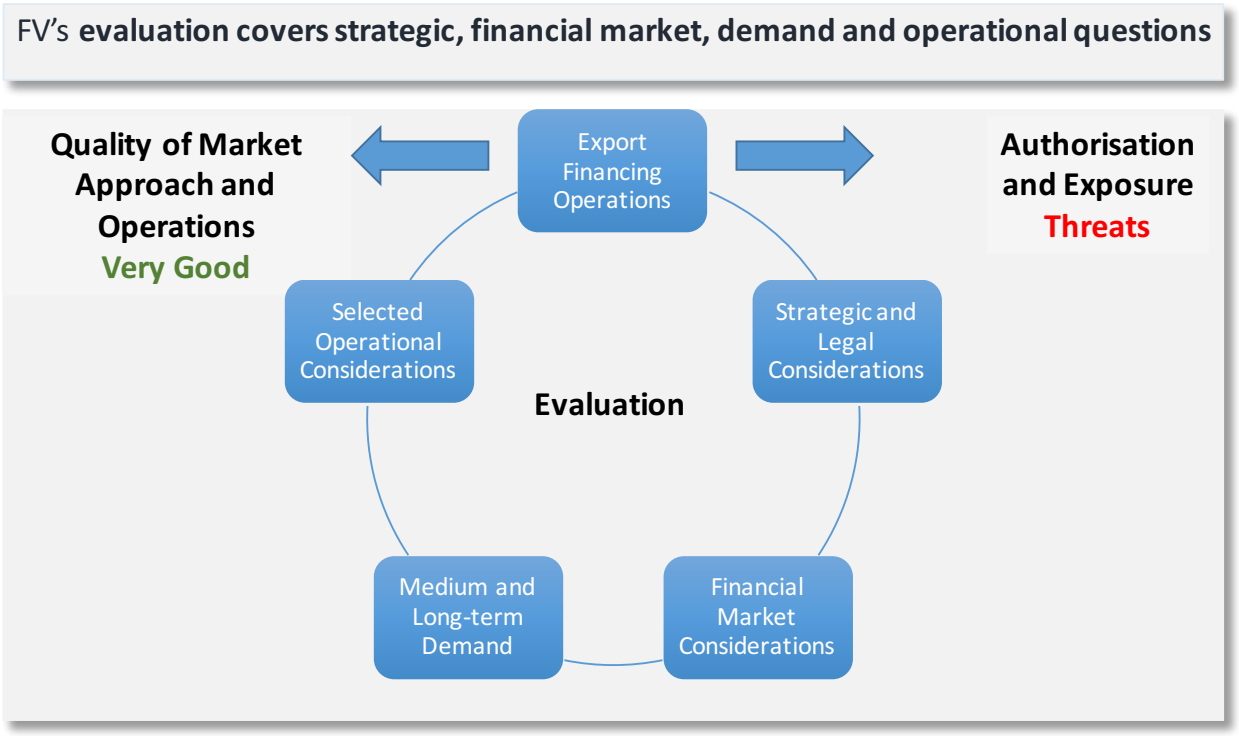
Figure 12: FV's Services

Source: Developed for this Report

3.2. Export Financing Operations

In accordance with the requirements of the contract, the invitation to tender and the documents appended to the tender, the assessment looks at the functionality of the public system in the long run, estimated financing demand, faults and positive aspects of the system, and the private sector engagement in export financing. In particular, a discussion of the authorisation and exposure as well as CIRR has been requested by the Ministry of Economic Affairs and Employment. As a result, Finnvera's quality of operations compares favourably to ECA counterparts. However, the increasing authorisation and exposure are a threat. The different aspects and perspectives of the assigned evaluation will be covered through the following four dimensions.

Figure 13: Focus of the Evaluation of FV's Operations



Source: Developed for this Report

3.2.1 Strategic and Legal Considerations

With regard to Finnvera's strategic and legal considerations in the context of export financing operations, it is MEE's requirement that the Consultants must take into account and focus on faults and positive aspects of the current system, looking at competitive rates and terms based on international disciplines.

3.2.1.1 Policy Goals and Supervision

Evaluation

- Strategic goals set by the Ministry of Economic Affairs and Employment seem to be too broad. More specific criteria focusing on innovation and high-value exports are missing.
- Finnvera's strategy is in line with MEE's general policy goals, and FV has implemented a strong vision, mission and values to increase Finnish exporters' competitiveness.
- MEE successfully manages supervision and monitoring roles assessing the implementation. However, MOF and Treasury expect a better involvement and understanding.

The main task of the Ministry of Economic Affairs and Employment is to create a basis for business activities and strengthening competitiveness and employment. With regard to export credit support, MEE's Enterprise and Innovation Department is responsible for Finnvera's industrial policy steering. This includes a transfer to and application of the Finnish government programme, MEE's policy objectives and critical success factors with regard to Finnvera by setting goals for a period of four years. In addition, the MEE is responsible for supervision and monitoring of FV's operations. This contains an assessment of how successful Finnvera is in supporting exports. The ministry also evaluates operational performance, capital adequacy and cost-effectiveness.

The MEE ascertains that FV's corporate strategy is in line with the policy goals of the Finnish government and the ministry. According to our assessment, FV has implemented a clear strategy how to support financing for growth, competitiveness and internationalisation of Finnish enterprises. This is reflected in the vision, mission and values, but also in strategy aims such as 'increasing Finland's competitiveness both in exports and as a business environment' or 'improving productivity and customer satisfaction by means of effective procedures and by utilising electronic records management'. The company updates its strategy annually and has formulated a clear Vision 2020 with the goal to provide 'financing for growth, competitiveness and internationalisation, guaranteeing the best client experience in the reference group through service, know-how, and team play'. However, policy goals set by the ministry seem to be very broad: The MEE mainly expects a strengthening of the operating potential and competitiveness of Finnish enterprises. There is no clear focus on innovation and high-value industries by defining specific target sectors in addition to the traditional customer base. As start-up creation and growth of exporters in Finland is weak, in particular in the SME sector, more specific criteria that could help improve FV's performance in these areas are missing.

MEE also successfully manages its supervision and monitoring role assessing the implementation of policy goals. Senior and junior ministerial staff are actively involved in overall policy setting and strategic directions through regular meetings with Finnvera. In addition, the MEE is involved in

the decision-making process for FEC's large individual transactions above €200 million and if specific risks are involved. Furthermore, there is a continuous supervision through MEE's internal auditors looking at FV's reports, internal controls and risk management procedures. Cooperation is also close with other government entities such as the Ministry for Foreign Affairs and the Ministry of Finance. In addition to MEE, both the Ministry of Finance and Treasury are represented in the FV steering committee. This approach is comparable to other OECD countries where guardian authorities or interministerial committees set the strategic agenda and have a supervisory and monitoring role. However, the MOF and Treasury mention a lack of sufficient understanding detailed and knowledge on how FV executes the strategy and implements operations in Finland. Looking at other countries such as Germany, respective government entities show a deeper involvement or perceive a better understanding. As a result, there is a need to better involve Treasury and the MOF and explain not only the strategic questions but also the details with regard to FV's decision-making processes.

3.2.1.2 International and Domestic Legal Framework

Evaluation

- International disciplines binding on Finland are taken into account when export credit guarantees are granted.
- Finnvera is an active participant and strong supporter of international rules and global standards.
- Exporters recognise that FV's contribution is supporting the goals of the relevant Finnish Parliamentary acts.

Finnvera's legal framework for export credit insurance is based on several international, European and national disciplines and regulations. On an international level, the WTO, the Berne Union, the OECD and the European Union shape the international system of export credit regulations and best practice. OECD member countries, for example, have jointly agreed on and continuously improve rules and regulations for export credit insurance through the OECD Arrangement on officially supported export credits in order to create a level playing field for export companies. European Union law harmonised different rules on export credit insurance by, for example, implementing the OECD Arrangement into Community law.

As a new development, the International Working Group on Export Credits (IWG) has since 2012 worked on a new set of international disciplines on export credits, now involving OECD members and major new export credit providers such as China, Brazil, India and the Russian Federation.

Figure 14: International Framework and Drivers

Source: Developed for this Report

On a national level, different Parliamentary acts define the goals of FV's export credit activities, covered risks, and factors to be taken into account when support is granted. This includes, in particular, the Act on Officially Supported Export and Ship Credits and Interest Equalisation, the Act on Suomen Vientiluotto Oy (Finnish Export Credit Ltd) and the Act on the State's Export Credit Guarantees. The latter, for example, mentions that the purpose of the export credit guarantee activities is to strengthen Finland's economic development by promoting exports and internationalisation of enterprises (Section 1). The Act also defines risks to be covered in exports and foreign direct investments (Sections 4 and 5) and mentions eligibility criteria related not only to international rules but also international competition factors and economic policy considerations (Section 7).

International rules and regulations binding on Finland are taken into account when export credit guarantees are granted. Finnvera complies with the OECD Arrangement and European Union law, but also with World Bank and International Finance Corporation (IFC) standards. Similar to peers such as Denmark, Germany and Sweden, Finnvera is an active participant and driver in international policy setting. This includes activities on OECD and European level, but also strong support of the efforts of the International Working Group on Export Credits. FV's important role in facilitating and supporting business activities of Finnish exporters has been mentioned many times by FV management and staff, but also by banks and foreign ECA representatives. Our assessment shows that exporters recognise and value Finnvera's substantial contribution to the exports of Finnish know-how complying with the goals and requirements of the relevant Finnish Parliamentary Acts to promote exports. Compared with international best practice and European peers, there is no gap between the legal provisions and goals and the approach Finnvera takes.

3.2.1.3 Foreign Content Policies

Evaluation

- FV's national content policies are less prohibitive compared with many other ECAs.
- The current status is not very transparent, and there is no consistent understanding of the Finnish interest policies at different stakeholder level.

'Foreign content' or 'national origin' policies are highly relevant for exporters. Interpretation regarding foreign content varies among the different export credit agencies. Most governments have established criteria and guidelines to assess an inclusion of goods or services from other countries or deliveries from abroad, supporting only exports beneficial to the domestic economy. ECAs usually require a minimum home country content, or insure only a certain portion. In addition, the transaction often must create sufficient national value. In contrast to 'local content rules' regulated by the OECD Arrangement, there are no global disciplines or rules for foreign content policies administered by individual ECAs. The United States EXIM-Bank, for example, automatically reduces cover if foreign content exceeds a certain percentage. Other countries such as France, Germany and Japan have a minimum amount of domestic content required to qualify for cover. At the other end of the scale, several ECAs have changed their approach away from a focus on domestic production but at a more broadly defined 'national interest'. They base their decision of granting cover on R&D activities or know-how created, sometimes without even considering where the goods delivered were manufactured.

Table 1: Selected Foreign Content Policies (2016)

	Canada	Finland	France	Germany	Italy
National content required	0%	0-33%	20%	30-70%	0-30%
Automatic reduction	No	No	No	No	No
Certificate of origin sufficient	Yes	Yes	Yes	Yes	Yes
Local/nat. content reduction	No	No	Yes	Yes	Yes

Sources: EH/PwC, 2016; US EXIM, 2016; Interviews

Finland has amended the model of foreign content during the last years. Coming from a 'national content' approach, FV was able to relax requirements for Finnish content after the 2007-8 financial crisis if the transaction was considered to be exceptionally important for the Finnish economy and had a high impact of the export credit guarantee business and the exporter's competitiveness. Finnvera applied a method where OECD country classifications were linked to minimum requirements regarding Finnish content. Category 3 countries, for example, necessitated a minimum of 30 %, while 60 % were essential for category 7 countries. Today, the concept of 'Finnish interest' is very flexible regarding Finnish origin in relation to goods exported. For short term transactions, FV looks at national origin but there is no formal requirement. Finnish interest is

defined as significant national content with percentages of at least 10 or 33 % in medium and long-term transactions. However, other criteria such as registration in Finland, Finnish know-how or other economic benefits can apply if Finnish interest is not sufficient.

Comparing Finnvera with other ECAs, FV's national content requirements are less prohibitive than many other export credit agencies in terms of minimum amounts. However, the current status is not very transparent for exporters due to soft measures such as 'Finnish know-how' or 'other significant benefits to economic development in Finland' in medium and long-term transactions. It is also not very clear what the consequence of no Finnish content is for short-term transactions if FV pays attention to Finnish content when there is no formal requirement. According to our assessment, there is no consistent understanding of the Finnish interest policies at the different stakeholder levels. For example, interviewees mentioned that employment effects are a major driver and there is a preference to support long-time clients. Others emphasised R&D and knowledge contribution as well as the support for new Finnvera customers. This opacity can lead to discretionary decisions and threaten or disadvantage exporters. Furthermore, non-transparent rules imply a risk of political threats and pressure to prove legitimacy if a large claims case would arise with no substantial Finnish content or interest.

3.2.2 Financial Market Considerations

Assessing Finland's public export financing system function with regard to the financial market considerations, the Consultants have to examine the functioning of Finland's public export financing looking at market failure and market gaps. This includes a view to the private sector's responsibility for export financing, also looking at Basel III. The MEE's also requires the Consultants to examine increased authorisations in comparison to peers. In addition, there is the requirement to pay attention to CIRR cost and Finnvera's competitive position.

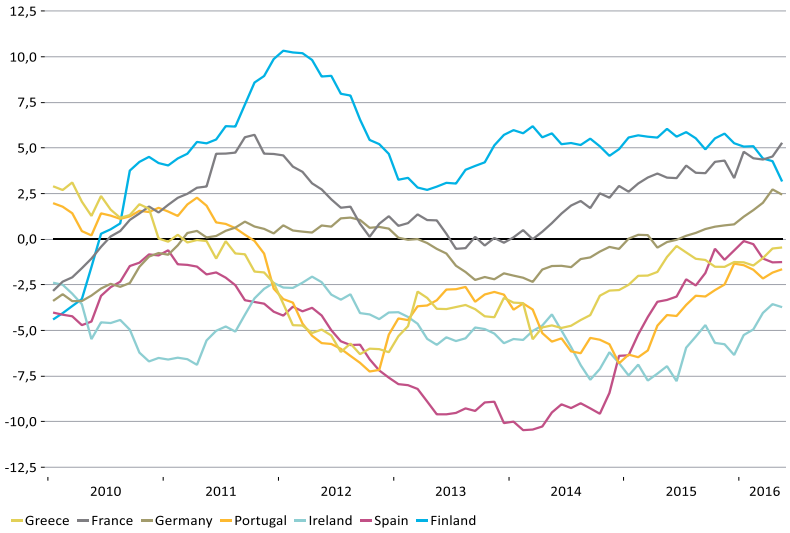
3.2.2.1 Market Failure and Market Gap

Evaluation

- Finnish corporate financing is bank-centred, but SME financing is a challenge.
- Finnish banks are less or not willing to take on responsibility for export financing, and exporters must rely on foreign banks.
- Interviewees mention a substantial market failure for export credits both for very large transactions and small tickets, in particular with longer maturities and in risky markets.

