

Financial needs in the agriculture and agri-food sectors in Denmark

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Glossary and definitions

Expression	Explanation
Agri-food survey	Survey of the financial needs of EU agri-food processing enterprises carried out in mid-2019 in the framework of study 'EU and Country level market analysis for Agriculture' and based on respondents' financial data from 2018.
САР	Common Agricultural Policy
CO2	Carbon Dioxide
COSME	Competitiveness of Small and Medium Enterprises
DAC	Danish Agricultural Council
DFI	Development Finance Institution
D.I	Confederation of Danish Industries
ОКК	Danish Krone
EAFRD	European Agricultural Fund for Rural Development
EaSI	Employment and Social Innovation
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
EBT	Earnings before taxes
EC	European Commission
EIB	European Investment Bank
EIF	European Investment Fund
EIT	European Institute of Innovation & Technology
EKF	Eksport Kredit Fonden
ESIF	European Structural and Investment Fund
EU	European Union
EU 24	The 24 EU Member States covered by the <i>fi-compass</i> (2019) 'EU and Country level market analysis for Agriculture': Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.
EU 28	All EU Member States: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, The United Kingdom.
EUR	Euro
FADN	Farm Accountancy Data Network



FAO	Food and Agriculture Organisation of the United Nations
fi-compass survey ¹	Survey on financial needs and access to finance of 7 600 EU agriculture enterprises carried out by <i>fi-compass</i> in the period April - June 2018 and based on respondent's financial data from 2017.
GFCF	Gross Fixed Capital Formation
GPS	Global Positioning System
GVA	Gross Value Added
ha	Hectare
HR	Human Resources
IFC	International Finance Corporation
IT	Information Technology
NPL	Non-performing loans
p.a.	Per annum
RDP	Rural Development Program
SAFE	Survey on the Access to Finance of Enterprises
SEGES	Danish Agricultural and Food Council
SME	Small and medium-sized enterprise
SO	Standard Output
UAA	Utilised Agricultural Area

¹ *fi-compass*, 2019, Survey on financial needs and access to finance of EU agricultural enterprises, Study report, https://www.fi-compass.eu/publication/brochures/survey-financial-needs-and-access-finance-eu-agricultural-enterprises.



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EXECUTIVE SUMMARY

This study gives an insight into agriculture and agri-food financing in Denmark by providing an understanding of the investment drivers, financing supply and financing difficulties, as well as on the existing financing gap.

The analysis draws on the results from two comprehensive and representative EU level surveys carried out in 2018 and 2019, namely the *fi-compass* survey on financial needs and access to finance of EU agriculture enterprises and a survey of the financial needs of EU agri-food processing enterprises. The report does not take into account the impact of the ongoing COVID-19 health crisis and/or the effect of any new support scheme being set-up by the Member State and/or changes in legal basis and/or policies at European level to mitigate the crisis, as surveys and data available covered a period prior to its outbreak. This would need to be subject to further analyses by interested stakeholders, administrations and/or researchers.

Financing gap for the agriculture sector in Denmark

The Danish agriculture sector is characterized by high levels of investment, but with a declining investment trend. In 2018, Gross Fixed Capital Formation² (GFCF) reached a new low of EUR 1.1 billion. However, the level of investment over Gross Value Added (GVA) in agriculture remains significantly higher in Denmark (approximately 50% in 2018) than for the EU 28 (approximately 30% for the same year). Most investments are made into buildings, as well as machinery and equipment.

The three key drivers of demand for finance include:

- (i) Need for working capital: given their relatively high production costs, farmers need loans to cover their day-to-day business expenses. In addition, farmers need to respond to demand from international customers (as Danish farming is highly export-oriented), who are increasingly demanding agriculture products that have been produced in an environmentally friendly way. Additionally, farmers are also investing in new types of feedstuff and fertilisation.
- (ii) Investments in the efficiency of production: through investments in new machinery and equipment, Danish farmers have aimed at increasing the efficiency of their production, to remain competitive and to ensure positive net results. Investments into precision agriculture, in particular, have been important in Denmark.
- (iii) **Purchase of land**: Danish farmers need to utilise economies of scale to remain competitive internationally and, hence, need to purchase additional land. Additional land is also needed for free-range livestock and organic production. The increasing demand for land has contributed to an increase in land prices in recent years.

The CAP support is facilitating investments. This is particularly the case for direct payments, which contribute to higher income levels and facilitate access to finance, as banks put emphasis on the availability of direct payments as a guaranteed source of repayment. EAFRD resources for on-farm investments are limited compared to the demand, and many farmers seeking grants therefore miss out on the public support through the rural development programme.

Several commercial banks and mortgage banks provide financing to the agriculture sector. Currently, most banks serve the agriculture segment and have even established a separate agriculture lending department. Their offering is being complemented by a number of specialised public and private institutions,

² GFCF measures the value of acquisitions of new or existing fixed assets. GFCF/GVA is used as a measure for how much of the new value added in the economy is invested rather than consumed. Increase of the GFCF is a measure of business confidence, a belief in that investments will be profitable in the future. In times of economic uncertainty or recession, typically business investment in fixed assets will be reduced, since it ties up additional capital for a longer interval of time, with a risk that it will not pay itself off.



which are providing dedicated services to farmers (e.g. the Growth Fund,³ described further in the report). **Even if Danish farms are highly indebted and sometimes have weak repayment capacities, Danish banks remain interested in financing them**. While many farmers had problems repaying their loans on time following the 2008/2009 financial crisis, the banks interviewed stressed that, in general, they remain interested in financing the sector's growth potential, particularly in export markets.

The total outstanding loan volume to the agriculture, forestry and fishery sectors was EUR 44.6 billion in October 2019.⁴ The ensuing bubble that built up in the lead-up to the financial crisis in 2008/2009 left a high level of indebtedness and a backlog of non-performing loans. The share of non-performing loans to outstanding gross loans was more than 25% in 2018. The high level of indebtedness, and the associated requirements in terms of risk management, are key constraints to an increase in agriculture lending by banks.

This report shows that there is a financing gap in Denmark and, thus, potential for new financial instruments. The **market gap is estimated to be between EUR 76 million and EUR 79 million**. The gap mainly affects large farms (over 100 hectares) that want to borrow for long-term investment purposes (maturities over 5 years). Interestingly, banks' and farmers' representatives interviewed consider this gap estimate to be too low, given that net investments in the sector have been negative over the past few years, according to annual farm surveys, whereby the assumed demand for financing over the coming years is expected to increase.

Overall, few loan applications submitted by farmers are being rejected by banks in Denmark. This is partly due to the loan application process. Prior to the application, an informal meeting between the bank and the farmer often takes place. If the farmer does not seem creditworthy, then the bank does not recommend the farmer to apply for a loan. However, often banks do not reject loans straight away. Instead, the potential borrower is encouraged to return at a later date when his/her business' financial situation has improved. When loans are rejected this is due to the banks assessing the business risks as too high, particularly for new entrants and young farmers, or because of the banks' strict lending policies. According to bank representatives interviewed for the report, they also reject applications because of farm's level of debt, poor credit history, unconvincing business plans, a lack of personal credibility, or poor farm set-up or infrastructure. Generally, the informal meetings between banks and farmers have also been assessed as building trust among both parties and, thus, only few farmers are discouraged from applying for loans, with the exception of young farmers and new entrants.

Young farmers and new entrants represent a large share of the overall financing gap. Often, when this segment decides to not apply for a loan, it is because it cannot provide the required levels of equity contribution. In addition, this segment of the agriculture sector has lower access to collaterals, and considers the application process as being too cumbersome combined with too high interest rates applied on the proposals. The high entry barriers for young farmers and new entrants are regarded as one of the main challenges for the Danish agriculture sector today and for the future.

RECOMMENDATIONS

The following recommendations could be considered to close the financing gap in the Danish agriculture sector:

- Problems related to the high-level of non-performing loans, affecting mostly large-sized farms and specific sub-sectors, could be addressed through specific instruments for debt restructuring. However, this would have to be done with national resources, as the EU-funded instruments do not generally allow for this.
- Farmers not affected by over-indebtedness and non-performing loans might be indirectly impacted by this situation, as the banking sector becomes more risk-averse towards the sector in general. For these farmers, a reinforcement of the currently available financial instruments (guarantees and subsidised loans) could be considered. For example, while public guarantees and loans are currently offered, the prices are high. A reduction of financing cost, including in combination with EAFRD grants, could be beneficial.

³ Vaekstfonden, 2019, Agricultural loans from Vaekstfonden, https://vf.dk/en/agriculture/.

⁴ When excluding lending from mortgage institutions, this figure was EUR 8.5 billion.



- Specific measures, instruments or schemes for new entrants lacking equity capital for start-up could also be considered. This includes through CAP/EAFRD financial instruments that can provide, for example, higher guarantee rates than the products already available on the market.
- Young farmers and new entrants would benefit from business plan development support and financial management training.
- Blended financing (public-private) linked to green farming and climate neutral farming could be developed. This will contribute to a reduction of the financing gap for young farmers and bolster a start-up segment in agriculture.

Financing gap for the agri-food sector in Denmark

Investment levels in the Danish agri-food sector have seen a slight increase in recent years. Most investments take place in the manufacturing of food products. In 2017, investments represented 16.1% of the GVA for the agri-food sector.

Investments in the agri-food sector are driven by:

- Capacity expansion to ensure enterprises remain competitive. Investments have been made in
 additional machinery, new processing lines and new packaging lines, in order to enable the production of
 the required quantities and quality of products.
- New product development. To accommodate food safety concerns, as well as health concerns, innovative equipment has been purchased. For the meat sector this includes, for example, machinery that supports lean cuts of meat, while for bakeries this includes equipment that can handle higher quantities of whole grains.
- Working capital needed to meet day-to-day business costs.

The commercial and mortgage banks which finance the agriculture sector also provide financing to the agri-food sector. The agri-food enterprises are considered ordinary businesses by commercial banks, and do not have special treatment. Hence, financial institutions provide lending at very attractive and competitive terms with low interest rates. In addition, there are other stakeholders which facilitate financing to the agri-food sector, including Eksport Kredit Fonden, which provides export credit guarantees, and the Innovation Fund which fosters technical development. In addition, leasing is becoming a more attractive form of financing to the agri-food sector in Denmark, due to the flexibility it provides.