The banking sector in Finland shows good results and strong capital adequacy despite a weak economy and a challenging market environment. Financial markets are well developed, and the banking system is solid with well capitalised banks, a high average quality of assets and a high profitability. At the end of 2015, there were more than 280 credit institutions operating in Finland (Finanssialan Keskusliitto, 2016). Credit institutions' loans in Finland are dominated by OP Group with a market share of 35.1 % in 2015. Other major institutions include Nordea Bank Finland Plc Group (28.1 %), Danske Bank Finland (9.6 %), Handelsbanken Group (5.8 %) and Savings Bank (6.3 %). Credit to the private sector continued to grow despite the shrinking economy. Finnish corporate financing remains bank-centred, and the corporate loan portfolio also grew by 6 % in 2015 surpassing the average growth in the Euro area (Figure 15).

Figure 15: Annual Growth of loans to non-financial corporations (%)



Sources: Finanssialan Keskusliitto, Macrobond, 2016

The largest corporations account for the majority of the loans, e.g. the seven largest corporations concentrate more than 10 % (2014) of the loans amongst them (European Commission, 2016). SME lending in Finland contracted substantially after the 2007-8 financial crisis. Although the health of financial systems improved especially after 2012, SME lending in Finland dropped by more than 40% over the period of 2009 to 2014. Analyses show that increasing needs to secure loans by collaterals as well as tightened credit conditions seem to be major drivers for this development in addition, the number of SMEs not applying for banks loans, so called discouraged borrowers, increased in particular due to credit terms. Alternatives to financing of business operations can be private venture and growth capital investments. However, due to the fact that a substantial percentage of Finnish entrepreneurs are ageing entrepreneurs, private venture capital and business angel investments seem to be only applicable to a limited group of start-up and growth small and medium-sized enterprises.

With regard to export finance, interviewees mention a substantial market failure for export credits. This becomes apparent both for very large transactions and small tickets with longer maturities and in risky markets. Finnish banks are less or not willing to take on responsibility for export financing. Our assessment shows that commercial banks are not interested in providing loans for transactions below €5 million. For export transactions up to €50 million, there is also limited interest from financial markets. Exporting SMEs thus suffer from financing difficulties due to the very limited trade and export finance offering from Finnish banks. As a consequence, exporters must rely on foreign banks. However, there is a lack of interest and thus credit offering from their side as well. Despite improved lending conditions with comparatively low borrowing costs for banks active in export finance in European markets (see Figure 16), transaction costs are considered too high, and cross-selling does not offer great potential.

Figure 16: Bank Borrowing Costs (bps)

Average of selected export finance banks' 5y CDS curve as proxy for bank borrowing costs.
Sources: Bloomberg, 2015; US EXIM, 2016

On the other end of the scale, there is also some market failure for very large transactions. Profitable transactions such as cruise ships are described as too large for commercial banks to lend or the private sector to insure. Interestingly, there is a difference between airline and ship finance

despite comparable characteristics such as high volumes, long maturities, and their long history of pioneering innovative methods to generate private financial resources, e.g. asset-based finance and securitisation. The difference in volumes for aircraft transactions (above €200 million for very large aircraft) and cruise ships (usually above €1 billion) is highly relevant. Furthermore, the opportunity to convert an aircraft into cash in a short time with little or no loss in value makes it a more liquid asset in comparison to cruise ships (for which recovery statistics are not available). As a result, the percentage of Airbus aircraft deliveries covered by ECAs went down from 26 % in 2011 to only 6 % in 2015.

Excursus: The Challenge of Basel III for Commercial Banks

Due to the legal framework and their specific nature as official or quasi-official government branches, ECAs are usually treated as governments or government-related entities from a rating and regulatory point of view. As a consequence, commercial banks are able to apply risk weights for sovereign exposures for ECA loans under the Basel Accords. The Basel III framework strengthens prudential requirements on banks introducing new guidelines on capital, liquidity, maturity and leverage with the aim to reduce incentives for building-up high-risk, highly leveraged banks assets. The Basel III framework does not change the rules with regard to the determination of risk weights in the banking book. The Standardised Approach and the Internal Ratings-Based (IRB) Approach from Basel II remain applicable.

However, the non-risk-based leverage ratio (LR) can have a substantial negative impact on banks' appetite for sovereign exposures including loans insured by government ECAs. The main concern of many ECAs and the BU relates to the risk-insensitivity of the LR. For example, assets with the same nominal value but of different riskiness are treated equally and face the same capital requirement under the non-risk-based leverage ratio. Although there are continuing discussions to apply a preferential treatment for insured credits, the majority of commercial banks expect that the LR creates a substantial incentive for banks not to expand or even reduce their ECA-insured exposures. The new Basel III guidelines requiring banks to comply with tougher liquidity requirements for longer term operations (Net Stable Funding ratio) also discourages banks from providing long term funds

3.2.2.2 Authorisation

Evaluation

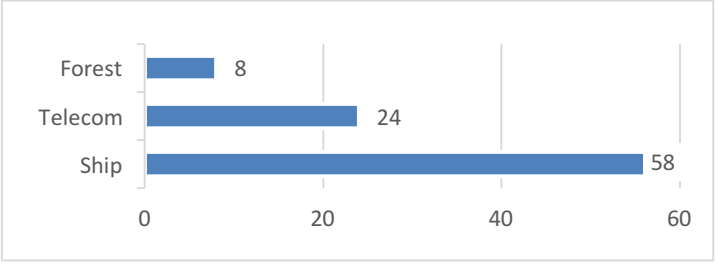
- There are significant increases of Finnvera's authorisation, and FV provides large amounts of export credit guarantees and special guarantees.
- In other European countries such as Austria, Germany and Sweden, there is either a stable development or a decrease in authorisation and/or exposure.
- Finnvera's lack of portfolio diversification is obvious, but there is no short-term alternative due to required support for ship financing in order to compete with foreign shipyards.

Authorisation and exposure are two main measures for an analysis of the level of government support and business development, but also for demand and portfolio risk management. The ceilings for FV's export support has been continuously raised. In 2016, the authorisation to grant export credits rose from €7 billion to €13 billion. The same applied for interest equalisation. The authorisation to grant export credit guarantees was also increased from €17 billion to €19 billion. The main objective was to improve the competitiveness of Finnish exporters enhancing opportunities to secure transactions with foreign buyers. Last September, the Finnish government proposed a further significant increase in the authorisation to grant export financing under the Export Guarantee Act. It is envisaged to raise the export guarantee authorisation from €19 billion to €27 billion. Authorisations for export credit financing and interest equalisation are expected to increase from €13 billion to €22 billion.

FV provides large amounts of export credit guarantees and special guarantees, rising by 41% in 2015 to a total of €5.6 billion. EU and other European countries were the main buyer countries representing 45 and 15% respectively, but North America was also a very strong market for Finnvera capturing 28%. FV's commitments were distributed among 62 countries, the biggest amounts pertained to exports to the US, Germany and Brazil. On the other end of the scale, Asia, the MENA region and Sub-Saharan Africa contributed less than 10 % to export credit guarantees coming into effect.

With regard to sectors, shipping companies are the dominant buyers in FV's portfolio. Telecommunications are important as well followed by the forest industry and power generation. Figure 18 shows export credit guarantees that came into effect by sectors.

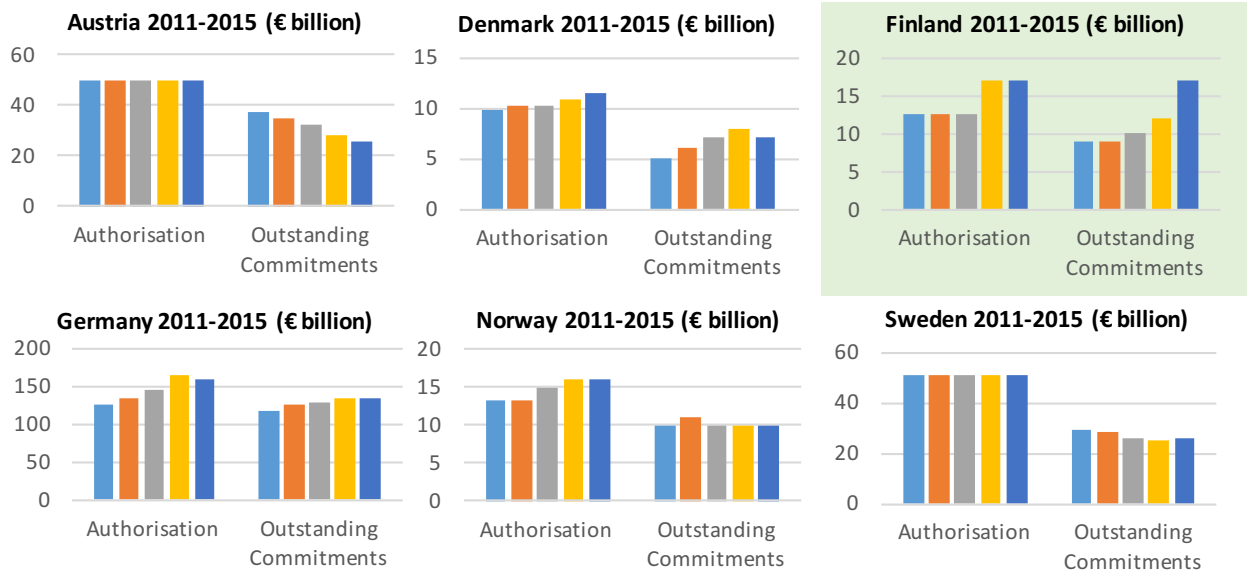
Figure 18: New Export Guarantees 2015 per Sector (%)



Source: Finnvera, 2016

Whereas authorisation and outstanding commitments substantially grow in Finland, there is either a stable development or a decrease in other countries such as Austria, Germany and Sweden. The global fall in demand for export credit agency support in OECD countries is related to factors such as a slowdown in global growth, a collapse of commodity prices as well as high levels of commercial banks' liquidity and a recovering commercial credit insurance market.

Figure 19: Authorisation and Outstanding Commitments (€ billion)



Note: There is as such not an official authorisation amount from the Danish Ministry of Finance on how big the exposure held by EKF can be, it is solely the non-restricted equity that constitutes how many new guarantees EKF can underwrite. The calculation is a combination of the non-restricted equity and the lower capital ratio requirement.

Sources: EH/PwC, 2016; EKF, 2016; EKN, 2016; Finnvera, 2016; GIEK, 2016; OeKB, 2016.

Figure 19 exemplifies FV's increase in authorisation and exposure, the substantial increase of Finnvera's support for cruise ships leading to a rising exposure is comprehensible due to the specific nature of the business and the necessity for ECA support. Finland is heavily supporting its client MeyerTurku Oy for ship financing. Other governments such as France, Germany and Italy also provide substantial support for their shipyard, but this support is less visible due to much larger economies mirrored in larger ECA portfolios. FV's missing portfolio diversification balancing between concentration on shipping companies and telecommunications and diversification is thereby creating threats. Details with regard to portfolio risk management are discussed in subchapter 3.5 below.

3.2.2.3 CIRR Cost and Competitive Position

Evaluation

- There is an inherent cost to the free optionality offered by Finnvera in offering and fixing the CIRR prior to disbursing a loan.
- In a low interest rate, low volatility of interest rates environment as has been the case in the last years, there is a significant risk facing the State Treasury should rates go up.
- The cost of this risk is best measured by the cost of options, should Finnvera have purchased these hedges.
- FEC states these free options are offered under competitive pressure and risks associated to them pointed out to MEE and State Treasury.

In essence, the cost of offering the CIRR can be calculated from a financial perspective. Throughout the life cycle of the export credit (from export contract negotiation until final repayment), there is an inherent cost to offering the possibility to fix an interest rate for a certain period without knowing:

- whether a commercial contract shall be signed
- when the commercial contract shall be signed
- whether a loan agreement shall be signed
- whether the loan shall be drawn
- when the loan shall be drawn
- whether the loan can be prepaid without actuarial break up penalty

This is tantamount to providing free options to the borrower. Therefore, in order to fully cover the interest rate risk, the lender could hedge this interest rate exposure. Because of the uncertainty surrounding the timing of signing, drawing and repayment of the loan, this could be done via interest rate options. Such options come at a cost.

The current overall CIRR approach, which is standard under the OECD Arrangement, is seen in Figure 20:

Figure 20: Application of CIRR under the OECD Arrangement

Description of Optionality	Lender is charging only 20 bps extra to the customer	Contract rate can be held. If offer rate still valid, offer rate can be maintained	Financial contract valid throughout the repayment, but drawdown schedule may not be fixed. Also, possibility for borrower to choose between fixed and floating at delivery. Commitment fee is mitigant.	If no penalty is charged and interest rates have fallen since fixing rate.
Tenor	Valid for 120 days, can be renewed for another 120 days	Valid for 180 days.	Depending on drawdown and construction period	Depending on the timing and size of the prepayment

Source: Developed for this Report

Potentially, the cost of offering free optionality in a low interest rate and low volatility environment can have major consequences for the State Budget, should there be a sudden increase in interest rates and/or there is volatility. An illustration of the cost of this optionality has been added in Annex 1. To provide a precise calculation of FV's level of the interest rate risk and the cost of hedging would require examining the entire loan book to quantify the exact costs of optionality/hedging costs at each stage of the transaction and therefore to determine the economic interest rate risk. As interest rates are volatile, this would also require regular updating (mark-to-market of the value of the option), which is not feasible in the context of this exercise.

Finnvera's competitive position in use of CIRR is largely driven by the creativity/flexibility with respect to CIRR's application. The construction of the CIRR is clearly defined in the OECD Agreement. However, the application of the CIRR varies by country, there is room for interpretation and there is limited harmonisation of approaches. The EU "mini-package" on CIRR dictates some standards for holding and locking-in rates but allows Member States to provide less flexibility as desired.

The differences in applying a different CIRR rate are largely driven by the funding cost of the ECA and, indirectly, of the sovereign as the latter would be guaranteeing the ECA's funding program. The other building blocks of the fixed rate offering are credit spreads, optionality, both to some extent and floating rate schemes (which is not regulated at all). The lower the funding cost, the less the need to be 'flexible' when using optionality, credit risk premiums or floating rate schemes. As seen in Table 2, apart from the Southern European countries, differences in sovereign bond yields are small, meaning the use of some optionality or floating rate schemes could easily bridge any gaps.

Table 2: Comparison 10-Year Euro Government Bond Yields

Country	10 Y Govt Bond Yield
Germany	0.27%
Denmark	0.38%
Finland	0.46%
Sweden	0.58%
Austria	0.52%
France	0.78%
Italy	1.88%

Source: Bloomberg (10/1/2017)

Southern European countries are said to apply lower credit risk premiums and innovative floating rate schemes for the shipbuilding sector, in which credit risk premiums are still an unregulated territory and, therefore, they are trying to offer competitive interest rates.

Based on the interviews conducted, all competing countries have confirmed the CIRR application is a 'downhill race'. In terms of flexibility and creativity, evidence from interviews conducted shows that when comparing Finnvera to other Northern European countries, optionality practices are broadly comparable with what is offered by Swedish (for business other than ship finance) and Norwegian peers with slight differences: whilst they are offering optionality at the drawdown level, Finnvera is offering a very expensive option (be it on a case by case basis) by allowing the borrower to choose between a fixed rate and a floating rate at delivery of the vessel. Finnvera is therefore less flexible when requiring commitment fees for the drawdown period but more flexible (on a case-by-case basis) when offering 'walk away optionality' from fixed rates at the delivery of the vessel for the shipbuilding sector but this is not the usual practice as Finnvera stated that it applies this practice when it has had to "match" other ECAs in some walk away optionality.

3.2.2.4 Refinancing Guarantee

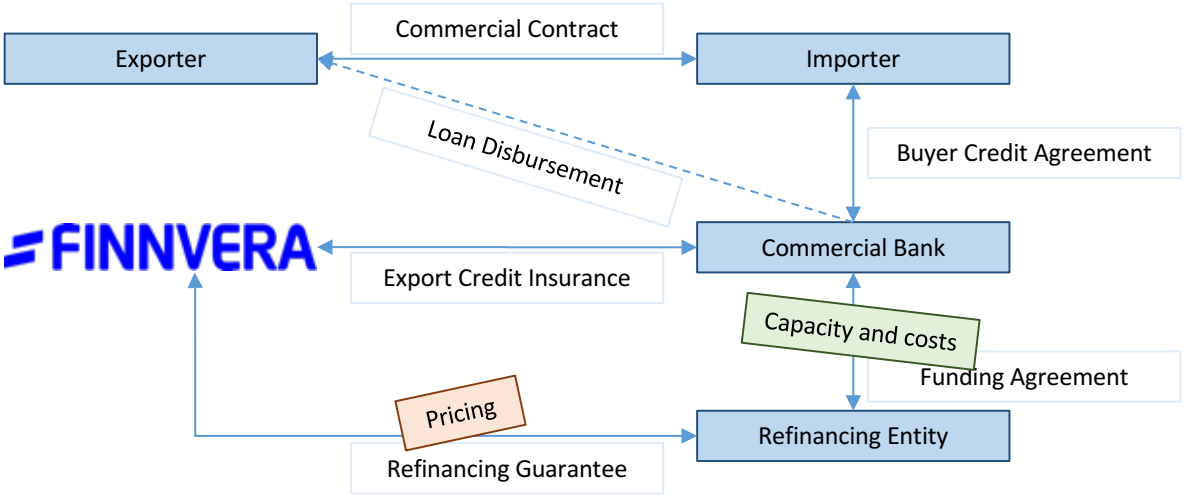
Evaluation

- A refinancing guarantee is an important instrument for ECAs to address market failure.
- The introduction in Finland was too late for this addressing.
- The pricing for refinancing guarantee might be appropriate, but is not attractive for commercial market participants.

In 2015, Finnvera introduced a 'refinancing' or 'securitisation' guarantee in addition to the buyer and supplier credit offering. The refinancing guarantee is a separate guarantee, in particular for institutional investors, facilitating the funding of export credits granted to buyers. It can be used as well for domestic investments that benefit exports. FV followed the example of several European ECAs after the 2007-8 financial crises. Germany and Switzerland, for example, developed refinancing programmes or securitisation guarantees in 2009 to enable refinancing options for commercial banks' export loans by providing significantly improved terms. A main advantage of the refinancing guarantee was an increased capacity to support export transactions by allowing commercial lenders to shift an existing portfolio and thus commit released funds to new transactions. In addition, long term institutional investors looking for sound investment assets, for example in infrastructure, were able to enter the export financing arena. Refinancing guarantees also facilitated the access of commercial banks to required funds at favourable conditions they could pass on to the foreign buyer.

Our assessment shows that the introduction of a securitisation guarantee was an important contribution to the overcoming of the export finance gap after the 2007-8 financial crisis. Most European countries do not have a direct lender, and a main obstacle for commercial banks to entering into new export credits was the lack of refinancing solutions. In addition to tools such as covered bonds or the acceptance of export credits as eligible collaterals at Central Banks, the refinancing guarantee facilitated numerous transactions in several countries. However, the market environment today is different. Interviewees mention that, in general, refinancing guarantees are not very attractive. This applies not only to Finland but also other countries such as the Netherlands or Switzerland. Reasons are, in particular, a non-attractive pricing from a refinancing entity's perspective, and that there are easier and cheaper ways to fund loans due to sufficient market capacity.

Figure 21: Refinancing Guarantee



Source: Developed for this Report

3.2.3 Finnish Corporates' Medium and Long-Term Demand

With regard to Finnish corporates' medium and long-term demand in the context of export financing operations, the Consultants have to examine FV's functionality in the long run based on estimated financing demand in the near future for core Finnish export industries.

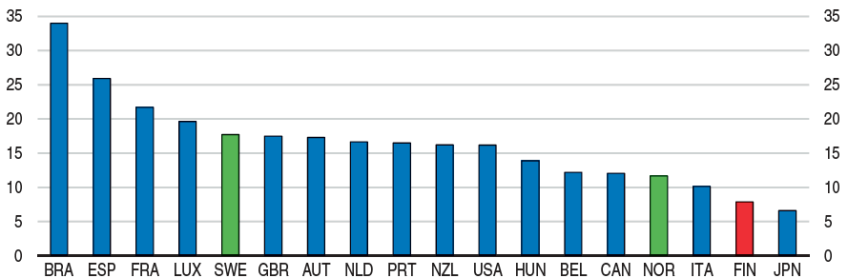
3.2.3.1 Finnish Enterprise Landscape and Government Support

Evaluation

- Finland has many strengths, and SMEs are the backbone of the economy.
- In addition to financial constraints, there are challenges regarding start-ups as well as innovation and R&D creating doubt for a successful development of a knowledge-based economy in the future.
- The Finnish government successfully works on a coherent strategic ecosystem, for example with the creation of Team Finland.

Finland has a highly industrialised and stable economy with a government focused on building a global marketplace and removing trade barriers. The strengths of the Finnish market particularly include global leadership in telecommunications and innovative technology applications, as well as an open business environment The Finnish enterprise landscape with approximately 270,000 firms is dominated by SMEs. 99 % of all firms are small and microenterprises with less than 50 employees (Huovinen, 2011). SMEs are of critical relevance for the Finnish economy as they make up the vast majority of all companies. In Finland, SMEs which belong to the future critical industries, such as cleantech, bioeconomy and digitalisation are more dynamic and internationally oriented and are expected to create more jobs than average SMEs. Also young companies are important as economic renewal relies on their contribution to job creation through their growth. As shown in Figure 22, Finland has fallen back as the proportion of young companies is smaller than in many other companies and start-up rates are least in Europe (Bank of Finland, 2016; OECD, 2016).

Figure 22: Start-Up Rates (%)



Selected OECD countries, 2011 or latest year available. Source: OECD, 2016

Since the economic downturn following the financial crisis and decline in demand from Russia and China, profit margins in Finnish companies have suffered, which has had a detrimental effect on investment and R&D activities, slowing down the creation of production capacities and innovation. Together with reduced access to finance, this situation is particularly critical as sufficient expected returns and access to adequate funding, are the fundamental for cutting edge technology and innovation, in which many Finnish companies are active (OECD, 2016). Finland together with Sweden, Denmark and Germany is still an innovation leader and exhibits the highest R&D intensity in the EU, despite a decline consequently to the financial crisis. But, as the EU Commission (2016) claims, these activities do not convert adequately into new products and services. Additionally, R&D expenditures have picked-up again in the OECD on average, and especially in Germany or Sweden, in contrast to Finland, which according to the OECD (2016) is a cause of concern for a knowledge-based economy. Furthermore, fewer Finns have the intention to start their own business and believes they are lacking the necessary skills (EU Commission, 2016).

The Finnish government has announced to strengthen support in particular companies active in areas such as cleantech, bioeconomy and digitalisation which are also the areas which are expected to contribute significantly to job creation and export products (European Commission, 2016; OECD, 2016). The Finnish government is very active in supporting Finnish exports to grow and export with the approach of a coherent 'strategic econystem'. Team Finland was created in 2011 with the aim of helping Finnish companies become more international and increase exports, as well as to diversify export destinations. It provides co-ordinated government services to businesses, including includes financial support for exports, promotion and visibility and support services such as market analysis and contacts in new market destinations (Team Finland, 2017). In addition, an agreement with the EU was signed last year to implement a SME financing scheme combining funds from the EU, the European Investment Bank and the Finnish budget. The scheme will provide funds through financial intermediaries which apply and make new funding opportunities available to SMEs. The scheme aims to increase the competiveness of the sector through better access to finance (EIB, 2016).

3.2.3.2 Export Credit Demand for SMEs and/or Small Transactions

Evaluation

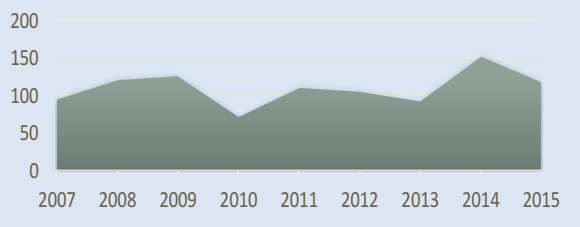
- There is an increasing demand for public support, in particular for small transactions.
- Despite substantial efforts, FV's intervention for SMEs is stagnating and seems to address the sector only partially.
- Interviewees emphasise the need for a fully-fledged direct lending programme, in particular for SMEs in order to avoid financial market failure.

Interviewees mention that SMEs show an increasing demand for public support, in particular with regard to small transactions. This applies not only in Finland, but on a European level. FV offers a broad portfolio of solutions such as advance payment bonds, working capital for export products, export credits and interest equalisation as well as export credit guarantees. There is a close collaboration between the Finnish funding agency for innovation (Tekes) and FV jointly supporting innovative firms. In addition, FV designed an 'SME Export Finance Programme' for Finnish corporates to better educate enterprises regarding financing solutions and the benefits of export credit insurance.

Finnvera's intervention can be justified due to these significant and persistent market failures. FV has a very broad client base with more than 28,000 firms overall but also dominated by SMEs. 89 % of FV's customers are micro-enterprises, 10 % are SMEs, and 1 % are large corporates. Smaller companies are mainly supported via domestic financing and guarantees. Contrarily, export support by Finnvera is dominated by few but large corporations which are often global players. The nominal level of export support for smaller exporters, characterised by Finnvera as 'enterprises aiming at growth and internationalisation' is stagnating for years, but as the volume of export credit guarantees for large exporters has been increasing in the last years, the proportion of SME export guarantees within Finnvera's portfolio shrunk.

However, Finnvera seems to address the SME sector only partially. Although there are substantial efforts to supply the demand for export financing at different stages by offering a variety of products and services, FV mainly supports few large corporates. As shown in Figure 23, SMEs are much less relevant with a constant demand.

Figure 23: FV SME Export Guarantees (€ m)



Sources: Finnvera, 2016; OECD, 2016

Consequently, exporters (and other ECAs) emphasise the need for a fully-fledged direct lending programme for SMEs to avoid financial market failure. There are ongoing discussions in other

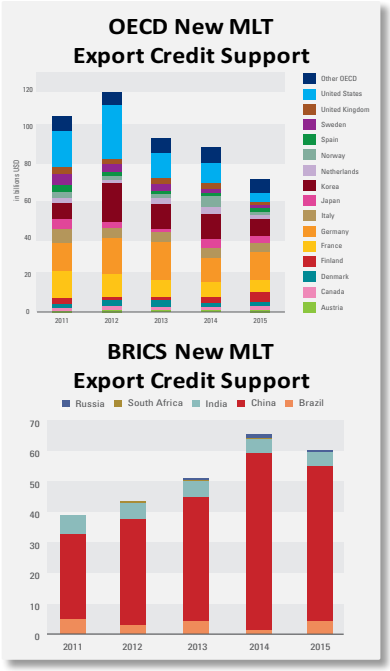
countries about operating direct lending programmes, in combination with innovation funds. This indicates that there may be a future need to counteract rival export credit agencies although SME direct lending entails accepting increased risk levels compared to present risk levels. Under the FEC financing scheme, FV already provides long term export and ship credits. However, interviewees mention that the structure with FEC and the financial institutions (which arrange the credit via a co-operation agreement and supplemental agreements for every single transaction) can be scary and intimidating for small and medium-sized enterprises. The same applies for the combination of borrower base rate, FEC margin, handling fee and commitment fee. In addition, co-operation banks are mainly foreign banks with very limited or no market presence and reach in Finland.

3.2.3.3 Export Credit Demand for Large Corporates and/or Large Transactions

Evaluation

- There is a decreasing level of demand in some OECD countries but increased volumes of export credit support in emerging economies.
- Export credit financing for cruise ships is expected to remain high, and all interviewees expect no substantial change of market offering.
- A fully-fledged direct lending programme should also be considered for large transactions.

Figure 24: Trends for MLT Support



Sources: US EXIM, 2016

For large transactions, decreasing levels of demand in OECD countries reflect the availability of sufficient medium and long-term funding capacity in the commercial bank and debt capital markets. On the other hand, emerging economies such as China and Brazil have substantially increased volumes over the past five years (Figure 24). Similar to Finland, France, Germany and Italy, China provides large loan facility to domestic shipyards. Waigaoqiao Shipbuilding, a subsidiary of China CSSC Holding, recently announced plans to build China's first luxury cruise liner and will likely apply for export credit financing from Chinese institutions such as Sinosure or China Ex-Im Bank.

In addition to financial market considerations (see 3.2.2 above), interviewees expect no substantial change to the market offering from commercial banks. It is expected that demand for export credit financing in Finland for large transactions is supposed to remain stable in the long run due to a continuous market failure not considering cyclical trends. This applies, in particular, to cruise ships. Other ECAs providing export credit support for cruise ships report stable numbers as well. Germany, for example, showed outstanding commitments of €30 billion in the ship sector in 2015 covering a volume of new export credit guarantees of €5.1 bn only in 2015.