In Denmark, a financing gap of about EUR 76 million was found for the agri-food sector. This gap mainly concerns small-sized enterprises (under 50 employees) which request short-term loans (under 18 months). The analysis also shows that medium-sized firms (between 50 and 249 employees) face a gap in terms of access to finance. Large agri-food enterprises (above 250 employees) are not affected much, as they have long-standing relationships with the financial institutions, and can access international financial markets.

Some loan offers by banks are being refused by agri-food enterprises in Denmark. This is mostly the case for short-term loans, credit lines and overdrafts. It is believed that offers for short-term products are mostly turned down by start-ups and small-sized enterprises, due to lack of knowledge of the costs and conditions associated with the products. Few loan applications are rejected by banks. However, start-ups face most difficulties in accessing finance due to lack of sufficient collateral. In addition, banks mainly reject applications due to the investment risk being considered too high or because the quality of applications are too low. The low quality of the loan applications is usually due to a lack of time or business skills of the entrepreneur, which prevents them from preparing high-quality applications, in particular for small-sized enterprises. Bureaucratic hurdles also lead some potential borrowers to abstain from presenting an application. Despite these issues, few agri-food enterprises in Denmark are discouraged from applying for loans according to the agri-food survey.

There are few constraints in the Danish banking sector that limit access to finance for agri-food enterprises. This is because banks perceive the sector positively, as some sub-sectors of the food industry are amongst the fastest growing of all business sectors. However, Danish financial institutions have a limited outreach in rural areas. While a number of growing agri-food enterprises have emerged outside of the cities in



recent years, their access to financial institutions is more limited. Although Danish financial institutions are interested in financing more agri-food enterprises, sometimes the high business risk associated with a project, as well as the lack of capacity on the side of the enterprises to prepare thorough business plans, prevent the banks from doing so. This is particularly the case for small-sized agri-food entrepreneurs in innovative subsectors, as well as start-ups.

While overall the future financial needs of Danish agri-food enterprises are foreseen to increase, the uncertainty of Brexit could negatively impact this outlook.

RECOMMENDATIONS

The following adjustments to the public intervention in the next programming period could be considered:

- Equity funding is desired by a number of companies in Denmark. This suggests that enabling conditions for financial innovation, particularly for start-ups who need venture and early-growth capital, could ease the financing gap for these enterprises. In this context, the possibility of establishing CAP/EAFRD equity financial instruments could be considered.
- Small companies and start-ups would benefit from the introduction of technical support. This assistance would enable knowledge transfer and the dissemination of domestic and international best business practices, particularly regarding state-of-the-art processing and manufacturing.
- Stakeholders (including financial institutions, as well as other public and private actors) could upgrade their advisory services to reduce the number of inadequate lending applications and business plans.



1. INTRODUCTION

Objective

This document belongs to a series of 24 country reports and presents an assessment of the potential financing gap for the agriculture and agri-food sectors in Denmark. The assessment is based on the identification and evaluation of the supply of and demand for financing, on the one hand, and on the quantification of the currently unmet demand for financing for the two sectors, on the other hand. This report aims to contribute to a better understanding of the potential need for continuing currently operating financial instruments, or the creation of new or additional ones, supported by the European Agricultural Fund for Rural Development (EAFRD).

Approach

To conduct an analysis of the potential financing gap in the agriculture and agri-food sectors, the study under which this report has been prepared adopts the following three-step approach:

- 1. Assessment of the number of farms/firms participating in the credit market and analysis of the dynamics of their demand.
- 2. Mapping of the sources of finance and examination of the dynamics of supply of credit.
- 3. Assessment of the potential existence of a financing gap, whereby parts of the demand cannot be satisfied by the existing supply but could benefit from financial instruments.

Per definition, a financing gap (for a specific sector) arises from unmet financing demand from economically viable enterprises (operating in the same sector). This unmet demand includes two major elements:

- (i) lending applied for (by the viable enterprises), but not obtained; and
- (ii) lending not applied for (by the viable enterprises) due to expected (by the same enterprises) rejection of the application (by a financial institution).

The analysis draws on the results from two comprehensive and representative EU-level surveys carried out in 2018 and 2019, namely the *fi-compass* survey on financial needs and access to finance of EU agriculture enterprises and a survey of the financial needs of EU agri-food processing enterprises. The latter survey was undertaken as part of this study. The analysis is further elaborated by desk research and enriched with secondary data from EU and national data sources.

The financing gaps for the two sectors are calculated using data from the above-mentioned surveys and additional data and statistical indicators from Eurostat. The calculated financing gaps for the two sectors are independent from each other. The report also outlines the drivers of unmet demand for finance as identified from desk research, and from interviews with key stakeholders from the agriculture and agri-food sectors, government representatives, and financial institutions, and as identified by two focus groups, one for each sector. Information on the supply side of finance was obtained from interviews with nationally or regionally operating financial institutions.

The report does not take into account the impact of the ongoing COVID-19 health crisis and/or the effect of any new support scheme being set-up by the Member State and/or changes in legal basis and/or policies at European level to mitigate the crisis, as surveys and data available covered a period prior to its outbreak. This would need to be subject to further analyses by interested stakeholders, administrations and/or researchers.

Report structure

This report is structured in two parts, each focused on one of the sectors of interest. Part I covering the financing for the agriculture sector, and Part II discussing financing for the agri-food sector. Each part is structured in five sections: an overview of the market, an analysis of the demand for financing, an analysis of the supply of finance, an assessment of the financing gap, and conclusions and recommendations.



2. PART I: AGRICULTURE SECTOR

2.1 Market analysis

Key elements on the Danish agriculture sector

- Agriculture output in Denmark was EUR 10.2 billion in 2018.
- The total agriculture, forestry and fishing Gross Value Added (GVA) represented 1.18% of Denmark's GVA in 2018.
- Livestock (particularly pig and dairy) is the most important sector, accounting for 61.3% of agriculture output and crop production accounts for 32.7%.
- Denmark is the European leader in organic production and organic consumption.
- While most of the farmland is utilised by large farms, medium-sized farms are dominating. Very smallsized farms play a minor role in the sector and are often run as part-time enterprises.
- Cooperatives play a prominent role in the agriculture sector.
- Denmark is a net exporter of agriculture products, particularly for meat and dairy.
- Farm managers' average age is increasing and only 6.6% of farm owners are younger than 40 years old. The small proportion of young farmers leads to an overall lack of workers in the sector, though this is partially offset by the use of (seasonal) migrant workers from Eastern Europe.

The agriculture sector in Denmark has played a leading role over the decades in developing and shaping the structure of the economy and society Denmark. The country's 4.3 million hectares of land is flat and fertile and almost 60% of it is cultivated. Even so, the total number of farms is low. In 2017, the total number of farm holdings in Denmark was 35 050.⁵

In 2018, Danish agriculture was mostly focused on the production of livestock (mostly pig and dairy), followed by crops. Animal output accounted for 61.3% of total agriculture output while crops accounted for 32.7%. Cereals were the largest crop, accounting for 11.6% of the total crop output.⁶ Furthermore, Denmark is a driving force behind the development of organic production and organic consumption in the EU. Approximately 8.5% of Danish farmland was cultivated organically in 2017, with this number on an upward trend.⁷

Danish agriculture output was EUR 10.2 billion in 2018⁸ and Gross Value Added (GVA) in agriculture was EUR 2.2 billion. The agriculture GVA represented 1.1% of the EU 28's total GVA in 2018. In 2017 the same figure was around 1.7%, thus the share of Denmark's GVA within the EU 28 is decreasing. In parallel, the total agriculture output has been varying, with lower output levels in 2018 compared to 2017. The primary agriculture sector represented 2.1% of employment in 2017.⁹

- 5 Eurostat, 2019.
- 6 European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.
- 7 Statistics Denmark, 2019.
- 8 Eurostat, 2019.
- 9 European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.



While most Danish farms are medium-sized farms, the majority of farmland is utilised by large farms. Although 66.6% of farms in Denmark have a Standard Output (SO)¹⁰ ranging between EUR 8 000 and EUR 249 999, they use 33.4% of the Utilised Agricultural Area (UAA). Large-sized farms, with a SO of EUR 250 000 or more, use 65.4% of the UAA in Denmark.¹¹ The number of large farm holdings has been growing in recent years. The remaining 11.5% of farms are very small-sized farms, often characterised as part-time holdings. These farmers usually also have non-farm incomes.

The cooperative movement has a strong presence in the Danish agriculture sector. Large cooperatives include Arla Foods, which registered a turnover of EUR 10.3 billion in 2017; Dansk Landbrugs Grovvareselskab, which had a turnover of EUR 6.6 billion; and Copenhagen Fur, which had a turnover of EUR 991 million.¹² Farmers, are the owners of the agriculture cooperatives including of their processing facilities, such as dairies and slaughterhouses. The primary role of these businesses is to ensure that farmers have a market for their products whereby the cooperatives buy the farmers' outputs. Given their economic size and value, these cooperatives have strong market power when negotiating prices and conditions with the next coming partner in the value chain, thereby helping to boost farmers' income.

Denmark's agriculture sector is a net exporter and thus it is focused on responding to world trends in food production. With a high food security index, approximately equal to three times the national demand,¹³ Danish food product exports accounted for 22% of the total national exports in 2018.¹⁴ As of August 2019, the vast majority of Danish exports (in terms of value) was live swine, at 56.75% of value. This was followed by cereals (6.68%) and live bovine (5.88%). However, compared to 2017, export levels to both the EU 28 and non-EU countries have been decreasing at a rate of about 4%.¹⁵ Products exported from Denmark have a good reputation for their high food safety and food quality.

Danish agriculture is characterised by a high percentage of aging farmers. In 2017, the average age of farmers was 57 years old.¹⁶ 54% of the farmers were above 55 years old, with the average age rising in the last decades. 6.6% of Danish farmers are below 40 years old¹⁷ and farmers younger than 35 represented 4.7% of farmers in 2018.¹⁸ The small proportion of young farmers is a cause of concern in the sector. It is likely caused by the large capital requirements associated with the acquisition of a farm, the rural population moving to larger urban areas, and less interest in full-time jobs in the sector. All these factors make the sector unattractive to young people.

While agricultural income has varied substantially over the last 10 years, since 2014 it has been significantly below other sectors of the economy. While the agricultural income in 2011 and 2012 was considerably above income levels for other economic sectors, for 2015 and 2016 as well as in 2018 the agricultural income level was considerably below that of other sectors (Figure 1). In 2017, the income level was comparable to other sectors.

- 11 Eurostat, 2018, Agriculture, forestry and fishery statistics.
- 12 All figures for 2017.
- 13 The Global Food Security Index aims at ranking and measuring food security in 105 countries by looking at such issues as food affordability, availability, nutritional quality and safety, https://www.reuters.com/article/us-food-report/u-s-denmark-top-ranking-of-worlds-most-food-secure-countries-idUSBRE8690KR20120710.
- 14 Statistics Denmark, 2019.
- 15 European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark. The EU is Denmark's most important export market (but it is also an importer of agriculture products from the EU): more than 60% of Denmark's exports are going to the EU.
- 16 Statistics Denmark, 2019.
- 17 Eurostat, 2018, Agriculture, forestry and fishery statistics.
- 18 European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.

¹⁰ The standard output of an agricultural product (crop or livestock) is the average monetary value of the agricultural output at farm-gate price, in Euro per hectare or per head of livestock. Very small farms have a SO of less than EUR 8 000, medium sized farms have a SO from EUR 8 000 to EUR 249 999 and large farms have a SO of EUR 250 000 or more.





Figure 1: Evolution of agricultural income compared to wages and salaries in other sectors of the economy, 2009-2018

Source: European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.

Looking at the cost and revenue structure, comparing the period 2016 to 2018 to the 2004 to 2006 period, the most notable change is the decrease of interest costs in the overall cost structure. In turn, other costs have increased as well as the costs for feeding stuffs and taxes. The revenue structure for the period 2016 to 2018 has also largely remained similar to that of the 2004 to 2006 period, although the share of subsidies has decreased. While previously the product specific subsidies accounted for a share of about 4% of total revenues, they have largely disappeared for the 2016 to 2018 period. This is related to the numerous CAP reforms undertaken over the period. However, for other EU countries these subsidies have been replaced by other subsidies, which is not the case for Denmark.



Figure 2: Agricultural income - cost and revenue structure in Denmark, 2004-2018

Source: European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.



Statistical factsheet Denmark, 2019

More data on agriculture indicators from Denmark can be found in the **Statistical factsheet Denmark 2019** of the Directorate-General for Agriculture and Rural Development, Farm Economics Unit and in the Annex A.6



2.2 Analysis on the demand side of finance to the agriculture sector

This section describes the drivers of demand for finance in the agriculture sector, and analyses the met and unmet demand. It elaborates the main reasons for farm enterprises to request financing and identifies the agriculture sub-sectors with the largest need for finance. The section also provides an analysis of the type of producers that face the greatest constraints to accessing credit. The analysis of the demand for agriculture finance is based on the findings from the *fi-compass* survey of 302 Danish farms, as well as interviews with key stakeholders in the agriculture sector, combined with information obtained from the Farm Accountancy Data Network (FADN).

Key elements on finance demand from the Danish agriculture sector

- The Gross Fixed Capital Formation¹⁹ for the Danish agriculture sector has been decreasing since its peak in 2013, and was EUR 1.1 billion in 2018. Most investments were made in machinery and equipment.
- Net investments for the agriculture sector for the period 2010-2017 were negative, at EUR 313 million, as depreciation exceeded investments. The negative net investments were particularly high for the pork, dairy and beef sub-sectors.
- Danish farmers mostly demand financing for working capital, followed by financing for investments aimed at improving farm efficiency, such as investments in farm machinery and equipment. Land purchase is the third most important driver of the demand for finance.
- The main difficulties faced by Danish farmers are related to the low purchase prices of their products, high production costs and a shortage of qualified labour.
- Direct payments from the CAP play an important role in smoothing the seasonality of farm income whereby the repayment capacity is increased, thus facilitating access to financing for Danish farmers.
- The unmet demand for finance of the Danish agriculture sector in 2017 is estimated at EUR 107 million.
- Danish farmers have a higher propensity than the EU 24 average to apply for all kinds of banking products and a higher likelihood of having their applications approved.
- Overall, farmers' loan rejection levels are low. When rejected, this is mainly for reasons of strict banking policy, high levels of indebtedness, poor credit history, unconvincing business plans, as well as a lack of personal credibility and poor farm set-up.
- Few Danish farmers (around 1%) are being discouraged from applying for loans due to the fear of being rejected.
- Young farmers who are new entrants to the sector are the ones that face the most significant challenges in accessing finance under the present lending arrangements. The absence of adequate collateral, the cumbersome loan applications, and the risk they represent to banks are the main reasons why younger farmers face difficulties. In addition, the high land prices mean that it is difficult for young farmers to access land, and in turn the possibility of using land as collateral for loans is limited.

2.2.1 Drivers of total demand for finance

While the share of GVA invested in the Danish agriculture sector is significantly higher than the EU 28 average, investments have been declining since 2013 (Figure 3). Figures for 2018 mark a new low value

19 The GFCF measures the value of acquisitions of new or existing fixed assets by the business sector, minus disposals of fixed assets. GFCF is a component of the expenditure on gross domestic product (GDP), and thus indicates how much of the new value added in the economy is invested rather than consumed. Fluctuations in this indicator can provide pointers towards business activity, business confidence and the pattern of economic growth. In times of economic uncertainty or recession, typically business investment in fixed assets will be reduced, since it ties up additional capital for longer periods, with the risk that it will not pay itself off. Conversely, in times of robust economic growth, fixed investment will increase across the board, because the observed market expansion makes it more likely that such investment will be profitable in the future.



of GFCF of EUR 1.1 billion. Between 2013 and 2018, overall investment fell by 28% (at current prices). The decrease has been especially significant for buildings (-35%), as well as machinery (-29%) and animals (-22%). Nevertheless, investment in plantations has increased.

However, higher investment levels into buildings as well as machinery and equipment have been noticed in 2017. In interviews, farmers and their associations said that Danish farmers may tend to boost their investments during price booms. In 2017, world prices of agriculture products soared and this led to new investments in machinery to expand and modernise facilities. Interviewees acknowledged that while this process is not necessarily a good planning strategy, it is a pattern of behaviour that has developed over decades.



Figure 3: Gross Fixed Capital Formation (GFCF) in the Danish agriculture, 2010-2018, EUR million

Source: Eurostat, 2019, Economic Accounts for Agriculture.

Despite decreasing investment into tangible assets in Denmark, the level of investment over GVA in agriculture remains significantly higher in Denmark than for the EU 28. In Denmark, the share has been fluctuating between 40% and 62% in the period 2013-2018 with a peak in 2015 (62%), whereas the EU 28 average share is about 30.7% (Table 1).

	2013	2014	2015	2016	2017	2018
GVA Agriculture (basic price)	2.8	2.9	2.1	2.1	3.1	2.2
GFCF	1.5	1.5	1.3	1.3	1.3	1.1
GFCF over GVA	55.17%	50.33%	61.53%	60.34%	40.60%	50.05%

Source: Calculations based on Eurostat, 2019, Economic Accounts for Agriculture.

Calculations on net investment for the agriculture sector show that depreciation has exceeded investments over the past few years, in particular for the pork and bovine sub-sectors (Figure 4). The



annual farm survey, conducted by SEGES²⁰, provides insights into farms' financial situation. It concluded that net investments for the period 2010-2017 were negative, at - EUR 313 million (- DKK 2 337 million)^{21 22}. Depreciation, particularly for bovine and pork sub-sectors, has been higher than capital investments. Net investments have been estimated to be negative, at about - EUR 374 million (- DKK 2 794 million) for bovine and -EUR 128 million (-DKK 954 million) for pork, over the same period (2010-2017). Net investments into crops have been positive, at EUR 113 million (DKK 844 million), as have net investments into fur, at EUR 62 million (DKK 465 million), and others, at EUR 14 million (DKK 101 million). Although this trend cannot be extrapolated and, on the contrary, may even support a rebound in the years to come, it still provides important insights into the investment climate and needs of the Danish agriculture sector.



Figure 4: Overview of net investments in Danish Agriculture, 2010-2017, EUR million

Source: Elaborations based on annual farm survey conducted by SEGES/ Danish Agricultural Council, 2019.

The decrease in investment in some sub-sectors (e.g. beef, dairy and pork) over the last few years could be due to challenges in accessing finance for some farmers. While this could be due to economic decisions of the firms, independently from their actual access to finance, it could also indicate an unmet demand for finance. According to the farmers' union interviewed, some farmers essentially want to 'expand their farm out of the problems', e.g. by investing in expansion they believe they can generate economies of scale whereby the current low income situation could be overcome (section 2.1). Banks however have pointed out in interviews that they are not in agreement with this strategy and thus do not provide finance for farms with this investment strategy.

The high levels of outstanding debt and difficulties with loans repayments could also be an explanation for the negative investment trend. Livestock farmers (dairy and granivore) have by far the highest liabilities (Table 2). FADN data reveals that farms from these sub-sectors also have a debt ratio that is above the average of all sectors, standing at 76.2% for dairy farms and at 70.1% for granivore farms in 2017. Field crops and other permanent crops farms, on the other hand, managed to keep lower debt levels. Not surprisingly,

- 20 SEGES, the knowledge centre of the Danish Agriculture and Food Council (SEGES) has sent questionnaires to approximately 18 000 farmers annually regarding output and economic perspectives and, in cooperation with Statistics Denmark, has used the results to estimate investment for the total of Danish farms. Results are not published but the outcomes are forwarded to Statistics Denmark for their further usage.
- 21 Net investment is the amount spent by a company on capital assets, i.e. gross investment less depreciation. Net investment gives a sense of how much money a company is spending on capital items used for operations. Capital assets include property, plants, technology, equipment, and any other assets that can improve the productive capacity of an enterprise. The cost of capital assets also includes upkeep, maintenance, repair, or installation of said assets. When the gross investment is higher than depreciation, the net investment is positive, indicating that productive capacity is increasing. Conversely, when the gross investment is lower than depreciation, the net investment is negative, indicating that productive capacity is decreasing.
- 22 Unless otherwise indicated, the following exchange rate is being used: INFOEURO at December 2017, DKK1 = EUR 0.13437.



granivore and dairy farms also hold more assets compared to farms in other sub-sectors. Hence, in Denmark, the livestock sector is under more economic pressure, potentially leading to more difficulties in accessing finance.