In addition to a need for continuous Finnish support for large transactions through export credit insurance, interviewees even emphasised a need for direct lending for larger transactions. Our assessment shows that this can not only be related to FV's countercyclical role addressing coordination failure but also being pro-cyclical with a need to finance, again in particular for cruise ship transactions. If Finnvera were to consider the introduction of a full direct lending programme for SMEs, adding larger transactions to a loan portfolio can be important in order to minimise risk and reduce transaction costs. As small ticket loans would create a substantial amount of work load for FV staff, medium-sized or larger transactions can help to become more profitable.

3.2.4 Selected Operational Considerations

Assessing Finland's public export financing system function with regard to selected operational considerations, the Consultants have to examine faults and positive aspects of the current system. Our assessment covers selected strengths and weaknesses with regard to the client performance, but also looking at process and organisational perspectives as well as product offerings.

A SWOT analysis would be an appropriate tool breaking down the internal analysis of the organisation and the external analysis of the relevant market into four areas. Due to the limited scope, methodical, time and data constraints, this sub-chapter will focus on selected aspects of FV's internal perspective (Figure 25).

Figure 25: FV's Strengths and Weaknesses

Source: Developed for this Report

3.2.4.1 Customer Perspective

Evaluation

- Finnvera's strategy is client-focused with professional and competent service aiming at the best customer experience in the reference group.
- However, interviewees mention a lack in proactivity and a defensive risk attitude.
- Some midsize and large exporters perceive that they are partly neglected by Finnvera.

Strategy work with a focus on client experience has been an important task for Finnvera in the past few years. Following a reorientation towards a customer-centric approach, there is now a clear promise that FV helps "clients to succeed" through the organisation's "know-how and active approach". Finnvera's strategic goals centre around client experience, effectiveness and team play. FV describes itself focusing on "clear, solution-oriented, and proactive" operations for a better client experience, and a customer service which "is the best in the reference group".

Interviewees mention that the customer service is very good with excellent account managers, as all of the participating clients as well as financial intermediaries were unanimously stated that they highly appreciate Finnvera's services. This service has significantly improved in the last years

also in terms of speed of the processes. It is also perceived that Finnvera staff is committed, very approachable, friendly and flexible and also offering a competent service. This also means that the decision making is mostly solution-oriented and the integration into Team Finland has supported the perception of a solution provider. Finnvera is highly respected in the international ECA community and, in particular, "young" ECAs consider Finnvera to be the international best-practice. Peers often use FV as an example against which to benchmark their own approaches to the client experience.

Some exporters, however, mention that Finnvera is still perceived as a reactive organisation which only moves when the exporter approaches the staff. Other ECAs such as EKN are perceived to be more aggressive and to signal more that they want to make the deal for their exporter. Italy's Sace, for example, is far more visible in target markets for potential importers. This also shows through in terms of risk taking, and that there seems to a lower risk tolerance at other ECAs when being offered transactions outside of OECD countries with higher country and credit risks. Some Finnish exporters explain that they have been struggling to get deals covered by Finnvera. In cases where their competitors were also bidding, these were often able to access full coverage from their ECA. In contrast, Finnvera is perceived as able to offer only partial coverage more often than other ECAs. As an alternative approach to win the deal, Finnish exporters then have to find full or partial cover at the London market or a multilateral development bank. Some exporters even mentioned that Finnvera seems to be glad if exporters are able to secure export deals without FV's support in higher risk countries.

Midsize and large exporters also emphasised that they feel partly neglected by Finnvera. Interviewees described a perception that the portfolio is dominated by few but large transactions of Finland's two largest exporters and because these deals reach billion Euro levels, Finnvera has focused many competencies around these companies and their business. As a consequence, FV seems not to show the same effort in building up competencies and knowledge for other industries such as the energy and forest sectors.

3.2.4.2 Organisational and Process Perspectives

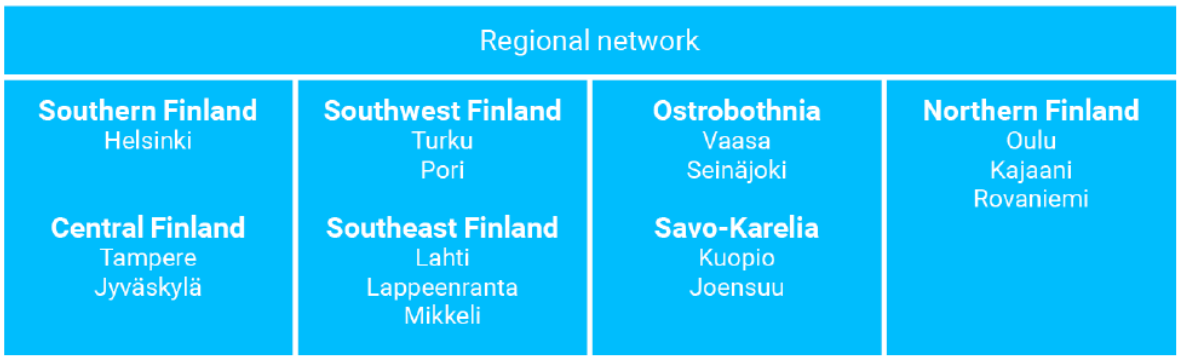
Evaluation

- The "one-stop-shop" integration of Team Finland is a benefit for the client.
- Targeting SMEs via a national network of offices and a special unit is viable. However, international presence targeting buyer countries could be improved.
- Interviewees mention that Finnvera's documentary requirements can slow the process down.

Finnvera is part of Team Finland, which combines all government services to support economic development and international trade under one roof. The Team Finland approach of integrated services allows Finnish companies to have contact with only one organisation in the sense of a "one-stop-shop". It also allows to 'hand-over' clients between members of Team Finland developing and supporting companies to grow over time. This contributes to Finnvera's approach of offering service and financing for all stages of a company's lifecycle. Larger exporters however usually mainly make use of Finnvera's services solely. Interviewees confirm that the Team Finland approach with the integration of several government services is positively perceived due to allowing access to diverse services via one port of call whereas in other countries these services are divided between different players.

To support clients throughout the country, Finnvera's SME services use a network of 15 local offices all over Finland (Figure 26). The countrywide network in Finland allows FV to be closer to existing and potential clients and offering services in the clients' regions. Interviewees mention that this approach also increases visibility. In addition, Finnvera employs a direct approach to target SMEs with a special organisational unit. Projects by companies with a turnover below €300 million are handled by the SME unit. Our assessment shows that Finnvera puts in a lot of effort and resources to engage with SMEs, assess their actual needs, and to educate and support them. In addition to the domestic offices, Finnvera also has a representative office in St. Petersburg to ease access into the Russian market. It is understood that a limited number of Finnvera staff is very active in international organisations and at commercial conferences which is perceived as very positive. However, exporters mentioned that they would wish for an even stronger and broader presence of Finnvera/Team Finland staff, particularly in target markets in order to be more visible to potential importers. Interviewees mentioned that other countries have foreign representative offices in target markets and are more active, approaching buyers in a proactive manner. Establishing a Finnvera presence could increase signalling to buyers that support is available for exports from Finland. However, the cost versus the potential benefit would need to be analysed as it is easier and more suitable for those ECAs supporting more diverse domestic economies to open country offices in target markets, for example, in Africa and the Middle East.

Figure 26: Finnvera's regional network



Source: Finnvera, 2016

In general, ECAs are often regarded as bureaucratic. Some interviewees express concerns that lengthy processes suit the very large clients but do not necessarily match the needs of SMEs as these are in a very different situation with regard to the place in the value chain, the type and the size of the business and the challenges they face. In addition, the formal requirements of the processes, which are built around the needs to cover larger transactions of large corporations are described as too overwhelming for midsize and smaller companies. According to our assessment, FV's approach has been substantially enhanced in recent years to address this challenge. A new Service Centre was incorporated into the new Service Production Unit in 2016 housing activities pertaining to SME services and financing decisions when a centralised approach is needed. Interviewees' criticism might thus be based on historical experience.

Large exporting corporations mention the significance of the letter of intent as a tool to secure export deals. For them, the speediness of this letter of intent is important to secure export deals and to obtain a competitive advantage. The largest exporters such as MeyerTurku are aware that considering the size of their transaction, they do challenge Finnvera's risk bearing limits with every single deal, and that this has repercussions for the capacity available for others.

FV's approach and quick response time is highly valued. The assessments show, however, that Finnvera is perceived to have stricter formal requirements than some other ECAs with regard to the provision of transaction documents. Although FV is not covering documentary risk, these documentary requirements seem to slow the process down and can put Finnvera at a competitive disadvantage with peers. The German ECA, described by interviewees as comparatively mechanistic and bureaucratic, leaves the documentation to the financial intermediary. Finnvera's documents can also create liability risks even with a formal disclaimer if underwriters review and comment on legal documents of the transaction although it has to be mentioned that liability risks have never materialised.

3.2.4.3 Product Perspective

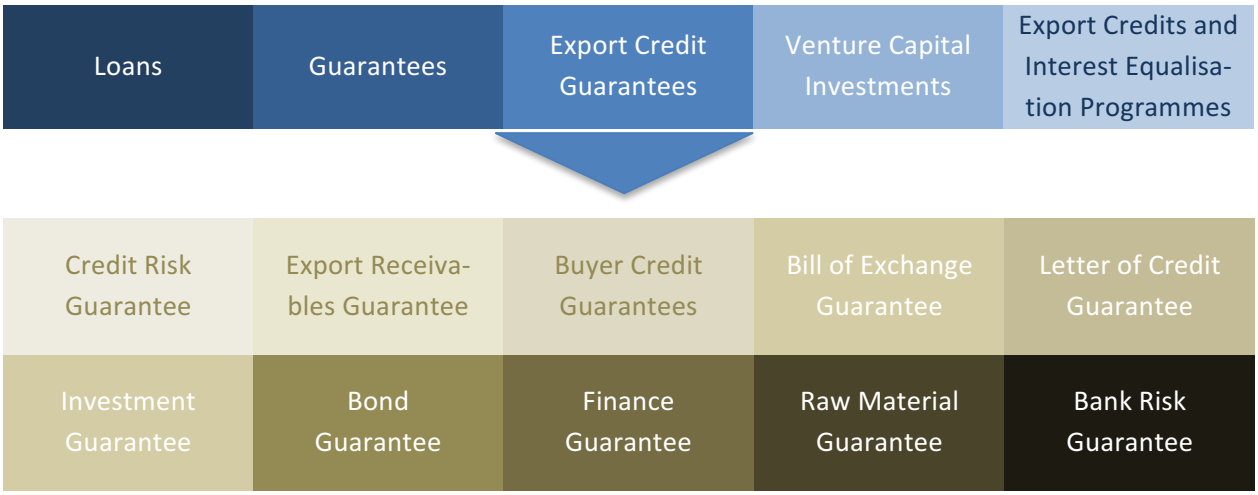
Evaluation

- Finnish exporters benefit from a broad and competitive product portfolio.
- Interviewees mention that Finnvera is very innovative in developing new products focusing on exporters' needs.
- A fully-fledged direct lending offering would be highly appreciated but is missing.

Finnvera offers a very comprehensive product portfolio across export financing and guarantee needs out of one hand, which is complemented with domestic services as well as innovation fi-

nancing and venture capital under the roof of Team Finland. The product portfolio covers all relevant stages of a company's lifecycle. In general, the products can be categorised into five product categories and, breaking down the products for FV's export credit guarantee portfolio, Finnvera offers a variety of risk instruments (Figure 27):

Figure 27: Finnvera's Product Categories



Source: Finnvera, 2016

Interviewees mention that Finnvera offers an extremely broad and competitive portfolio in comparison with other ECAs. It has also been emphasised that FV is very innovative in focusing on exporters' needs. For example, the product portfolio was extended by adding a Bill of Exchange Guarantee and an Export Receivable Loan in 2016. The Bill of Exchange product is designed to suit transactions up to €2 million, and thus might be appealing for smaller exporters. The introduction of the Bill of Exchange as a new product by Finnvera has been welcomed by the clients. But some exporters state that for guarantees larger than €2 million, a simplified process is not available and therefore the bureaucracy/requirements make it impractical and even impossible for them to use. As this product was designed predominantly for smaller transactions, these larger exporters are not the target client for this product. However, there may be a demand for similar products also for larger transactions.

As discussed in Sub-Chapter 3.2.3, the main weaknesses from the interviewees' perspective is a fully-fledged direct lending offer.

3.2.4.4 People Perspective

Evaluation

- Finnvera has qualified and committed staff as well as low fluctuation.
- Interviewees mention FV's ageing workforce as a challenge because one in five of employees will retire within the next five years.

Management and staff of an insurance organisation are its most important assets. Finnvera's human resources strategy specifies that committed personnel is the basis for FV's good customer experience. Market impact and customer experience usually highly correlated with organisational dynamics and staff engagement. There is a stable level of core business staff at Finnvera, and management clearly recognises the value of staff input. In the past few years, Finnvera has undertaken ambitious initiatives to support engagement and business development. Finnvera invests into increasing staff experience clustered into key areas (Figure 28).

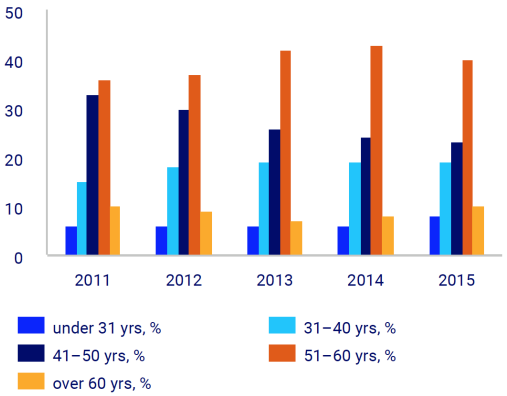
Figure 28: Finnvera's Areas of Expertise

Clients & Sale	Networking & Partnerships	Financing Solutions & Understanding of Risk	Management	Management one's own Performance

Source: Finnvera, 2016

Interviewees mention FV's knowledgeable, qualified and committed staff. Larger exporters appreciate the account managers dealing with their specific needs but also see that this is a scarce resource which could turn into a bottleneck when quick action is needed to secure an export deal. Another strength is the low fluctuation rate of staff. However, interviewees also recognise that the age distribution of Finnvera's workforce is skewed towards older cohorts, and the group of 51-60 years is the largest (Figure 29). Because Finnvera's staff is ageing and one of five employees will retire within the next five years, there is a perception of a substantial risk of an outflow of expertise and knowledge. Better use of digitalisation opportunities has been described as a possibility to manage this transition.

Figure 29: FV's Personnel Age Distribution 2011-15(%)



Source: Finnvera, 2016

3.3 Economic Impact Measurement

With regard to the economic impact of export financing in Finland, the Consultants have to assess as to whether the goals set in the Parliamentary Acts have been met, not only from an individual exporter's view but also from a macroeconomic perspective. This assessment is based on earlier impact reports, looking at the kind of impact but also examining whether the impact of export financing has been measured in a sufficient way.