Type of farming	Total assets, EUR	Total liabilities, EUR	Short- term liabilities, EUR	Medium and long- term liabilities, EUR	Liabilities to assets ratio, %	Short-term to total liabilities ratio, %	Number of farms
Field crops	2 356 152	1 158 627	143 729	1 014 898	49.2%	12.4%	12 600
Horticulture	1 489 490	752 699	296 213	456 486	50.5%	39.4%	470
Other permanent crops	1 674 188	700 429	93 892	606 537	41.8%	13.4%	1 990
Milk	3 791 814	2 889 854	292 945	2 596 909	76.2%	10.1%	3 470
Other grazing livestock	1 151 638	590 779	48 359	542 420	51.3%	8.2%	4 150
Granivores	5 281 457	3 700 938	414 438	3 286 501	70.1%	11.2%	2 860
Mixed	2 178 091	1 212 675	126 095	1 086 580	55.7%	10.4%	2 800
All farms	2 570 891	1 510409	172 665	1 337 743	58.8%	11.4%	28 350

Table 2: Assets and liabilities by type of farming, per farm, 2017

Source: Calculation based on FADN data, 2019.

The very large-sized farms have a very high liabilities to assets ratio of over 70%. Small-sized farms have fewer liabilities both in absolute terms and as a share of total assets to liabilities (Table 3). Most of the liabilities are medium and long-term. Overall, the debt ratio is quite high in Denmark ranging about 40 to 50% for small and medium-sized farms. Very large-sized farms, with a SO of more than EUR 500 000, however, reach a significantly higher debt ratio of 71.7%.

Table 3: Assets and liabilities by farm economic size (SO based), per farm, 2017

Economic size group (SO)	Total assets, EUR	Total liabilities, EUR	Short-term liabilities, EUR	Medium and long-term liabilities, EUR	Liabilities to assets ratio, %	Short-term to total liabilities ratio, %	Number of farms
EUR 8 000 ≤ 25 000	608 758	249 630	26 600	223 030	41.0%	10.7%	4 570
EUR 25 000 ≤ 50 000	1 035 201	484 744	42 308	442 436	46.8%	8.7%	3 820
EUR 50 000 ≤ 100 000	1 419 634	560 802	67 832	492 970	39.5%	12.1%	7 040
EUR 100 000 ≤ 500 000	3 153 333	1 649 356	197 206	1 452 150	52.3%	12.0%	7 160
EUR ≥ 500 000	5 828 253	4 177 887	472 525	3 705 362	71.7%	11.3%	5 760
All farms	2 570 891	1 510 409	172 665	1 337 743	58.8%	11.4%	28 350

Source: Calculation based on FADN data, 2019.



The three main factors driving demand for finance in Denmark's agriculture sector are:

- (i) need for working capital;
- (ii) investment in new machinery and equipment; and
- (iii) purchase of land.

Figure 5 shows the main purposes of the bank loans applied for by Danish farmers - 74% of *fi-compass* survey respondents are applying for bank financing to cover working capital needs. This is above the EU 24 average of only 41%. Farmers are also requesting bank loans to finance investments in new machinery and equipment (24%) and to purchase land (14%).

Figure 5: Purpose of bank loans in the agriculture sector, 2017



Source: fi-compass survey.

The need to purchase inputs and to cover preparation and cultivation expenses drove demand for finance in 2017. Production costs are relatively high in Denmark and are thus a driver of the high working capital needs of Danish farmers. High production costs are also one of the main difficulties faced by farmers (Figure 7). In recent years (2015-2017), production costs increased by 8%.²³ A large share of this increase must be attributed to the high minimum wages paid in the sector. The other reason is the increase of total intermediate consumption, which slightly increased between 2017 and 2018 (+1.35%), mainly due to the rising price of energy, fertilisers and feed stuff²⁴.

However, **high production costs are partly mitigated by cooperatives**. In fact, by entering into supply contracts with the cooperatives for the purchase of inputs, farmers can usually benefit from the bulk purchases of the cooperatives. Given that cooperatives will purchase higher volumes of inputs they will benefit from lower prices. These lower prices are then passed on to the member farmers.

High working capital needs are also driven by the export orientation of the Danish agriculture sector and its need to respond to changing consumer trends and demands. Danish standards and production practices, for example in the meat (particularly pork) or milk sub-sectors, are linked to customer demand in the export markets. Increasingly, customers demand agriculture products that have been produced in an environmentally friendly manner. While research and development of new products to meet consumer demand is often done through the cooperative network, their acquisition is financed by the individual farmer.

²³ SEGES (covering only full-time farm holdings).

²⁴ European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.



During the interviews, it was pointed out that given the prominence of livestock fattening activities in Denmark, feed quality is a key issue for many Danish farmers. New feed that has added enzymes and microbial cultures is available on the market.²⁵ Many farmers have purchased these costly new products, as they are considered to increase the total benefit to both the farm's economy and the environment.

Investments in farm technology and equipment, infrastructure, technical facilities, and in the implementation of information technology (IT) control and management systems, have been other key driver of the demand for finance. Large-sized farms in the pork, milk and dairy, plant and fur production subsectors, in particular, have invested to step up production efficiency, quality, and net results to stay competitive and to maintain their status as suppliers to the cooperative-owned agri-industry.²⁶

For many farms, investments into precision agriculture²⁷ have driven investment. Farmers mentioned that they mostly use precision steering with Real Time Kinematic GPS in tractors or combine-harvesters. Others mentioned that they also acquired software or drones for monitoring and mapping the field. Often farmers need such technology to monitor the growth of crops or to see where additional inputs (such as fertilisers) are being needed.

Demand for environmentally friendly agriculture has also driven medium and long-term investments. Amongst other things, interviewees from the agriculture sector mentioned that they have invested into environmentally friendly stables, with some farms now using solar panels to run water pumps and heating systems for livestock. In addition to environmental concerns, animal welfare requirements have led farmers to invest into the provision of showers for pigs (that are obligatory in Denmark) and to provide fixed or drained flooring instead of fully slatted floors, amongst other things.

Another driver of demand for finance is land purchase. To increase competitiveness on the international markets, Danish farmers need stable quality and economies of scale and, hence, need to purchase additional land. Also, many farmers required additional land for free-range livestock and organic production. In 2018, 10.8% of total Danish farmland was organic (equalling 280 000 hectares). The Region of Jutland has the most land being used for organic production.²⁸

Well-educated young farmers with farm management experience want to pursue a professional carrier in agriculture. These farmers tend to invest in their own land. However, buying a farm is costly and represents an investment of approximately EUR 3.5 million for an average farm.

The increased demand for land has also contributed to higher land prices (Figure 6). While prices prior to the financial crisis in 2008/2009 rose quite steeply (also causing the value of agriculture assets to increase sharply), prices have dropped since the crisis. In recent years, prices have risen again and were above EUR 22 753 (DKK 170 000) per ha in 2018.

²⁵ This feed is supposed to improve nutrient uptake and digestibility.

²⁶ According to FADN data, large-sized farms have driven demand for finance: almost 60% of all liabilities are with farms with a SO of more than EUR 500 000 with pork production accounting for almost 34% of total liabilities, followed by milk and dairy production (26%) and field crops (10%).

²⁷ Precision agriculture uses satellite or sensor data for better field navigation and improved input application.

²⁸ CPH Post Online, 2019, Over a tenth of Danish agricultural land now organic, http://cphpost.dk/?p=110436.







Source: Calculations based on Denmark National bank figures, 2018.

The key difficulty for Danish farmers in 2018 was the low purchase price of their production (Figure 7). It is understandable that there is high concern over purchase prices, given that Denmark is a small country and the agriculture sector is easily affected by the supply and demand trends on the global market. This has become very visible since the financial crisis of 2008/2009. Prior to the crisis, many farms renovated and extended their facilities, often installing expensive and advanced technology, and over investing into their production. During these times, they often used bank finance for the investment. During the crisis, and in the immediate aftermath of the crisis, farmers had lower incomes and had difficulties servicing their loans. Some farmers are still struggling to repay their debts from that time. Despite the high difficulty experienced (36% of the *fi-compass* survey respondents) the level of concern is slightly lower than for the EU 24, possibly owing to the positive role agriculture cooperatives play, which is partly mitigating the risks stemming from unpredictable global market price developments.

Another important concern in Denmark is the high and rising cost of production, although it has not risen as fast as in the EU 24 (27% in Denmark as opposed to 47% for the EU 24). Nevertheless, during interviews Danish milk farmers stressed that in recent years their production costs have been higher than the price they can receive for their milk. This finding was confirmed by research conducted by the European Milk Board. Their numbers show that in the time period between 2013 and 2017, the difference between production costs and gate milk prices led to an average shortfall of 14% for Danish milk producers.²⁹

Availability of labour is an increasing concern for Danish farmers. The labour gap in agriculture has soared from approximately 6% in 2015 to 18% in 2017. It is expected that Denmark will lack numerous educated farmers and about 10 000 engineers by 2025.³⁰ This has resulted in large scale recruitment of young people from Eastern Europe.

While access to finance has also been a difficulty for Danish farmers, it is of limited importance compared to other difficulties. Strikingly, the share of Danish farmers experiencing difficulties in accessing finance is approximately half of the EU 24 average.

²⁹ European Milk Board, 2017, Denmark Milk Production Costs.

³⁰ CPH Post Online, 2018, Denmark facing huge engineer shortage in the near future, http://cphpost.dk/?p=95358.







Source: fi-compass survey.

The Common Agricultural Policy (CAP) plays an important role in facilitating access to finance. Support from both pillars (direct payments – Pillar I, and the rural development support – Pillar II) facilitate Danish farmers' access to finance.

The Rural Development Program (RDP) budget for the 2014-2020 programming period is EUR 1.2 billion. This consists of EUR 919 million from the EU budget, EUR 289 million direct payments transferred from the CAP Pillar I, and EUR 277 million of national funding, which includes EUR 4 million of additional national funding top-ups.