3.3.1 Appropriate Approach Goals/Impact

Evaluation

- Goals identified within the Parliamentary Acts are broadly met.
- Goals are broadly defined with flexibility and room for interpretation, and specific criteria on innovation and competitiveness absent.
- Evidence of considerable direct, indirect and induced economic impacts is demonstrated.
- The measurement of existing economic impacts is appropriate and comprehensive in tracking for a range of wider impacts.

The adequacy of existing impact studies was assessed based on a range of factors related to the identification, measurement, evaluation and mitigation of key impacts. An assessment of how existing studies dealt with the links between Finnvera's mandate to support exporters as provided for within the relevant export policy instruments, and the nature of national ownership (Finnish interest) was made. Additionally, this assessment considered some opportunities to further enhance existing measurements. Judgement of the rigour of existing measurements is based on reviews of official reports and publications, Finnvera's annual reports and official statistical data, and supplemented by interviews with key respondents including policymakers, exporters and subcontractors. International comparisons placed the approaches, indicators, measurement and analysis practices in context.

Impact assessment on projects which carry regulatory or policy conditions, such as an ECA, requires tools which consider both the regulatory efficiency and effectiveness as well as the ECA's ability to achieve the set societal aims. Such assessments help to improve the efficiency, effectiveness, transparency and accountability of decision-making (Jakubec and Kelly, 2016). Assessing the impact of Finnvera's activities is therefore critical, not only due to its broad development mandate, but also its ability of Finnvera to influence private sector activity and potentially alter the business environment for Finnish exporters.

Adequacy of existing studies on Finnvera's impacts was therefore assessed through the twin concerns of efficiency and effectiveness. Efficiency in terms of Finnvera's risks and costs relative to its economic benefits was examined, alongside its effectiveness in meeting the strategic development objectives as set in the national legislation.

This assessment finds that an appropriate approach exists to support the internationalisation of Finnish enterprises, competitiveness and support export financing for growth. Traditional metrics tracking economic impact are well covered within existing studies (standard indicators like employment creation, production outputs and enterprise creation track the quantifiable impacts generated by FV's activities). Review of the methodological approaches within existing impact studies finds these to be rigorously applied and of internationally comparable standards. The input-output analysis in existing studies enables the comprehensive assessment of economic impacts derived from given inputs or investment. Simpler or more accessible methods are unlikely to be as comprehensive in terms of tracking for the required broad aims.

Assessment of the data-sets used in the existing analyses finds these to be credible, consistent and originating from standard, official sources. The accuracy, timeliness and completeness of the data appears fitting. Determining which data to use, its availability and credibility are crucial to effective impact assessment (see Poole *et al,* 1999). Credibility and reliability of data influences how well any analysis is received by stakeholders. Poorly collected or unreliable data damages the usefulness or relevance of any impact study. A determination of data needs, an evaluation of the data-sources already collected and available, and the feasibility of collecting data which may be missing or unavailable are some of the issues which influence the design of appropriate impact assessments. Additional considerations are costs, evaluation strategy and the availability of technical expertise either in-house or externally.

Accurate measurement of the specific impacts arising from the ECA's increasing authorisations is a complex undertaking in practice. In theory, the analysis of actual and potential impacts in terms of employment or production outputs could utilise a range of distinct methodologies. In practice, if applied with different levels of expertise, certain economic methodologies may result in widely divergent estimates even for similar types of public policies. Factors underlying this variability in estimation relate to differences in data availability, technical precision and model specifications as well as the expertise involved in constructing and interpreting the model results.

Based on a comprehensive review of existing information, we find the design of the existing impact studies to be appropriate to the task at hand. Relevant quantitative economic metrics are measured to estimate direct as well as indirect and induced impacts. The existing ECA impact assessments are mostly reliant on input-output approaches to track these. This is a standard approach to modelling economic impacts at either local, regional or macro levels. Input-output models are used in multiple countries and are useful for comparison and in modelling sectoral

interdependencies. Appropriate expertise is needed for the effective interpretation of input-output results using a range of analytical techniques, e.g. structural path decomposition, perturbation analysis and structural path analysis (e.g. Owen *et al,* 2014; Steen-Olsen *et al,* 2016; Judd, 1996; D'Hernoncourt *et al*, 2011; Owen *et al*, 2016).

The evidence of economic impacts arising from Finnvera's activities is well supported. Existing studies indicate the existence of significant economic impacts in terms of employment, production outputs and export volumes linked to public export credits and guarantees which influence export performance. These impacts are notable when considered alongside the relatively small share of total exports supported by export financing. Only a small proportion of Finnish exports, typically less than 4%, are covered by guarantees. At the same time, the use of export finance is strongly concentrated in a small number of key economic sectors. This may be linked to differences in the financial vulnerability of particular industries. The variation is of significance in realising an export creation effect.

Existing impact studies provide credible evidence of Finnvera's activities contributing directly towards enhanced export activity. The impact review covering the 1999-2004 period estimated that Finnvera's participation in over 4,000 export transactions led to an estimated €15 billion in production impacts and 100,000 person-years being added to the Finnish economy from supported export support (Pukkinen and Stenholm, 2006). Similar trends are evident in later impact studies. In addition to employment and production impacts, additional direct impacts are evident in enterprise formation. A stable rate of start-up creation is shown in the number of start-ups supported through Finnvera, regularly equivalent to about 10% of total firms established annually (Finnvera Annual Reports, various).

Table 3: Direct Jobs, Start-Ups and Exports Covered by FV's Activities (2011-5)

Year	Direct Jobs	Start-Ups	% of Exports covered
2011	10,159	3,397	4.5
2012	8,660	3,123	4.5
2013	8,663	3,473	3.8
2014	8,105	3,247	3.6
2015	8,624	3,556	4.3

Sources: Finnvera, various

Review of the available evidence supports the assessment that Finnvera's participation directly contributes to the set goals in the Parliament Acts by enabling the materialisation of export deals for Finnish enterprises. Finnvera's export financing enables the participation of Finnish players in competitive international export deals as well as securing of high-value and long-term projects. Importantly, export support within a highly-competitive international environment supports Finland's national interests (competitiveness) by locally securing jobs and production that would

have otherwise moved overseas as part of outsourced production. This critical role in the retention of jobs and domestic production is important in supporting Finland's economic performance and enabling firms to stay and grow.

3.3.2 Sufficient Measurement

Evaluation

- Innovation is a crucial indicator supporting long-term competitiveness but is not sufficiently captured in existing studies.
- There is a need to track qualitative impacts alongside the conventional quantitative metrics.
- In addition, there is a need to identify transitory (short-lived) impacts alongside the more persistent (long-lived) impacts to meet policy goals.
- The Consultants identified some areas for improvement to enhance current impact assessments.

Conventional measures of economic impact are appropriately covered within existing assessments of Finnvera. A primary focus on quantitative impacts, while important, may miss out on qualitative or intangible impacts occurring as a result of Finnvera's activities. Existing studies, for example, do not appear to sufficiently capture the hidden innovation occurring in the Finnish export sectors through participation in international markets.

Knowledge spill-overs generated in the export sectors from the proximity to international competitors or the innovation arising from links to global supply networks are important for growth yet these are not captured in existing metrics. Part of this has to do with the methodological limitations of existing evaluation methods. Traditional measures of economic impact are somewhat narrow in this regard and fail to capture indicators of new ideas, process or product improvements, enhanced skills and efficiencies which underlie the key policy aim of competitiveness.

Innovative capacity or technical efficiency at industry or firm-level underline the productivity and efficiency needed to strengthen a country's global competitiveness. A co-ordinated tracking of innovation measures can generate economic benefits. Comprehensive indicators of skills, efficiency and innovation should be considered alongside narrower measures of impact. Adopting a coordinated, '*one-stop shop*' approach to the monitoring of economic impacts from public support (as part of TeamFinland) can also reduce perceptions of disjointed initiatives.

One important limitation of current studies based on input-output analysis concerns the challenge of not being able to identify how much export activity would have occurred anyway in the absence of official export support. In this context, qualitative methods including interviews with key exporters and expert respondents can help generate detailed insights into the efficacy of Finnvera's activities. Closer interactions with supported firms and periodic surveys/interviews may help to generate in-depth insights into their operations and evidence wider, industry or sector level impacts from export support.

Alongside the existing quantitative measures of economic impacts, qualitative measures can also reveal wider impacts than are currently being demonstrated. For example, counting the number of jobs created may not sufficiently capture the quality of employment created (whether the jobs are skilled/unskilled, temporary/permanent, higher incomes or education levels). Total jobs data may also not sufficiently capture how export credits are contributing to changes in the nature of labour-force participation, such as its composition (male/female participation, age and skills of workers in supported sectors), labour productivity or even the permanence of the reported employment created.

There are improvements to be achieved from tracking whether the gains generated are durable or transitory. The efficacy of industrial policies lies in their ability to generate durable impacts in targeted areas. For Finnvera, improvements could be achieved in monitoring the quality and durability of the employment, supply-chain linkages or local sourcing trends within supported Finnish export sectors. This is of particular relevance when compared with international examples in China and India where governments actively pursue initiatives to modernise and diversify the economies in targeted industrial or rural sectors (Zheng *et al,* 2015; Rodrick, 2004).

Existing impact analyses make use of input-output analysis which has numerous strengths in the ability to comprehensively model industry linkages and impacts. The estimation rigour is sufficient for current purposes but there are some limitations inherent in this approach. The scope of current impact measurements is focused on domestic impacts at an economy-wide level. Analysis based on aggregated data may suffer from aggregation bias. Additionally, different industries respond to shocks in different ways. The existing approaches could be extended or further supplemented to assess differences in impacts across industries or to include international effects. Econometric approaches can be used to more effectively demonstrate detailed impacts and supplement existing input-output approaches. For example, in impact studies of the German ECA, econometric analysis supplements similar studies (e.g. Felbermayr and Yalcin, 2013).

For likely improvements in the demonstration of specific impacts, a range of alternatives exist for use within economic impact analysis in development contexts. Computable general equilibrium (CGE) or applied general equilibrium (AGE) models are viewed within economic impact analysis as being more rigorous, quantitative techniques (Devarajan, 2002). Such models capture a much

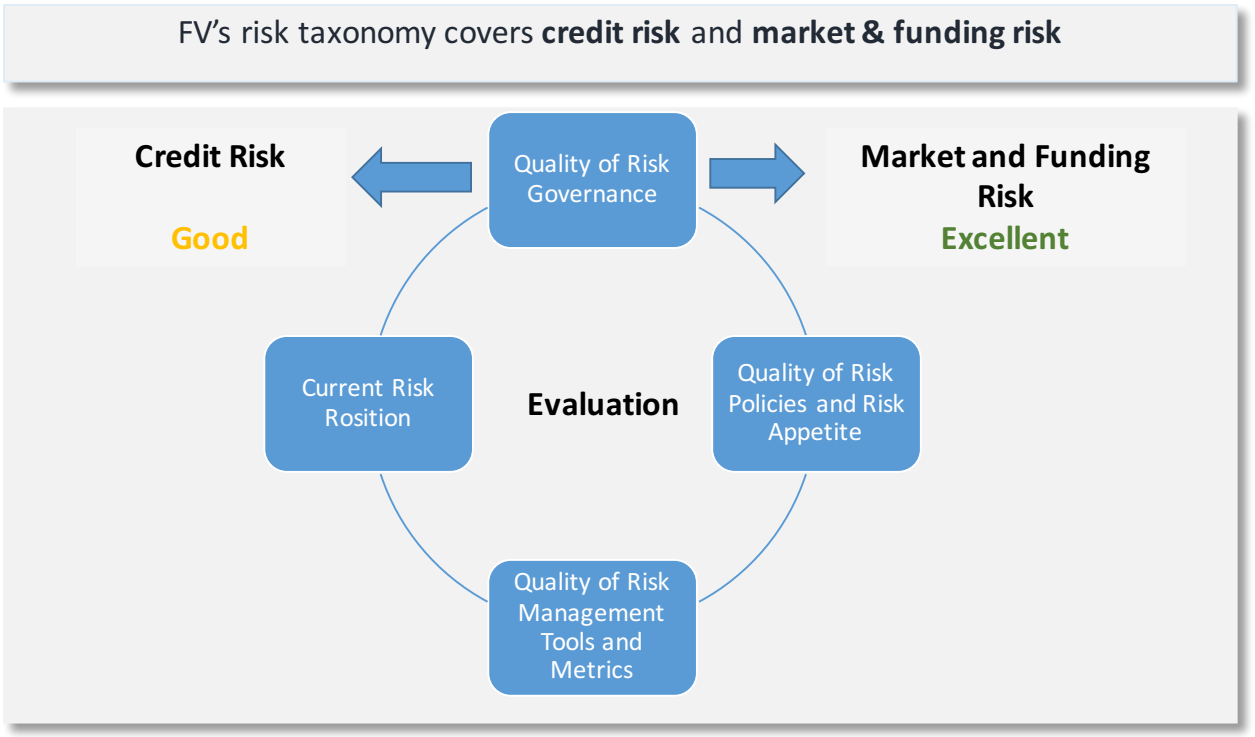
wider set of economic impacts as they do not just focus on productive sectors but can include other industries (services), households, government or other economic actors. More flexibly, CGE models are able to reproduce a particular economy's structure and model its unique features such as institutional constraints or structural rigidities. In this way, a wider set of economic impacts are captured from implementing a particular policy and this could, ideally, better meet policymakers' needs. CGE models however would require considerably more resources than existing methods, in terms of data and time resources, software and technical expertise. CGE needs significantly more data than input-output analysis, in addition to costly specialist software (e.g. GAMS general equilibrium modelling system) and the technical expertise and time to load up and run the analysis. CGE benefits in terms of estimation rigour may therefore be outweighed by the practicalities of costs and whether the technical expertise is available in-house or easily sourced in on a periodic basis.

Whichever the approach taken, it is important to note here that the inherent uncertainty within economic modelling means that policy evaluations arising from such models must be robust towards alternative assumptions, and sufficiently interpreted. The acceptability of trade-offs between the analytical rigour in estimating specific impacts, versus the practical limitations of costs, data requirements or access to technical expertise can be reviewed as part of ongoing operations. The identified limitations of existing approaches can be addressed by supplementing their findings with different approaches - either quantitative (to address input-output limitations) or qualitative approaches to provide more holistic impact assessments.