In 2018, the total CAP support amounted to EUR 0.98 billion.³¹ The largest share of CAP payments was for direct payments of EUR 0.82 billion, or 83.7%, followed by rural development programs of EUR 0.15 billion, or 15.5%. In addition, market measures of EUR 0.08 billion, or 0.9%, were available. These mostly supported fruits and vegetables (62.3 % of total market measures funding), promotion (19.6% of total market measures funding), and milk and dairy products (6.6% of total market measures funding).

Direct payments are considered a key source of repayment capacity by banks and thus lead to a higher bankability of farmers. Given that the income of farmers is highly seasonal and can be affected by external factors (such as weather and price volatility), direct payments contribute to stable cash flows. Some financial institutions accept direct payments as guarantee for loans.

The RDP focuses on four main areas: (i) restoring, preserving and enhancing ecosystems dependent on agriculture and forestry, (ii) the competitiveness of the agriculture sector and sustainable forestry, (iii) resource efficiency and climate, and (iv) social inclusion and local development. The two RDP measures with the highest budgets are:³²

- Measure 4 'Productive and non-productive investments', with EUR 355 million allocated; and
- Measure 11 'Organic farming', with EUR 340 million allocated.

32 European Commission and Member State data, RDP version 8.1 adopted on 19/03/2020.

³¹ European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.



EUR 222.6 million (DKK 1 656.5 million) is the total budget of the RDP allocated for calls under submeasure 4.1 Support for investments in agriculture holdings over the period 2014-2020. Until the end of 2019, the approved applications for investment support received amounted to EUR 212.9 million (DKK 1 584.2 million). Due to cancelled commitments the total public expenditure planned amounts to EUR 131.4 million. Commitments and disbursements of the funds under the sub-measure equal to, respectively, 66% (EUR 86.7 million) and 61% (EUR 80 million).³³ Farmers that apply for investment support are required to own the investment and are responsible for keeping the project running. In addition, they need to keep signage of EUfinanced support during the required period of maintenance, which is 3-5 years. Specific technical conditions are also applicable for each support scheme. Denmark has not programmed any measures under submeasure 6.1 supporting the set-up of young farmers.

Investment support is geared towards the farms that are most cost-effective in improving the environment. The investment support is divided, each year, into certain areas, such as environmental technologies in cattle production, environmental technologies in crops and horticulture and modernisation of cattle production plant. A certain amount of funds is allocated to each investment area.

69% of the support provided from Denmark's RDP 2014-2020 focuses on improving management of natural resources and encouraging climate friendly farming practices, including the objective of substantially increasing the organically farmed area. Investment support has thus facilitated farm investments that have a dual dimension: environmental and animal welfare, as well as an increase in farm profitability. Further investments into organic agriculture have also been facilitated. However, the Danish Agricultural Agency stated that due to the limited amount of finance for each measure and the high demand from farmers compared to what is actually available, results in many farmers missing out on the EAFRD financial support.

2.2.2 Analysis of the demand for finance

The potential total demand for finance combines both met and unmet demand. The met demand consists of the value of all applications for finance, which were accepted by the financial institutions in the relevant year. The unmet demand consists of the assumed value of applications rejected by a financial institution, offers of credit refused by farmers, alongside cases where farmers are discouraged from applying for credit due to an expectation of rejection or refusal (Figure 8).





Source: Ecorys, 2019.

Based on the results of the *fi-compass* survey, the unmet demand for the Danish agriculture sector is estimated at EUR 107 million.

The vast majority of Danish farmers rely on bank loans to meet their financial needs. According to *ficompass* survey, more than 38% of Danish farmers applied for bank loans in 2017, which is significantly higher

33 Note: The total amount requested is calculated based on all received applications before any administrative check regarding eligibility or selection criteria to have taken place. Applications that have not been approved could have been non-eligible, and/or with insufficient or missing information not allowing their evaluation, and/or with insufficient value-added, and/or ranked at a place for which budget under the call has not been anymore available.



than the EU 24 average (Figure 9). Private financing from friends and family plays a limited role in Denmark. Only 0.4% of respondents to the *fi-compass* survey said that they relied solely on loans from friends and family. According to interviews, most farmers do not feel comfortable asking friends or family to support their business.

Figure 9: Sources of finance in Denmark in 2017



Source: fi-compass survey.

For Danish farmers, the availability of own funds was the key reason for not applying for finance (Figure 10). This position was expressed by 93% of the Danish farmers that did not apply for financing in 2017. No major difference could be observed across the different loan products. This figure is much higher than for the EU 24, where only about 75% of respondents gave this reason. For about 9% of the Danish farmers that did not apply, the main reason was that loans that had been taken out prior to 2017, were still sufficient.

Danish farmers usually apply to only one bank. More than 93% of *fi-compass* respondents said that they applied to only one bank (65% in the EU 24). In interviews, it was also pointed out that most farmers are with only one bank and are connected to a personal bank official who is in regular contact with the farmer. Often relationships have evolved over a long time. Hence, the farmer is unlikely to get more favourable conditions by applying elsewhere, as other banks will lack detailed knowledge about the farms' operations.

Around 1% of farmers were discouraged from applying for a loan due to a fear of possible rejection (Figure 10). This compares to 9% for the EU 24 across all products. In the interviews, it was stressed that it is customary to have personal contacts with staff members of agriculture associations or bank staff prior to applying for a loan. Farmers' representatives mentioned that the personal contact increases trust among both parties. It was also mentioned that cooperatives in Denmark have built up a network of 32 regional advisory centres, with more than 2 500 employees that provide technical support and advisory services for farmers.³⁴ They also provide advice in dealing with financial institutions and thus contribute to making farmers more comfortable in approaching banks. The advisory services, however, are rendered on commercial terms and can therefore be costly. This is especially the case for young farmers who need technical support.

³⁴ Technical support on accounting, legal advice and administrative support amongst others.





Figure 10: Reasons for not applying for loans in the Danish agriculture sector in 2017

Source: fi-compass survey.

Danish farmers mostly apply for short-term loans, including credit lines and overdrafts. According to the *fi-compass* survey, 19.9% of Danish farmers applied for short-term loan and credit lines and overdrafts in 2017 (Figure 11). This is almost four times the rate for EU 24 farmers and also consistent with many farmers demanding finance for working capital purposes, as outlined for section 2.2.1. Only 4.1% of respondents said that they had applied for medium and long-term lending. The high level of own funds and the sufficient levels of earlier loans, as mentioned previously, explain this finding.





Source: fi-compass survey.

Average loan amounts in Demark are much higher than for the EU 24. According to the *fi-compass* survey, this is mainly due to the high levels of intensive animal and milk production in the country. The average loan application of almost EUR 537 000 is 4.5 times higher than the EU 24 amount of just under EUR 118 000.



When it comes to credit lines and bank overdrafts, amounts applied for are almost four times higher than the average in the EU 24, supporting the earlier argument that Danish agriculture production is highly capital intensive and requires substantial amounts of working capital.

Loan rejection rates in Denmark are below 1%. For short-term loans (including credit lines and overdrafts), medium and long-term loans, approval rates are above 98% (Figure 12). For short-term loans, rejection rates in Denmark are below 1%. For medium and long-term loans, no rejections have been recorded (3% of applications were still pending at the time of the survey). This is considerably lower than for the EU 24, which had rejection rates of 15% for short-term loans and 20% for medium and long-term loans. As discussed above, farmers and banks stressed in interviews that farmers have personal contacts with bank officials and, prior to applying for loans, informal talks keep non-eligible borrowers from applying. Hence few loan applications are being rejected by banks as farmers not considered creditworthy are not applying.



Figure 12: Results from applications for finance in the Danish agriculture sector in 2017

Source: fi-compass survey.

During the interviews with farm representatives and banks, it was clarified that the nature and characteristics of the agriculture finance schemes in Denmark differ compared to others in the EU 24. Indeed, an applicant is not often directly rejected. Instead, a temporary conclusion is reached based on a dialogue between the farmer and their bank, taking the farm's overall economic situation into consideration (temporary, since the dialogue continues and the farmer's economic situation might improve leading to a later approval). This situation is not recorded as a rejection in the survey and may therefore impact final outcomes considerably.

Even if some Danish farms are highly indebted and have weak repayment capacity, Danish banks remain interested in financing them. While many farmers had problems repaying their loans in a timely manner due to the effects of the 2008/2009 financial crisis, the banks interviewed stressed that, in general, they remain interested in the agriculture sector and continue to finance it. This is mainly for two reasons.

First, if they had closed all loans in arrears and stopped financing delinquent borrowers, this would have resulted in a complete loss of the loan principal as the borrower would most likely have gone bankrupt. The bank would then have to write off the loan completely and would have to record this as a loss. In addition, banks believe that it will require tremendous efforts on their side to liquidate the collateral of delinquent clients. Thus, banks would have to cover higher costs and they might even be unable to obtain the entire collateral value. This would lead to further losses on banks' side (for more details see section 2.3.2).



Hence, many Danish banks chose a different strategy and looked for innovative ways of addressing the issues, for example by working with farm management companies or by teaming up with pension funds (more details in section 2.3.1.1) or by providing re-financing (to clients that they consider competitive and profitable in the long-term) so that farmers could improve their financial performance, by investing into productivity improvements.

This strategy seems to have paid off as the impairment losses on the loans and receivables of Danish banks have decreased consistently. For 2017, they were -EUR 133 million (-DKK 996 million)³⁵ and the results before tax of the Danish banks have increased to EUR 5 522 million (DKK 41 260 million), which represents an increase of almost 350% compared to 2013.³⁶

Secondly, banks stressed that they are willing to support farmers who want to invest in improving the profitability of their enterprises. Banks tend to finance investments in innovative technology that contributes to better performance and productivity. In addition, banks are particularly interested in financing the meat sector, as meat prices have been increasing in the last four years, from 2016 onwards, with new records being expected this year (2019). Farmers and banks both wish to capitalise on this development. Further, large agrifood enterprises are important clients of banks and as many Danish farmers have strong links to those large cooperative agri-food enterprises, banks want to maintain good relationships with agri-food enterprises and their farmers.

According to farmers' representatives, Danish banks reject applications from agriculture producers because (i) the applicant is from a new farm and unknown to the bank (and thus, a higher risk client) or (ii) because of banks strict lending policies. All Danish farmers in the *fi-compass* survey whose applications had been rejected claimed that the rejection was due to the fact that the applicant was a new farm and that the associated risk was too high. No other reasons for rejections, such as lack of collateral or credit history, bank policies, existence of other loans or inadequate business plans, were mentioned by farmers according to the survey results. In interviews, it was found that in the aftermath of the financial crisis, banks' policies for granting loans to farmers were somewhat tightened and, as a minimum, 20% equity started being required for any loan application. For some farmers it has been challenging to meet this criteria, which is why their applications have been rejected.