3.4 Risk Management

Finally, the assessment looks at FV's optimal way of risk management, the appropriate way of fund acquisition and the investment risks and risk concentrations with a perspective of the systems used by competing countries. In addition, the question of total state risk and state balance with regard to large export deals and state-backed guarantees will be discussed in accordance with the requirements of the contract, the invitation to tender and the documents appended to the tender. Finnvera's risk taxonomy covers market and funding risk, encompassing foreign exchange risk, interest risk and liquidity risk, as well as credit risk. As a result, Finnvera's risk management compares favourably, not only to their ECA counterparts, but even compared to commercial bank best practices. The assessment looks at four dimensions:

Figure 30: Dimensions of FV's Risk Taxonomy



Source: Developed for this Report

3.4.1 Quality of Overall Risk Governance

Evaluation

- The quality of Finnvera's risk governance is excellent.
- Finnvera has in place all the necessary policies, practices and procedures required by international best practices.

Finnvera's overall risk policy is approved by Finnvera's Board of Directors and is applicable to the entire Group. Moreover, Finnvera has set up an Asset and Liability Committee ('Alco') and Credit Committee with a correct distribution of members between overall management (CEO), support lines in charge of carrying out the policy (CFO, Treasury, Credit Department), business lines involved and Risk Management as an expert member. There is an independent department in charge of risk control that also issues second opinions on proposals made by Treasury (Alco) and Business Lines (Credit Committee).

3.4.2 Market and Funding Risk Management

Evaluation

- The quality of Finnvera's market risk policy and risk appetite is adequate.
- Finnvera has developed risk limits for all elements of market and funding risks (liquidity risk, interest rate risk, FX risk) and is managing these risks.
- Finnvera's economic capital framework currently only covers the credit counterparty risk and it has yet to aggregate individual risk limits for market and funding risks into its global risk framework.
- Such an integration would allow Finnvera to have a holistic view on risk and risk appetite.
- Finnvera is explicitly stating it is not an active risk taker on the market risk side but rather an institution hedging its risks.

3.4.2.1 Liquidity Risks

In terms of liquidity risks**,** Finnvera's funding requirements are predominantly driven by its lending commitments. Its liquidity strategy consists of pursuing maturity matching between funding and lending, which is the basis of sound liquidity management. Finnvera, however, is interpreting this policy of matching in a conservative way since it is including the lending commitments in this

calculation (and not only the disbursed loans), which explains why Finnvera's liquidity position is very comfortable.

Finnvera manages both its short-term and long-term liquidity risk via cash flow forecasts (gap analysis) and liquidity limits (short-term and structural). The short terms policy requires Finnvera to hold a liquidity buffer to cover at least cash payment obligations for the next 6 months. Structural cash deficit cannot exceed the amount of the State Facility (currently € 500 m), which is logical considering its policy to pre-fund all of its commitments.

The main funding instrument is a medium-term note program guaranteed by the State of Finland. The overall policy framework is fitting the needs yet on the conservative side as the willingness to pre-fund all of its lending commitments until maturity leads to an accumulation of liquidity which may not be used until the medium or long-term perspective, causing a financial loss as borrowing costs exceed treasury returns.

The cash flow forecast tool is in reality a simple yet effective dynamic gap model that caters for the needs of the institution. Some methodological refinements are nevertheless possible:

- The gap table could be refined for expected claims under the export guarantees and expected credit losses, to the extent they would be exceeding the average profit realized by the export operations (not included in the cash flow projection either).
- The liquidity impact from lending commitments could be estimated taking into account the historical commitment conversion ratio (from commitment to disbursed loan) as an alternative scenario.

Finnvera is very liquid as its current liquidity profile (plotting current and committed business) – barring unforeseen credit losses - shall not cause cash deficits until the end of 2022.

Dimension	Evaluation
Quality of risk policy / risk appetite	• Pursues maturity matching • Conservative approach as includes disbursed loans, and lending commitments • Funded by MTN program with State Guarantee • Cash flow forecast tool used is simple but dynamic
Quality of risk management tools and metrics	• Cash flow forecast tool used is simple but dynamic
Current risk position	• Very comfortable liquidity position • Barring unforeseen credit losses, no cash deficits until end of 2022

3.4.2.2. Interest Rate Risks

Regarding management of interest rate risks, Finnvera has developed a risk appetite for interest rate risk stating that an increase of interest rates of 1% may not cause a drop in earnings in excess of €15 million, of which approximatively €9 million may be subscribed to equity reinvestment (in treasury assets). This risk taking is limited considering Finnvera is targeting a 6-month Euribor return on its equity reinvestments, which is very conservative considering its abundant liquidity position.

Whilst this number may seem pretty low, it has to be acknowledged the bulk of the interest rate risk generated by Finnvera's export credit operations is assumed by State Treasury since State Treasury swaps Finnvera's fixed income stream out of loans against floaters and 'inherits' via these swaps Finnvera's original position. Finnvera itself bears little or no risk as virtually its entire funding is composed of floaters.

There is minor interest rate risk residing in the existence of a credit facility provided by State Treasury (currently €500 million, proposal to increase up to €3 billion) as future funding cost related to this facility is unknown. This could be tackled via Forward Rate Agreements or interest rate options, assuming there is a preference for earnings management over value based management. To be noted Finnvera could consider adding some more interest rate risk without introducing IFRS accounting volatility via the Held to Collect option, should it decide to keep the abundant liquidity.

As pointed out earlier, Finnvera has expressed its risk appetite via a drop in earnings because of an interest rate shock. This interest rate risk is measured via an interest rate gap analysis which is a perfect instrument for this purpose. For sake of coherence, it would make sense to have in addition a VaR model (Value at Risk) and integrate this VaR in the overall economic capital framework, even when the number is expected to be very low as of today.

Finnvera has limited interest rate risk exposure. As per end of 2015, a 1% of interest rate increase would have caused an increase in profit of €12.7 million. Considering Finnvera's equity position to be approximatively €1.1 billion, it can be concluded the remaining interest risk is marginal and in line with its policy and risk appetite.

Dimension	Evaluation
Quality of risk policy / risk appetite	• Strong policy statement • This risk taking is limited considering FV is targeting a 6-month Euribor return on its equity reinvestments. The bulk of interest rate risk is assumed by State Treasury. But minor interest rate risk inherent in the credit facility provided by the State Treasury
Quality of risk management tools and metrics	• Interest rate risk is measured via an interest rate gap analysis, a perfect instrument for this purpose.
Current risk position	• As per end of 2015, a 1% interest rate increase would have caused an increase in profit of € 12.7 m. Considering FV's equity position of approximatively € 1.1 bn, it can be concluded the remaining interest risk to be marginal and in line with its policy and risk appetite.

3.4.2.3. Foreign Exchange Risks

As for FX risk, all FX exposure is hedged as far as possible via derivatives. There is a daily global position limit of €20 million, which is a very low number considering Finnvera's size and debt profile (ca 28% of its outstanding €4.7 billion debt as per 30/6/2016 or the equivalent of €1.3 billion) is denominated in $ or SEK. To the extent needed, € debt is swapped into the currency of the asset basis (the loans). Considering Finnvera's role in the Finnish economy (an underwriter of credit risk), there is no point in taking FX positions as such an activity would bring it conceptually closer to a hedge fund.

Finnvera calculates its open FX position on a daily basis. Finnvera's FX position is very limited. A 10% weakening of the USD would only generate € 800,000 of losses.

Dimension	Evaluation
Quality of risk policy / risk appetite	• All FX exposure is hedged as far as possible via derivatives. • There is a daily global position limit of € 20 m, or 0.4% of its outstanding € 4.7 bn debt as per 30/6/2016 • To the extent needed, € debt is swapped into the currency of the asset basis
Quality of risk management tools and metrics	• FV calculates its open FX position on a daily basis. • A marginal improvement could be realized by calculating an FX VaR and embed this VaR in its economic capital framework.
Current risk position	• FV's FX position is very limited. A 10% weakening of the USD would only generate € 800,000 of losses.

3.4.2.4 Treasury Counterparty Risks

Finnvera has defined a risk appetite for its Treasury counterparty risk stating based on credit counterparty ratings and duration. This policy rules are conservative and deemed to be logical considering Finnvera's risk profile:

- Investments are subject to minimum rating requirements (min BBB-)
- Collateral agreements in place with derivative counterparties (ISDA, CSA- Credit Support Agreement); conservative limits based on daily fair value calculation.
- Investments over 12 months require a minimum A- rating.

As already stated earlier, the treasury assets should have a maturity and liquidity profile in order to match the cash outflows on the liability side. Apart from the maturity and rating info, no other tools are required to run the Treasury counterparty risk. On December 2015, the expected loss on the treasury portfolio amounted €1.5 million, which is aligned.

Dimension	Evaluation
Quality of risk policy / risk appetite	• FV has defined a risk appetite for its Treasury counterparty risk • The rules are conservative. • Investments subject to minimum rating requirements (min BBB-) • Collateral agreements in place with derivative counterparties (ISDA, CSA- Credit Support Agreement); conservative limits based on daily fair value calculation. • Investments over 12 months require a minimum A- rating. • As already stated earlier under the liquidity section, the treasury assets should have a maturity and liquidity profile in order to match the cash outflows on the liability side.
Quality of risk management tools and metrics	• Apart from the maturity and rating info, no other tools are required to run the Treasury counterparty risk
Current risk position	• On December 2015, the expected loss on the treasury portfolio amounted € 1.5 m.

3.4.3 Credit Risk Management

Evaluation

- The quality of Finnvera's credit risk management is adequate.
- At the portfolio management level, the Risk Policy is adequate for now but should integrate the prospective growth of the loan book.
- Risk metrics and tools are adequate.
- The quality of its individual credit risk assessment is strong, comparable to best in class commercial banks.

3.4.3.1. Portfolio Risk Management

Finnvera has developed a risk appetite taking into account: 1) expected losses (the average amount of credit losses through an economic cycle); 2) unexpected losses (the volatility of expected losses to cover tail risk); and 3) concentration limits on country and obligor level.

Table 4: Risk Framework

Indicator	Risk Appetite/Limit	Actual 31.12.2015
Expected Loss, EL	Max net income before guarantee losses; committed exposure	EL €83 m vs. net income € 89 m
Total exposure, VaR 99	Max 90% of capital; Finnvera and State G. Fund	VaR 99 was €1,130 m, 85% of capital
Share of a single exposure	LGD x Exposure < 50% of total capital	Tui Cruises 51%, others below 50% level
Share of a single political risk country	Max 10% of total exposure	Brazil 10.5%, Russia 9%
Risk contribution on a single risk concentration	Max 10% of total exposure	Tui Cruises 25%, others below 15%
Sum of a political risk country's risk contributions	Max 20% of total exposure	Brazil 19%, Russia 3% (Germany 26%)

Source: Developed for this Report

Moreover, Finnvera has bought portfolio credit risk insurance up to €150 million for exposures over €150 million, with a first loss tranche of €50 million.

The framework is useful although slightly theoretical because of the following reasons:

- the total exposure is expected to increase significantly over the coming years; the proposal to increase the current limits for export operations from €27 billion (of which € 25 billion for export risks); even a relatively small increase of the portfolio risks (currently: €15 billion, including commitments) shall make compliance with the VaR limit impossible

- the same reasoning holds for the share of a single exposure and risk contribution on a single risk concentration; considering the Finnish structure of exports, this concentration risk is not going to disappear any time soon.

As discussed in section 3.4.4.2 below, it is clear Finnvera's main risk is its credit concentration risk as the combination of a default of its single biggest obligor with poor recovery would wipe out its currently available capital.

Therefore, the main focus of Finnvera's portfolio risk management should go towards reducing this concentration risk, both on industry and obligor level.

3.4.3.2. Individual/Operational Credit Risk Management

The quality of the credit risk analysis on the individual credit is strong. From a risk governance point of view, the quality of internal control is guaranteed by virtue of the 6-eyes principle (negotiation by front office, independent risk analysis by Credit Risk Department and independent risk opinion by Risk Management Department. The quality of the credit risk analysis is similar to the work performed by the stronger commercial banks; the only room for improvement consists in fine-tuning the sensitivity analysis by seeking inspiration in historical volatility of key cash flow drivers instead of applying a fixed percentage.

3.4.4 Capital Management and Capital Adequacy

Evaluation

- Finnvera uses an economic capital framework to manage its risks.
- However, the concentrations in its portfolio in terms of sectors and single obligors means that Finnvera is vulnerable to idiosyncrasy potentially wiping out its capital.

The question of whether Finnvera is sufficiently capitalised by the State must be examined from the perspective of the nature and level of risks it assumes. The risks taken by Finnvera are largely limited to the credit risk since the other components of Finnvera's risk taxonomy are either very limited (fx risk, operational risk, liquidity risk) or significant yet borne by the Finnish State (interest rate risk).

3.4.4.1. Economic Capital Approach

The methodology used to determine Finnvera's risk profile is the economic capital approach. As explained in section 2.5, economic capital is as the required protection against unexpected future losses at a selected confidence interval considering a defined time horizon (in this case, 12 months).

Typically, risk appetite is defined as a function of the target rating of an institution. The stronger the target rating, the lower the default probability to accept for itself and the heavier the confidence interval to be applied (which is the opposite of the probability of default).

Typical rating agency default probabilities and associated credit ratings are as follows:

Table 5: Credit Ratings

Credit Rating	Probability of Default	Confidence Interval
AAA	0.01%	99.99%
AA	0.03%	99.97%
A	0.08%	99.92%
BBB	0.20%	99.80%
BB	0.88%	99.12%
B	4.41%	95.59%
CCC	21.22%	78.78%
D	100%	

Source: Developed for this Report

Finnvera has an economic capital model of its own. Whilst the fundamentals of the assessment are deemed to be sound, a different economic capital model has been built in order to be able to

test Finnvera's model robustness and compare the outcomes of both models and validate or invalidate some of its inputs.

Annex 2 defines the variables which are part of the economic capital model: Unconditional and Conditional Probability of Default (PD), Loss Given Default (LGD, which is the inverse of the recovery rate), Exposure at Default (EaD), Expected Loss, Correlation Factor and a Firm-Specific Factor.

3.4.4.2. Concentration Risk

The economic capital exercise should, however, also be assessed against the backdrop of the concentration risk Finnvera is facing. Because of the nature of Finnish export industry, Finnvera's portfolio is highly concentrated in three sectors: ships, forestry and IT. Moreover, the portfolio is highly concentrated in terms of individual counterparty risk.

To put the economic capital exercise into the right perspective, the top 3 exposures account for almost 35% of the institution's credit risk exposure (€5.3 billion), the top 10 exposures account for 61% (€9.2 billion), and the top 20 exposures account for more than 82% (€12 billion). Assuming the top counterparty would default and a recovery rate of 43%, the entire Available Capital supporting Finnvera's export business would be exhausted.