Further to the findings from the *fi-compass* survey, we found that banks might have been too accommodating to the large agricultural producers in the lead-up to the financial crises, granting long-term loans that, after some years, have sometimes turned into non-performing loans (NPL). According to FADN data, while farms across all farm sizes have high debt ratios compared to other European countries, the very large-sized farms have extraordinarily high debt ratios, suggesting that the problem of over-indebtedness and non-performing loans is larger for this size group.³⁷

Banks, however, view the causes of rejections differently, which is unsurprising. When interviewed, they stated that the policy of most private banks is not to reject applications, but to seek sufficient guarantees, including collateral, to cover the loan. In interviews, banks provided a number of reasons why loan applications are rejected:

- **High levels of existing debt and poor credit history**: many farmers have outstanding debt and thus do not have sufficient capacity to repay an additional loan. Banks pointed out that they estimated that a full-time farm has an average debt of EUR 3.4 million. This situation is aggravated by the fact that many farmers have a low debt-to-equity ratio. In addition, banks cannot lend further funds to a farmer if they missed scheduled instalments once or twice (or even more often).³⁸
- An unconvincing business plan: some applicants do not present viable business or investment plans. Based on the bank sector's know-how, they believe that those farmers will not be able to repay their loan and thus those applicants are refused.

- 36 Finanstilsynet, 2018, Market Developments in 2017.
- 37 Please also see Table 3 for liabilities per size of farm.
- 38 The deficit on the annual accounts of milk farmers (as discussed above) can also help to explain why milk farmers are not able to decrease their debt and have difficulties to repay on time.

³⁵ This indicates that instead of recording this sum as a loss (write-off) banks have put it back on their balance sheet as an asset (that potentially is recoverable).

- A lack of personal credibility: lending decisions are not only based on the repayment capacity of borrowers. Banks also take the personal character of farmers into account (to be ensured that the farmer is not only able but also willing to repay the loan). The key worry is that farmers may use the loan for a different purpose than that stated in the loan application. This can negatively impact the repayment capacity as the loan has not been used for the productive purpose. It becomes especially critical when money is borrowed on a short-term basis for working capital, but funds are used to buy fixed assets, or to cover private expenses. Thus, if farmers make contradictory statements during the meetings, this can raise the concerns of banks' as the farmer either does not have a clear investment plan or plans to divert funds.
- **Poor farm set-up and infrastructure**: an important part of the client appraisal is the visit at the client's farm. Banks inspect the farm, farm operations, facilities, buildings, and field conditions. If banks view the farm as being in a poor overall state, they may not finance the client as the planned investment may not generate sufficient additional funds to keep the farm in business and to therefore repay the loan.

Overall, young farmers tend to be more affected by rejections and discouragement. About one third of the unmet demand in Denmark can be attributed to young farmers. Young farmers find banks to be unwilling to engage in investments in the sector. During the interviews, the Young Farmers' Association claimed that 10-15% of their members have experienced rejection. Those figures include applications for development loans with a maturity of 3-4 years.

Banks mentioned that while young farmers are more willing to apply modern farm management practices, to develop new products and to focus on the profitability of their operations, they are particularly challenged in gathering sufficient levels of equity to enter the sector or in covering the interest rates that are higher due to the higher risks involved.

A young farmer who is a 'first time farm owner' must normally provide 20% of the price in down-payment, which is around EUR 400 000-530 000 (DKK 3-4 million). This amount is significant for new entrants or young farmers who, most of the time, are unable to secure it.

Even if the young farmer can receive up to 90% from public funds, financing the remaining 10% is a key challenge. If financed by a bank loan, a long and complicated screening process of the young applicant takes place and higher interest rates are applied due to risk considerations.³⁹ Young farmers also mentioned that they consider the administrative requirements in relation to loan applications to be too high.

Interviews pointed out that young farmers are additionally challenged by other more structural problems, such as the unrealistic view older farmers have on the value of their farms. This discourages young farmers from taking over a farm that they view as overpriced which forces them instead to rent buildings and lease equipment or land so that they can start their farming activities. These activities often involve mixed production, based on their individual ambitions, rather than a traditional focus on one export driven product.

While technical support is available to Danish farmers as mentioned above, not all farmers are currently benefitting from it. There are still a number of loans applications being rejected due to the presentation of unconvincing business plans. This points to a need for further advice and support. Also, not all farmers are able to pay for the advisory services needed. New pricing and cost recovery models should be considered to address this.

Demand for finance can be expected to be stable over the coming years. Agriculture sector stakeholders appear to expect the demand for finance to remain relatively constant in the next 2-3 years. This is also supported by the *fi-compass survey*, where 66% of the Danish farmers report expectations that their future needs for finance will remain unchanged, compared to 40% in the EU 24. Moreover, 14% of Danish farmers expect a slowdown in investments, compared to only 5% in the EU 24 (Figure 13). However, the high share of unmet demand associated with young farmers can have negative consequences in the long run. Young farmers unable to find adequate financing for their projects may be forced to leave the agriculture sector and to find other sources of income. Such a development could amplify the ageing process in the farming profession and further stifle growth in rural regions.







Source: *fi-compass* survey.



2.3 Analysis on the supply side of finance to the agriculture sector

This section provides an overview of the financial environment in which the agriculture sector in Denmark operates. It describes the main financial products offered, including any currently operating financial instrument targeting agriculture, with national and/or EAFRD resources. The section draws its information from interviews with financial institutions, as well as from national statistics and the FADN database.

An attempt is made to give a description of the general conditions for accessing finance, such as interest rates and requirements for collateral, and the availability of funding for agriculture producers. Potential differences in the availability of financial products across different types of agriculture producers are reviewed and analysed.

Key elements on the supply of finance to the Danish agriculture sector

- Mortgage credit institutions, private banks, and public funds provide financing to the agriculture sector.
- Danish financial institutions offer a wide range of financial products, including working capital and investment loans and mortgages. EU funded financial instruments are also being utilised.
- Value chain finance models are also available in some instances. For example, poultry slaughterhouses providing bank guarantees for their suppliers of poultry.
- Specific financial products exist to facilitate access to finance for young farmers.
- Non-performing loan levels in the sector are extraordinarily high (about 25% in 2018).
- Many Danish farmers have high levels of outstanding debt to be repaid.
- The total outstanding loan volume of banks and mortgage institutions for agriculture, forestry and fishing, including mortgage loans, was EUR 44.6 billion as of October 2019 (EUR 8.5 billion when excluding mortgages). This is a slight decrease on previous years.
- The key constraints in terms of supply of finance in Denmark include (i) high levels of non-performing loans and high debt levels, which (ii) lead banks to be more risk-avert to the sector but particularly towards young farmers and new entrants.

2.3.1 Description of finance environment and funding availability

2.3.1.1 Finance providers

Private Banks and credit mortgage institutions are the two most important suppliers of finance to the Danish agriculture sector. Farmers can freely choose which institutions to use, but most farmers are only connected to one bank and one credit mortgage institution, as mentioned in section 2.2.2.

Agriculture finance in Denmark is dominated by a relatively small group of providers (Table 4). To some extent, this is constraining efficient competition in the financial market. However, farmers still have some latitude to decide with which financial institution in the private banking system to negotiate with.

Mortgage banks also play a key role, providing finance with some of the private banks which also own Credit Mortgage Institutions,⁴⁰ such as Danske Bank, Jyske Bank, Nordea and Nykredit Bank. These four mortgage credit banks have the highest AAA rating with Standard & Poor's (S&P), as far as bonds issued for mortgages in the private housing sector ('covered bonds') are concerned.

⁴⁰ In Demark mortgage credit institutions (MCIs) are the only financial institutions allowed to grant loans against mortgage on real property by issuing mortgage bonds (Realkreditobligationer). The scope of activities allowed to MCIs is limited to the origination and servicing of mortgage loans, their funding, exclusively through the issuance of mortgage bonds, and activities deemed accessory. Source: IMF, 2007, Denmark: Financial Sector Assessment Program-Technical Note-The Danish Mortgage Market-A Comparative Analysis, page 3.



Table 4: The largest banks and credit mortgage institutions in Denmark

Private banks	Credit mortgage institutions
Danske Bank	Realkredit Danmark (owned by Danske Bank)
Jyske Bank	BRF Kredit (owned by Jyske Bank)
Nordea	Nordea Kredit (owned by Nordea)
Sydbank	Total Kredit
Nykredit Bank	Nykredit (owned by Nykredit Bank)
Spar Nord	Dansk landbrugs realkredit (DLR)
Arbejdernes Landsbank	

Source: Research, 2019.

Danske Bank was founded in 1871 as Den Danske Landmandsbank, Hypothek-og Vexelbank i Kjøbenhavn. It is the largest bank in Denmark and a major retail bank in Northern Europe. Danske Bank Group's credit portfolio in agriculture amounted to EUR 10.1 billion (DKK 75.6 billion) in September 2019. In December 2015, the credit portfolio to agriculture was EUR 8.8 billion (DKK 66.4 billion)⁴¹.

Nordea is one of the largest financial services groups in the Nordic countries and one of the largest banks in Europe. It is a fully fledged universal bank with a total operating income of EUR 9 billion and total assets of EUR 551.4 billion in 2018. Nordea does not report on their agriculture exposure separately, but refers to agriculture under consumer staples that include agriculture and food. As of 31 December 2018, loans to the consumer staples industry in Denmark stood at EUR 6.9 billion.⁴²

Jyske Bank, the parent company of the Jyske Bank Group, is the third largest bank in Denmark. Its activities include retail banking, private banking, market and investment banking as well as asset management. Jyske Bank had about EUR 1.07 billion (DKK 8 billion) outstanding to agriculture, hunting, forestry and fishing in 2018, equalling 4% of their total portfolio. Excluding fishery, the Jyske Bank's exposure to agriculture accounts for approximately 1% of the group's loans and guarantees. In 2018, most loans, advances and guarantees were for crops (EUR 267 million⁴³), followed by pigs (EUR 214 million⁴⁴) and milk (EUR 113 million⁴⁵)⁴⁶.

Nykredit Bank is one of Denmark's leading financial service providers. Nykredit was created in 1985 when Forenede Kreditforeninger and Jyllands Kreditforening merged. The bank provides retail, private, corporate and investment banking products and services in both Denmark and internationally. Nykredit Bank's exposure to agriculture, hunting, fishing and forestry was above EUR 446 million (DKK 3 billion) at the end of 2018. As of September 2019, the exposure had risen by more than 27% to EUR 569.3 million (DKK 4.2 billion).⁴⁷

While there is no overview on the agriculture market share of banks available, it is assumed that Danske Bank and Nordea have the largest share based on the outstanding portfolio to the sector. This is also in line with their general market penetration rate, which was 82% for Nordea, 79% for Danske Bank and 50% for Nykredit in 2019.⁴⁸

There are also other institutions that finance farmers in Denmark. The most significant include:

- The Growth Fund (Vaekstfonden), which was created by the Danish banking sector and the government, after the negative consequences of the 2008/2009 financial crisis became clear, with a view to providing
- 41 Danske Bank Group, 2019, Interim Report first nine months 2019.
- 42 Nordea, Annual Report 2018, 2019.
- 43 Which represents DKK 2 billion.
- 44 Which represents DKK 1.6 billion.
- 45 Which represents DKK 848 million.
- 46 Jyske Bank: Jyske Bank 2018, 2019.
- 47 Nykredit Group: Q1-Q3 InterimReport, 2019.
- 48 Statista, 2019, Leading bans for large corporations in Denmark in 2019, by market penetration rate.



additional loans to refinance troubled farms that are close to insolvency. The Growth Fund was founded in 2010, initially to provide guarantees, but in 2013 it also started to promote loans for innovative investments in both industry and farming. In 2018, the Growth Fund had equity capital of EUR 760 million. An overview on its products is presented in section 2.3.1.2.

- As the financial restructuring of farms with a high debt ratio took time and proved to be more complex than anticipated, four Danish pension funds, together with the Growth Fund, formed the **financial service platform Danish Agriculture Capital**, to implement and operate the troubled farm restructuring program and to provide additional capital.
- Pension Funds in Denmark have a total capital of EUR 23 billion of private pension savings. Hence, they are considered an attractive new player in financing the agriculture sector. Following the financial crisis, the larger pension funds took an active role in providing loan guarantees to public funds and also launched initiatives to provide equity capital to larger farming businesses. The biggest player is AP Pension, which has formed a partnership with a private company, Danish Farm Management, and is leasing farm holdings to individual farmers or a board of investors/farmers. Danish Farm Management also assists farmers on the leased farms with investments and production optimisation. After eight years, the farmer has the option to buy the farm on favourable terms. While such arrangements support farmers who wish to enter the business, they lack the required finance. In 2016, it was estimated that AP Pension had invested a total of EUR 71 million into the Danish agriculture sector. The fund has now started investing in Eastern European farms, due to the higher rate of return available in these countries compared to Denmark. This attracts Danish farmers who are interested in starting a business abroad.
- The Industrialisation Fund for Developing: Danish farmers investing in Eastern Europe may also apply for a loan and/or financial support from the Industrialisation Fund for Developing Danish Development Finance Institution (DFI). The International Finance Corporation (IFC), the private sector arm of the World Bank, and the Nordic Environmental Finance Corporation, amongst others, have also been active in this segment. But interviews with members of Danish Farmers Abroad indicate that borrowing from DFIs has, in most cases, not been considered attractive enough. This is mainly due to the perception of a complicated loan application process.
- Some **private investors** have provided venture capital to invest in large Danish farms that have a need to restructure due to economic problems. During the 2008/2009 financial crisis around 1 200 large-sized farms faced financial difficulties due to low market prices for their agriculture products. Financial institutions could not provide solutions based on traditional concepts since mortgage credit banks and private banks were not able to cover the additional risks. Consequently, new financial models, such as venture capital, were implemented to ensure the liquidity of efficient farms. Additional farms could benefit from such investments as some larger farms are still suffering from the effects of the financial crisis.



2.3.1.2 Financial products

The financial market makes loans and credits available to the agriculture sector with similar conditions as to other industries. Each type of financial provider typically has an individual product, which is presented in Table 5.

Type of product	Purpose	Maturity	Interest rate
Private bank Ioans	Farm and facility investment	Short-term, credit lines, medium & long- term	5-6%
Mortgage loan	Capital investment	Medium & long-term	1-2%
Public funds /investment loans	Capital investment	Short & medium-term	7-8%
EU/COSME	Loan guarantee facility	Medium & long-term	7-8%

Table 5: Overview of loan types offered to farmers

Source: Ecorys own research, 2019.

The typical form of investment loans to viable farms, offered by the mortgage credit banks, have a long maturity and a low, often fixed, interest rate of 1-2%. As mentioned earlier in the report, mortgage banks are specialised banks in Denmark that provide loans that are secured by real estate properties. The Danish mortgage credit institutions have developed specially designed financial instruments that target the agriculture sector, based on their private housing credit scheme. In Denmark, agriculture mortgage loans are most commonly used for the purchase or refinancing of farms, farmland and associated buildings.

Banks that finance the agriculture sector offer a variety of products, including working capital loans, business overdrafts and bridge loans for specific purposes, and investment loans for the purchase of new machinery and equipment. Working capital loans are usually short-term, with a maturity of up to 15 months, and are used to finance the agriculture production, while investment loans are used to purchase assets.

Additional financing is offered by the private banks in cooperation with a public fund (often the Growth Fund), albeit at a higher interest rate. New capital has been raised by the public Growth Fund (Vaekstfonden) to provide investment loans and higher risk equity capital at an interest rate of 8-12%.

The products of the Growth Fund include:49

- Loans: A loan must be a minimum of EUR 134 000 (DKK 1 million), but it is open to any type of farm given that the equity and earnings before interest, taxes, depreciation and amortisation (EBITDA) are positive. In addition, the farm must have less than 250 employees, have a turnover of less than EUR 50 million (DKK 372 million) or a balance sheet total under EUR 43 million (DKK 320 million), and be independent of larger companies.⁵⁰ The loan costs an initial fee, which varies with the size of the loan, plus 0.5% of the loan amount, excluding fees, to establish security and relevant documentation. There is also an individualised fixed rate, which is typically a couple of basis points higher than standard bank interest rates, but the loan is subordinated to other loans.⁵¹
- Agriculture development loan: This type of loan targets young farmers who intend to purchase and develop an existing farm. It is a high-risk, early-growth type of finance that is particularly suited to the purchase of property and targets first-time buyers, who are under 41 years old. To qualify, both earnings capability and liquidity must be sufficient to pay down an agriculture development loan. Additionally, there

⁴⁹ Vaekstfonden, 2019, Financing for agriculture, https://vf.dk/en/financing-for-agriculture.

⁵⁰ Growth Fund is using SME criteria defined by the European Commission to select farms,

https://ec.europa.eu/eurostat/web/structural-business-statistics/structural-business-statistics/sme.

⁵¹ Subordinated means that if a farm goes bankrupt, the loss of the Growth Fund will be covered only after other banks' loss is covered.



needs to be equity capital in the same proportion to the development loan. The loan has to be complemented by further financing by another financial institution. The farm needs to possess the relevant competencies internally and through advisory services. The product is being offered in cooperation with Finance Denmark and the Danish Agriculture and Food Council.

Guarantees: They are also being offered, covering up to EUR 267 000 (DKK 2 million) to finance the purchase, building or improvement of real estate;⁵² the purchase of operational inventory, machinery, IT and equipment; the purchase of consultancy or advisory services; or other services, in connection with the above-named expenditures and other expenditures of up to EUR 74 000 (DKK 550 000). Guarantees can cover up to 75% of the financial institutions' losses, after farmers have provided collateral and other securities, such as guarantors. All farms with a CVR number⁵³ and an address in Denmark can apply for a guarantee. The same limitations, in terms of number of employees, turnover or balance sheet size, as for loans apply. A guarantee price includes a one-time premium of 1.5% of the guarantee amount in addition to an annual premium of 2% of the guarantee amount.

Loans can be obtained directly through the Growth Fund to be supplemented by a loan from the applicant's bank. To obtain a guarantee, farmers need to pass the credit assessment at a bank. If the bank is willing to disburse the loan to the farmer, and additional coverage is needed through a guarantee, the bank needs to approach the Growth Fund (via its website). Within 5 working days, the Growth Fund typically accepts the guarantee request, subject to the farmer not having obtained a guarantee from another bank.

Results of the Growth Fund have been limited to date. Since 2013, the Growth Fund has processed a total of 1 244 applications by farmers. 382 (30%) applications have been approved while 621 applications have been cancelled by the applicant. Reasons for the cancellation include the postponement of investment, a low credit rating, the Growth Fund interest rates being perceived as too high, or general conditions. In total, 110 applications have been rejected (8%).

In addition to the above mentioned products, the Growth Fund has signed a guarantee agreement with the **EU program for the Competitiveness of Enterprises and SMEs (COSME)** that allows the Growth Fund to support SMEs in Denmark (Table 6). The COSME Loan Guarantee Facility, provides a capped portfolio guarantee for new SME financing portfolios to commercial banks, promotional banks, guarantee societies, leasing companies, etc., with a maximum guarantee rate of 50%. Agriculture can also benefit from COSME guarantees, except for the production of and trade in tobacco, as well as distilled alcoholic beverages and related products.⁵⁴ Until now, about 20% of the COSME guarantee recipients in Denmark were from the agriculture, forestry and fishing sectors, which shows the need for such products in the market (approximately 84 SMEs benefitted from the facility for a total of EUR 11.8 million)⁵⁵. Interviews with **beneficiaries indicated that while they appreciate the availability of those guarantees, they would further benefit from higher guarantee rates.**

- 52 The purchase of land cannot represent more than 10% of the total project costs.
- 53 CVR is the Danish state's master register of information about business.
- 54 As of 31 December 2018, 5.8% of the total volume of COSME financing provided in the EU 28 was for agriculture, forestry and fishing and equalled EUR 1.3 billion (EC, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, Ciprian Cristea, COSME Financial Instruments Guarantees for SMEs, 2019).
- 55 EIF, Competitiveness of Enterprises and SMEs -Loan Guarantee Facility: Implementation Up-date, 06/2019.