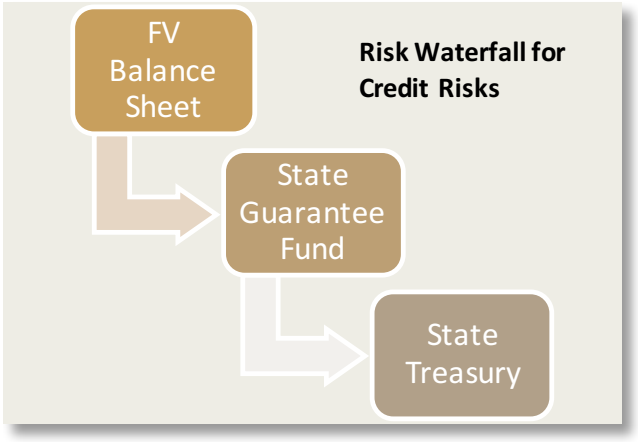
3.4.5 Effects on State Risk and State Balance

Evaluation

- Using an economic capital calculation, Finnvera currently has sufficient capital available to cover the credit risks it assumes using this framework assuming it would want to target a stand-alone BBB-rating.
- Assuming full utilisation of the new authorisations, Finnvera would need around €2.6 billion of capital (or an additional €1.3 billion on top of existing levels), as a buffer, to maintain its implicit standalone credit rating of BBB-, assuming a recovery rate of 55% and a stand-alone BBB- target.

Finnvera assumes credit risk on its own balance sheet. In the event of claims faced by Finnvera on its export credit activities, Finnvera has set aside accounting reserves in the balance sheet to pay these claims or to cover loan losses. Once the specific export related reserves are exhausted, it relies on the State Guarantee Fund. If the State Guarantee Fund has been depleted, then the Finnish Treasury is ultimately at risk. This waterfall of risks is depicted in Figure 31.

Figure 31: Risk Waterfall



Source: Developed for this Report

The question to be examined is: what is the probability that the Finnish Treasury will be called upon? Put it in another way, how much capital does Finnvera need in order to support the future business without putting the Finnish Treasury at risk?

3.4.5.1. Finnvera's Current Economic Capital Requirements

Currently, there is €1.3 billion in capital available between Finnvera's balance sheet and the State Guarantee Fund. Using an economic capital approach, for Finnvera's existing level of exposure, Finnvera has sufficient capital available to target a stand-alone notional BBB-/BBB rating, as indicated in Table 6 below.

Table 6: Finnvera's Economic Capital Requirements compared to Available Capital

Target Rating	Available Capital (€ m)	Economic Capital (€ m), assuming 55% recovery rate	Shortfall (-) or Excess (+)
BB+	1318	916	+402
BBB-	1318	1259	+59
BBB	1318	1359	-41
BBB+	1318	1459	-141
A-/A	1318	1609	-291
A+	1318	1659	-341
AA-	1318	1809	-491

Source: Developed for this Report

This table shows that assuming Finnvera would be considered to act on a stand-alone basis, its implied rating would be a low investment grade one (BBB-/BBB) on the basis that the State Guarantee Fund's reserves and the export reserves on Finnvera's balance sheet serve as the Available Capital for its export operations. This statement requires, however, some nuancing because the economic capital number only covers the credit risk component; as mentioned earlier in this report, the (considerable) interest rate risks are taken by the Government. The main uncertainty in this modelling exercise resides in the assumed recovery rate. A significantly lower recovery rate (e.g. 35% versus the applied average recovery rate of 55%) would increase the required economic capital for a BBB- rating from €1,259 million to €1,818 million.

3.4.5.2. Finnvera's Future Economic Capital Requirements

Assuming the proposed export financing and guarantee authorizations (€27 billion) would be fully used by Finnvera, the following picture applies in terms of economic capital (€ bn):

Table 7: Capital Required to Support New Authorisations

€m		Recovery Rates					
Target rating	Probability of Occurrence	90%	80%	70%	60%	50%	40%
BB-	1.31%	269	539	808	1078	1347	1617
BB	0.78%	349	697	1046	1394	1744	2093
BB+	0.55%	455	909	1364	1819	2273	2728
BBB-	0.30%	586	1174	1761	2348	2934	3522
BBB	0.19%	667	1332	1999	2666	3331	3998
BBB+	0.13%	746	1492	2237	2983	3729	4475
A-	0.08%	852	1703	2556	3406	4258	5109
A+	0.06%	878	1756	2634	3512	4391	5269

Source: Developed for this Report

From an economic capital perspective, assuming the new authorisations would be fully utilized (€27 billion), the proposed envelope increase leads to an increase in required economic capital, depending on the recovery rate and the implicit standalone credit rating sought. The proposed authorisation increase leads to an increase in required economic capital, depending on the recovery rate and the implicit standalone credit rating sought. Using a recovery rate of 55% and a stand-alone BBB- target, about €2.6 billion of capital would be required as a buffer. The facilities would be developed over a period of time, so it is not necessary to assume an increase in capital immediately.

At the BBB-level, the probability of the institution defaulting is estimated at 0.30%.

4. Conclusions and Recommendations

4.1. Introduction

Finnvera has a high market standing and has been able to substantially contribute to economic growth in Finland. During the past years, FV has been able to integrate innovation regarding products and business processes into the strategic management agenda. Finnvera has carried out the largest reorganisation in its history during the past couple of years. With a highly motivated staff, FV was also able to make use of untapped talent by creating conditions that allow dynamic innovation networks to flourish. Our assessment shows that there is an appropriate culture to support business excellence with elements such as customer focus, systems approach, continuous improvement and teamwork.

Productivity, staff performance and attitude are also closely connected to an approach creating competitive advantage over peers through a combination of sound risk management and profitability. This includes the incorporation of a Service Centre in the new Service Production Unit for SME services and financing, the active role in developing Team Finland Services, and controlled risk-taking with a combination of sound credit risk management, appropriate pricing decisions and risk sharing.

4.2 Recommendations

Although Finnvera has often been characterised as a 'benchmark institution' and 'innovation leader', the Consultants recommend several improvements and enhancements. This includes activities to foster economic development, boost efficiency and effectiveness, enhance economic impact measurement and ensure a sound risk management.

4.2.1 Export Financing Operations

Recommendation 1: Develop Long-Term Policy Strategy

MEE should clearly define an economic long-term policy strategy with regard to export credit support. This will help to derive future key industries, key skills and key knowledge for the Finnish economy and society. MEE should ask FV management involving also the board of directors to create and promote a combination of business education and product offerings, e.g. for start-up exporters because SMEs will play a key role in this strategy.

Innovative sectors in Finland such as health technology, environmental and energy business, and bioeconomy should be supported in a more targeted manner (Figure 31). Similar to Denmark's support scheme, this can include a reduction of the premium for innovative SME exporters, increased levels of cover or fast-track procedures. MEE could also develop guidelines and strategies for FV to create impact towards skill and job creation in future growth sectors.

Figure 32: Key Sectors

Source: Invest in Finland, Finpro (2016)

Recommendation 2: Implement Practical National Interest Guidelines

An increasing number of ECAs aim at promoting 'national interest', and the definition of Finnish content and interest has also developed towards a more holistic model. Finnvera needs to strike a balance between detailed rules and flexibility. However, exporters and banks need more clarity and would welcome more transparent rules with a broad definition of economic benefits accruing to the Finnish economy. There is a new State Council decree on Finnish interest creating a common policy both for export financing and guarantee activities and an ongoing process on clarifying and defining guidelines. The Consultants recommend to develop and implement a practical guidance at short notice. These guidelines need to be communicated in an appropriate manner to banks and exporters.

Recommendation 3: Reduce and/or Mitigate Outstanding Commitments

Although growth in authorisation and outstanding commitments are necessary to support Finland's economic development, the sharp increase combined with concentration risk is a substantial threat. The MEE, together with FV, should step up their efforts to reach an international agreement to reduce support for the ship sector. Although the IWG has had constructive discussions and progress has been made in agreeing on certain sector-specific aspects, it is important to agree on disciplines which cover all aspects of export financing support for cruise ships.

More generally, Finnvera should look at mechanisms to mitigate risks such as portfolio swaps and the creation of an ECA fund to reinsure ECAs with a treaty arrangement with the private market. Options with estimated feasibility and an assessment are described in Table 8.

Table 8: Risk Mitigation Options

	Estimated Feasibility	Assessment
Facultative Insurance	Insurance is available for top names	Expensive
CDs	Prices are must be negotiated. There should be availability in the market for the top names	Expensive
Macro Hedge	Hedging products are available. Yet, the correlation between the underlying credit risk and the hedge should be close to 1.	Expensive if bought in the money (strong protection), cheap if bought out of the money (weak protection)
Portfolio Swap with commercial bank	Requires lengthy negotiations	Expensive
Portfolio Swap ECAs on a bilateral basis	As top exporters are heavy consumers of ECA products, other ECAs in a similar position	Relatively inexpensive as ECAs are all facing CIRR constraints but limited appetite
Creation of ECA Fund	Establish an ECA Fund to reinsure ECAs with a treaty arrangement with the private market. ECA Fund carries residual risk.	Inexpensive as ECAs are all facing CIRR constraints. May take some time to get implemented.

Source: Developed for this Report

Recommendation 4: Explore Direct Lending

Due to the disruptions in export credit offering, FV should tap into an even more diverse range of financing instruments enabling SMEs to further benefit. Export credit guarantees continue to rank first among policy instruments used by ECAs to help exporters, but an expansion of direct lending could boost SME support. Direct lending programmes are increasingly targeting innovative exporters in an effort to add value and support employment. The Consultants recommend to further develop the FEC financing scheme and assess a fully-fledged direct lending programme for SMEs although this might entail accepting an increased risk level in comparison to present risk levels.

Direct lending can also be developed for large transactions allowing, in theory, for higher profitability related to treasury margin. If a full programme would be introduced, FV should assess if treasury operations can be established outside Finnvera on a national or even a regional Nordic level to look at the most efficient solution.

Recommendation 5: Further Develop a Proactive Approach

Finnvera is considered to have a very good client experience and the best practice product offering, but other ECAs take a more aggressive approach to secure the deal. That means these ECAs are stronger in signalling that support is available not only for the exporter but also for the importer in the target market. It also includes that they try very active to secure the transaction for their exporter also by offering competitive pricing right away, which reduces later negotiating and speeds up contracting. In addition, other ECAs seem to be more visible in target markets, despite the effort of all organisations under the roof of Team Finland to join forces and create synergies. One recommendation is to strengthen the efforts of Team Finland in the target markets. To enhance proactiveness and visibility, Finnvera can identify strategically important target markets and customers with the help of the Finnish exporters in advance. Generic letters of intent can be used to make indications to potential importers about available support if they do business with Finnish companies.

Recommendation 6: Enhance Unexperienced Exporters' Education

The Team Finland approach has been positively perceived by FV's clients, but there is still a need to develop a more proactive way to enhance SMEs' knowledge about trade and export finance. SMEs face substantial lack of knowledge regarding international operations and related risks. Although FV provided numerous SME training days for larger groups and individual companies going through export financing on a practical level, Finnvera can play a more important role in training and educating, for example with regard to international operations. A clearer refinement of the target group or the content might be helpful according to feedback from a number of interviewees.

Recommendation 7: Strengthen Business Relationship with a Broader Range of Companies

There is the perception among interviewed exporters who are not in the telecom and shipbuilding sector that major capacities and competencies are consumed by the transactions of the two largest sectors/exporters because they dominate the risk portfolio. Accordingly, there is a clearly expressed wish and need for more support from Finnvera in the pulp and paper and energy sector. As competition and expertise in other areas of the world picks up, they fear falling be-hind if Finnvera is not able to build up strong competencies in their business sectors which make it more comfortable and likely to cover risks and particularly engage in (structured) project financing. The exporters in the layer behind Nokia and MeyerTurku have extensive networks of Finnish SME sub-suppliers giving them a vehicle to internationalisation and access to export markets.

The exporters in the layer behind Nokia and MeyerTurku have extensive networks of Finnish SME sub-suppliers giving them a vehicle to internationalisation and access to export markets. By better supporting 'smaller' exporters, the SME sector would be supported indirectly as well. If this business is grown, some of the SMEs might grow to become exporters independently themselves. This would also contribute to Finnvera's approach of supporting companies in all stages of their lifecycle. Increasing knowledge and confidence in conducting more business in the other sectors would enhance the portfolio composition of Finnvera and might additionally allow to cover exports of companies which are not yet Finnvera clients.

Recommendation 8: Further Invest in HR Succession and Knowledge Management

One fifth of Finnvera's employees will retire within the next five years. It is therefore important to manage the transition of retiring experts, ensuring that knowledge and expertise stays within Finnvera and Team Finland.

4.2.2 Economic Impact

Recommendation 9: Develop Specific Criteria for Innovation in Impact Measurement

MEE should develop specific criteria for innovation and competitiveness to inform current impact measurements by Finnvera. Promoting productivity, skills and innovative capacity are necessary contributors to competitiveness.

Recommendation 10: Adopt a Holistic View of Impact Assessment

MEE and Finnvera should develop a more complete assessment of impact, tracking both tangible and intangible impacts. Current conventional indicators of economic impacts can be supplemented with indicators of qualitative impacts.

Recommendation 11: Monitor Durability of Reported Impacts alongside their Incidence

MEE and FV should monitor the durability of reported economic impacts alongside their incidence. Short-lived, fleeting impacts are less likely to achieve the policy goals compared to more sustained, longer-term impacts.

4.2.3 Risk Management

Recommendation 12: Create More Formal Interest Rate Risk/Return Framework at State Level, and Finnvera to Provide Quantification regarding Direct Transaction Profitability

The State Treasury should develop a formal risk appetite statement and decide when and how to hedge the optionality on the provision of CIRR. In periods of low nominal interest rates and low interest rate volatility, the cost of hedging is lower and it makes a lot of sense to hedge. The decision with respect to awarding free optionality to a prospective borrower needs a calculation of the direct transaction profitability. FV could be asked to provide this calculation for every major deal.

Recommendation 13: Develop Economic Model to Calculate Costs of Hedging

It is recommended that the State Treasury requires Finnvera to develop an economic model to calculate the shadow profitability the transaction should hedging costs be factored in.

Net Interest Margin*
- Estimated Cost of Optionality (hedging cost)
- Cost of Credit (expected loss)
= *Transaction Profitability*

*External Interest Rate charged to the customer so including credit spread minus FV's funding cost at the time of the transaction

This transaction profitability should be compared to the economic benefits of the transaction (direct, indirect and induced), allowing for a balanced decision-making process integrating all perspectives into the equation (revenues, costs, risks, economic impact). The economic impact evaluation should be carried out at the transaction level both on an ex-ante and an ex-post basis. The ex-post evaluation could be extended to some specific segments of the book.

Recommendation 14: Develop Shadow Financial Reporting Integrating Cost of Optionality

This shadow reporting will give a consolidated view on Finnvera's financial results on an interest rate risk adjusted basis. The cost of the hedging will have to be re-assessed at every reporting period (monthly, quarterly and annually) as the underlying drivers of this hedging cost are closely correlated to the behaviour of interest rates and their volatility. The business profitability could be calculated via using transfer prices (to be calculated by Finnvera's Treasury Department).

Recommendation 15: Adopt Slightly Less Conservative Liquidity Policy

In order to optimize its liquidity management (and by doing so eliminate the spread between the funding cost and the interbank placements), Finnvera could pre-fund in this respect a percentage of its commitments in line with the historical level of commitment utilization -since not all commitments are converted into disbursed loans- or request a higher credit facility from State Treasury to face cash requirements beyond e.g. a 3 year horizon (ongoing). Alternatively, Finnvera could reinvest its available liquidity in longer term instruments and realize a higher carry. This would not create any accounting volatility provided one would opt for the Hold to Collect model under IFRS.

Recommendation 16: Refine Liquidity Gap Table for Expected Claims and Expected Credit Losses

When Finnvera does liquidity planning, they do not take into account expected losses. To the extent these would exceed the budget profit realized by the export operations, this would not be a problem, but Finnvera is advised to review this.

Recommendation 17: Estimate Liquidity Impact from Lending Commitments

Using the historical commitment conversion ratio (from commitment to disbursed loan) as an alternative scenario and build an alternative cash flow forecast next to the existing one using the historical commitment conversion ratio.

Recommendation 18: Calculate Interest Rate and FX VaR and Integrate Calculations, and Review Interest Rate Risk Policy

Currently, Finnvera calculates economic capital for credit risks only, so adding these risks will provide a more precise and holistic view. Should Finnvera decide to maintain the strong liquidity position, it is recommended that Finnvera consider exploring taking a limited incremental interest rate risk (longer duration) subject to applying IFRS Hold to Collect.

Recommendation 19: Fine-tune credit assessments

Although Finnvera's credit analysis is considered to be very good, it is recommended that Finnvera fine-tune the sensitivity analysis by introducing historical volatility as stress scenario.

Recommendation 20: Update Finnvera's Economic Capital Framework

An updated version of Finnvera's economic capital and limit framework should be developed, taking into the planned expansion of the export operations and the risk associated with the growth of the export book. In the absence of a capital increase, the economic capital limits could be expressed as a percentage of credit risks exposure. In addition, it is recommended that Finnvera review and update some of the assumptions of the current economic capital model regarding correlation and LGD.

4.3 Assessment Gaps and Further Analysis

There are a number of limitations to this assignment: According to the Invitation to Tender, the goal of this assessment was to obtain an *impartial* assessment on how Finland's current export financing system should be developed. The assessment was not meant to be an *overall* description of Finland's export financing system.

Due to the time constraints set by the MEE, the research was based on a limited number of interviewees and thus cannot be generalised. Further discussions with other commercial banks and in-depth meetings with other export credit agencies and guardian authorities would have been useful to extend the evaluation. A longer research period could lead to more details, in particular with regard to Finnvera's operations.

A further limitation is that it was not possible to observe the functioning Finnvera in an operational context for a longer period, and results thus were mainly deduced from public sources, provided documents and different interviews. However, in a grounded theory approach it is acceptable to use only document analysis and interviews as sources for theory building and assessments respectively. In addition, there is consistency between results from the interviews and the Consultant's broad knowledge, expertise and experience. There is also consistency between the different interview results.

Future studies might use the opportunity to undertake research in a broader context, in particular with regard to operational considerations and economic impact. This would enable the provision of further empirical evidence and proposals for study design. Future work might also contain the in-depth assessment of other export credit agencies such as BPI France, Euler Hermes and Sace in order to provide a comparative study of support for cruise ships. This would allow adding relevant findings or building an extensive model for the future of public export promotion systems.

Annex 1: Calculation of CIRR Optionality

For MEE to be able to assess the risks of CIRR, it is useful to estimate the cost to hedge the funding risk, considering different scenarios regarding the volatility of interest rates.

This annex looks at various scenarios, with different parameters: A. current interest rates with different levels of volatility; B. interest rates are higher with different levels of volatility

The transaction to be examined is as follows:

- Ship Finance, € 1 bn
- Offer Rate Fixed at Bid for 120 days
- Lender's funding cost, Net interest margin (NIM) 1%
- 180 days between signing of offer commercial contract and financial contract
- Drawing period 5 years, no schedule agreed
- Option to go for floating at delivery after 5 years
- Tenor of loan 12 years after end drawing period
- Prepayment without penalty

Scenario A: Current Levels of Interest Rate (0.6%), with three levels of volatility

Point in lifecycle	Annual Volatility 10%	% of NIM	Annual Volatility 20%	% of NIM	Annual Volatility 30%	% of NIM	Comments
A. Bidding for export contract (offer rate)	1.3 bps	1.3 %	2.6 bps	2.6 %	4 bps	4%	
B. Signing export contract	1.5 bps	1.6 %	3.2 bps	3.2 %	4.8 bps	4.8%	A and B can be cumulative
C. Signing financial contract no drawdown schedule agreed	6.2 bps	6.2 %	11.4 bps	11.4 %	16.4 bps	16.4 %	A, B and C can be cumulative
D. Borrower prefers floating at delivery	10 bps	10 %	18 bps	18 %	25 bps	25 %	A, B, C, and D can be cumulative
E. Early repayment	10 bps	10 %	18 bps	18 %	25 bps	25 %	A, B, C and E can be cumulative

Based on Black and Scholes option modelling, the calculations show the following:

- Combining the various options, between 17.5% (10% volatility) and 46. 5% (30% volatility) of the net interest rate margin should be spent to hedge the all the options.
- A full hedging of the optionality could therefore potentially represent a very heavy burden to the lender's profitability and provide a different view on the true profitability level.

- The cost of hedging may seem if not prohibitive at the very least very expensive but should be offset against what may happen in case no hedging is purchased.
- Any rise in interest rates will increase the lender's cost of funding. Depending on the timing and duration of this increase, the lender's profitability may be partially or totally wiped way and net interest margin may even become heavily negative.
- In our example, the net interest margin was set at 100 bps, so an increase of interest rate of 100 bps would wipe away the entire margin and an increase of 200 bps would plunge the lender's profitability into the red.
- The 17.5 bps hedging cost (10% volatility) or 46.5 bps hedging cost (30% volatility) need to be compared with the Lender's risk appetite.
- In the specific case of Finnvera, it is understood this interest rate risk not to be borne by Finnvera Group but by the State Treasury.

Scenario 2: Higher nominal interest rates (3%), with three levels of volatility

In order to demonstrate the importance of the nominal interest rate, an example shall be built with risk free rates standing at 3% and a net interest margin at the same level (100 bps)

Point in lifecycle	Annual Volatility 10%	% of NIM	Annual Volatility 20%	% of NIM	Annual Volatility 30%	% of NIM	Comments
A. Bidding for export contract (offer rate)	8 bps	8 %	15 bps	15 %	22 bps	22 %	
B. Signing export contract	11 bps	11 %	19 bps	15 %	27 bps	27 %	A and B can be cumulative
C. Signing financial contract no drawdown schedule agreed	51 bps	51 %	72 bps	72 %	96 bps	96 %	A, B and C can be cumulative
D. Borrower prefers floating at delivery	97 bps	97 %	123 bps	123 %	151 bps	151 %	A, B, C, and D can be cumulative
E. Early repayment	97 bps	97 %	123 bps	123 %	151 bps	151 %	A, B, C and E can be cumulative

Analysis:

The calculations made using a risk free interest rate of 3% instead of 0.6% and an identical net interest margin are demonstrating the following:

- The cost of hedging is multiplied by five at all levels. This is explained by the simple fact that the volatilities are applied on a higher nominal basis.
- The cumulative costs of hedging at this level are more than wiping away the net interest margin, even under a scenario when volatility is assumed to be low.

When combining the risk return characteristics of the hedge opportunities under two interest rate scenarios (0.6% and 3%), following tables can be constructed:

	With Options		**No Options but Increase in Interest Rates**			
Interest Rate of 0.6%	Option Cost with 20% Volatility (bps)	NIM after option cost (bps)	NIM after increase by 50 bps	NIM after increase by 100 bps	NIM after increase by 150 bps	NIM after increase by 200 bps
A	2.6	97.4	50	0	-50	-100
A+B	3.2	94.2	50	0	-50	-100
A+B+C	11.4	82.8	50	0	-50	-100
A+B+C+D/E	18	64.8	50	0	-50	-100

In a low interest rate environment, combined with low interest rate volatility, it would make sense to hedge all or part of interest rate risk as it conserves the bulk of the net interest margin (NIM). Should one decide not to hedge, it only takes small increase in interest rates to wipe away interest margin.

The picture changes when nominal interest rates are higher. If one decides to hedge interest rate risk, it may wipe out the net interest margin.

	With Options		**No Options but Increase in Interest Rates**			
Interest Rate of 3%	Option Cost with 20% Volatility (bps)	NIM after option cost (bps)	NIM after increase by 50 bps	NIM after increase by 100 bps	NIM after increase by 150 bps	NIM after increase by 200 bps
A	15	85	50	0	-50	-100
A+B	19	66	50	0	-50	-100
A+B+C	72	-6	50	0	-50	-100
A+B+C+D/E	123	-129	50	0	-50	-100

The table above shows that the hedging costs would wipe out the NIM, if the nominal interest rate is 3% and the options are purchased to hold the rate from the bidding date through to drawdown. Meanwhile, if no hedging is purchased and interest rates rise by 100 bps, regardless of the level of the nominal interest rate, the NIM is wiped out.

Annex 2: Definition of Variables Used in Economic Capital Calculations

Variable	Definition	Calibration
Probability of Default	Is an estimate of the likelihood that a default event will occur. It applies to a particular horizon, in this case one year. It is expressed under the form of a rating that is subsequently translated into a percentage between 0% and 100%.	Finnvera's internal ratings were analysed based on correspondence with S&P ratings and overall methodological quality. For those obligors where S&P ratings were available, we observed a high level of correspondence (75% of assigned ratings are situated within 1 notch) and there is a slight conservative bias (more negative than positive differences). For those obligors where no S&P ratings were available, internal credit rating methodology was assessed and found to be sound. Finnvera's internal ratings were accepted but PD calibration slightly changed.
Loss Given Default	This is the share of an asset that is lost when the borrower defaults. It is the inverse of the recovery rate.	The LGD rates applied are based on historical LGD rates on a per industry basis provided by Moody's. This methodology was preferred considering the strong concentration of Finnvera on certain industries (shipping, telecom, pulp and paper).
Exposure at Default	The gross exposure under a facility under a facility upon default of an obligor.	The EaD was provided by Finnvera, it being understood the exposure covers both the disbursed amounts and committed amounts.
Expected Loss	Is the multiplication of PDxLGDxEAD and represents the average level of credit losses over an economic cycle.	
Correlation Factor	Correlation factors measure the strength of association between 2 variables. The Pearson correlation measures the strength of the linear association.	The correlation between the obligor's stock prices and a constructed GDP was calculated. The constructed GDP represents the average weighted GDP based on Finnvera's exposure on a per country basis. In the absence of stock prices, the correlation between the counterparty's country's GDP and the constructed GDP was calculated.
Constructed GDP, Simulations	The constructed GDP represents the average weighted GDP based on the exposure on a per country basis.	The Constructed GDP was simulated via 100.000 iterations (Monte Carlo) and the impact on the PD calculated. The unconditional PD was transformed into a conditional PD via the combination Constructed GDP and Correlation Factor.
Firm Specific Factor	Is a variable which is proper to the obligor, as opposed to a systemic variable. Is also called the idiosynchratic variable.	Has been determined at random based on a normal distribution simulation.

Annex 3: List of Interviews and Discussions

	Organisation		Interview type
	Companies	**Size**	
1	Konecrances	large	telephone interview
2	Wärtsilä	large	telephone interview
3	Nokia	large	in person in Helsinki
4	Outotec	large	telephone interview
5	Lamor	midsize	telephone interview
6	Andritz	large	telephone interview
7	MeyerTurku	large	telephone interview
	Financial Intermediaries	**Origin**	
8	Commerzbank	Germany	telephone interview
9	Deutsche Bank	Germany	telephone interview
10	HSBC	UK	telephone interview
11	KfW	Germany	telephone interview
12	Nordea	Scandinavia	telephone interview
13	pbb	Germany	telephone interview
14	Santander	Spain	telephone interview
15	Société Générale	France	telephone interview
	Finnvera		
16	Antti Rantakangas	Chairman of the Supervisory Board	Interviews were conducted
17	Markku Pohjola	Chairman of the Board of Directors	in person at several dates in
18	Pauli Heikkinen	CEO	Helsinki, by telephone and
19	Topi Vesteri	Deputy CEO and Group Chief Credit Officer	email.
20	Anita Muona	CEO of FEC	Additionally, regular
21	Pekka Karkovirta	Vice President International Relations	communication was held via
22	Ulla Hagman	Senior Vice President Finance	telephone.
23	Mikael Nordgren	Head of Treasury	
24	Jussi Haarasilta	Executive Vice President, Large Corporates	
25	Katja Keitaanniemi	Executive Vice President, SME financing	
26	Erkki Kontio	Senior Risk Officers	
27	Ilpo Jokinen	Senior Risk Officers	
28	Miikka Kaurijoki	Senior Risk Officer	
29	Jari Kautto	Finance Manager	
30	Satu Savelainen	Deputy Head of Structured Finance, Large Corporates	
31	Marion Bitsch	Senior Advisor	
	Ministry of Employment and Economic Affairs		
32	Inkalotta Nuotio-Osazee		Interviews were conducted
33	Kari Parkkonen		in person at several dates in
34	Timo-Jaako Uotila		Helsinki. Additionally, regular
35	Juha Pekka Niemi		communication was held via
36	Juha Rissanen		telephone.
	Ministry of Finance/Treasury		
37	Juha Majanen		Interviews were conducted
38	Juha Savolainen		in person at several dates in
39	Petri Piippo		Helsinki.
40	Teppo Koivisto		
	ECAs & Guardian Authorities	**Origin**	
41	BECI	Botswana	telephone interview
42	CESCE	Spain	telephone interview
43	ECGA	Oman	telephone interview
44	EFIC	Australia	telephone interview
45	EIAA	Armenia	telephone interview
46	EKF	Denmark	telephone interview
47	EKN	Sweden	telephone interview
48	EulerHermes	Germany	telephone interview
49	GIEK	Norway	telephone interview
50	ICIEC	International	telephone interview
51	Sace	Italy	telephone interview
52	Sinosure	China	telephone interview

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