Financial Products	Competitiveness of Enterprises and SMEs – Loan Guarantee Facility (COSME-LGF) in brackets budgetary allocation	EU Program for Employment and Social Innovation (EaSI) in brackets budgetary allocation
Growth Fund	√ (EUR 72 491 260 & portfolio counter guarantee of EUR 36 187 524)	
Merkur Andelskasse ⁵⁶		√ (EUR 3 212 160 / DKK 24 000 000)

Table 6: Summary of available guarantee instruments offered by the banking system in the agriculture sector

Source: EIF, 2019

Value Chain Finance Products also exist in some instances. Some Danish slaughterhouses in the poultry value chain have provided bank guarantees. In 2012, Danpo A/S, the largest chicken processing enterprise in Scandinavia and part of the poultry group Scandi Standard, introduced a 'growth package' consisting of a bank guarantee, contribution margin guarantee and investment guarantee of EUR 200 000 (DKK 1.5 million) for each new production facility of farmers. In addition, they pay a premium for all chickens produced in the new sheds during the first seven years of operation.

Other processors ensure that producers stay in business by facilitating deferred payments to the supply industry, price guarantees and insurance funds to farmers whose animals are infected with salmonella for example.⁵⁷

Green bonds have also been launched in Denmark, but need to be rolled out further. In late 2019, the World Bank launched a 20 years EUR 400 million (DKK 3 billion) green bond in local currency. It supports renewable energy installations, energy efficiency projects, and new technologies in waste management and agriculture that reduce greenhouse gas emissions and help finance the transition to a low carbon economy.⁵⁸ Danske Bank has also recently entered into a partnership with the Climate Bonds Initiative to grow their market for green bonds. While there is increasing interest by financial institutions, further effort is needed to roll it out.

No EAFRD funded financial instruments have been introduced in Denmark so far, mostly because the financial market has been deemed sufficient to cover the needs of the agriculture businesses. At the same time, an exante assessment to evaluate the usefulness of the EAFRD options on financial instruments has never been undertaken.

⁵⁶ Merkur Andelskasse is a cooperative bank owned by its members via shares. Merkur Andelskasse provides retail and private banking products and services as well as pensions, insurance and investment funds products to its owners (members).

⁵⁷ SUFISA, 2018, Denmark National Report (WP 2 – Deliverable 2.2).

⁵⁸ SEB, 2019, The World Bank teams up with SEB to launch a green bond in Denmark, https://sebgroup.com/press/news/the-world-bank-teams-up-with-seb-to-launch-a-green-bond-in-denmark.



2.3.1.3 Description of the financing market

The effects of the financial crisis in 2008 and 2009 still have an impact on banks' portfolios. It has been argued that Danish financial institutions have been too accommodating and have issued too many risky loans for farm investments, especially in 2008 and 2009. This has subsequently led to a large amount of non-performing loans⁵⁹ (NPL), forcing the banks to make large provisions for credit losses.⁶⁰ As explained further in the section, this is particularly the case for large-sized farms, which are in arrears after having pursued the largest investments which required high amounts of funds. While small-sized farms also faced challenges in repaying their loans on time, their loans were usually much smaller and thus the impact on financial institutions 'portfolios were limited.

Most of the farmers defaulting on their loans are livestock farmers that were severely affected by the sharp drop in global meat prices in 2008 and 2009. The FAO Meat Price Index⁶¹ fell by more than 25% between 2008 and 2009, from 175 to 128 points. Because Denmark's livestock farmers depend on exports, the price deterioration in the global marketplace resulted in heavy losses. As a consequence, many farmers were unable to repay their loans. Today's high levels of outstanding debts from livestock farmers are also a probable cause of the decreasing levels of GFCF and the negative net investment in the sector (see section 2.2.1).

As discussed in section 2.2.1, prior to 2008, rising land prices caused the value of agriculture assets to increase sharply. Financial institutions disbursed many new, large loans to the agriculture sector that were collateralised against land. When the bubble burst, the equity of many farmers came under pressure which also caused problems for the financial institutions that funded them.

Despite decreasing losses for banks (down from 2.3% in 2016 to 0.4% in 2017) due to improved market conditions, NPL in the agriculture sector are still high and the default rates for this customer segment are the highest across banks' portfolios. The share of NPL has remained relatively constant for the period 2015-2018, ranging between 24% and 26% (Figure 14). Hence, almost every fourth farmer is unable to repay their loan on time.



Figure 14: Evolution of non-performing loans in Danish agriculture sector, 2015-2018

Source: Danish Financial Supervisory Authority, 2017 and 2018.

- 59 A loan is classified as non-performing if the farmer (or any other borrower) has not paid interest, fees or instalments for more than 90 days, or if it is assessed to be unlikely that the borrower will fully meet its payment obligations without any collateral being realised.
- 60 NPLs have been high for other sectors too (most not as high as for agriculture), including building and construction, trade and transport. Source: Danish Financial Supervisory Authority, Market Developments in 2017 for banks, 2018.
- 61 The index is computed from average prices of four types of meat, weighted by world average export trade shares for 2002 2004. Quotations include two poultry products, three bovine products, three pig meat products, and one ovine meat product. Available at: http://www.fao.org/economic/est/est-cmmodities/meat/en/.



It should be noted, however, that most NPL are concentrated in medium-sized banks in Denmark. In mid-2018, about 40% of the agriculture loans in the medium-sized banks were non-performing loans, whereas for large banks, NPL were only about 10%.⁶²

In the past years, banks have avoided pushing farmers into bankruptcy mainly for two reasons⁶³:

- 1) From a commercial perspective, banks believe that it will require tremendous effort on their side to liquidate the collateral of delinquent clients. This would increase their costs and they might be unable to obtain the entire collateral value. Some banks do not want to take on further losses, after having dealt with losses in previous years. Instead, banks try to advise farmers on how to streamline their operations. By guiding and advising the farmer on how to improve their turnover and earnings, banks anticipate benefiting from increased future profits. This strategy seems to have paid off as, in 2019, high meat prices have secured record results for pig farmers who have thus been able to repay their loans.
- 2) Danish farmers have strong bargaining power. Firstly, many farmers are affiliated with the large agricultural cooperatives, and even serve on their board of directors. The cooperatives are important clients of banks. Seizing the collateral of farmers and bankrupting them may result in the cooperatives, including its often large-scale agri-food production units, looking for a new financial partner (as the cooperatives would have to identify new suppliers). Furthermore, farmers in Demark tend to show solidarity with their fellow farmers. If banks take too harsh action against delinquent farmers, they might damage their reputation and lose market share, as farmers look for new finance providers. The historic cooperation between some of the oldest banks and agriculture sector is rather strong in Denmark, so banks provide their support to as many farmers as possible to help them through bad times.

As banks have already written off a number of non-performing agriculture loans, and their earnings are generally high, the National Bank of Denmark concluded that most banks can handle losses caused by delinquent borrowers. This is particularly the case for large banks (who anyway have a limited portfolio in agriculture) which can handle even very large realised losses. The losses may be covered by already accumulated loan impairment charges and, if necessary, by earnings. Additionally, medium-sized banks are, in general, assessed as being able to handle the realisation of even large agriculture losses. However, medium-sized banks with high agriculture exposure could be faced with serious challenges. When they realise losses on delinquent agriculture borrowers, this could substantially reduce their earning capacity and, in the worst case, put their capital adequacy requirement under pressure.⁶⁴ Nevertheless, Denmark's National Bank has determined that non performing agriculture loans do not pose a systemic risk to the financial stability in Denmark.⁶⁵

Standard & Poor's has assessed Danish banks as currently having satisfactory financial accounts,⁶⁶ indicating that they are managing the residual fallout from the financial crisis well. However, **there is a lingering backlog** of an estimated 600-1 000 large-sized farms that are still looking for financial restructuring in order to return to full profitability.

Interest rates for agriculture loans have been decreasing over the last years. This trend has been observed for the different types of agriculture loans in the last decades, with a short-lived spike in the years of the financial crisis (Figure 15).⁶⁷ Agriculture loans are slightly more expensive than other loans, with the interest rates for all sizes and maturities of loans to all other sectors currently at about 1%.⁶⁸

68 Danmarks Nationalbank, 2019.

⁶² Danmarks Nationalbank, November 2018, Financial Stability Second Half of 2018.

⁶³ Based on bank interviews.

⁶⁴ Ibid.

⁶⁵ Ibid.

⁶⁶ Standard & Poor's long-term ratings for Danske Bank, Jyske Bank, Nordea and Nykredit Bank are respectively A, A-, AA-, and A+. Moody's and Fitch are slightly more positive in some cases (but the maximum difference with S&P does not exceed one notch).

⁶⁷ The low interest rates have also stimulated demand for finance.





Figure 15: Interest rate trend for two of the most common agriculture loan types in Denmark, 1995-2015, in %

Overall, banks have a positive attitude towards the agriculture sector. Even though the agriculture sector is still hampered by old debt obtained from banks during the agriculture land price bubble, banks are still interested in funding the sector due to its expected growth potential, in particular on export markets. This is especially the case for farmers that have a good repayment capacity. Currently, most banks serve the agriculture segment and have even established a separate agriculture lending department. They do not differentiate between farm sizes or sub-sectors and instead assess the entire business and its economic and financial status.

Banks attempt to assess the farmer's situation based on assets, liabilities and cash flow. However, banks are realising that farming has additional challenges, such as price fluctuations and climate change. Hence, they have hired special monitoring officers to monitor their agriculture operations and the general developments in the agriculture sector. Should the outlook or performance worsen, a meeting between the farmer and the bank will be scheduled to discuss solutions to avoid foreclosure. Often the bank decides to postpone such meetings if the farmer in question has proven to be a good manager and in control of their production. Many Danish banks are hence building on lessons learned during the financial crisis.

Some financial institutions have developed specific agriculture lending approaches. These include internal guidelines, interview procedures, and specific tools for agriculture. Jyske Bank, for example, screens farmers and then assigns a specific risk category to the applicant (i.e. green, yellow and red colours are assigned to the farmer based on the risk they represent). When a farmer applies for a loan, the relevant information is entered into a matrix which includes total debt, total assets (i.e. buildings, farm equipment, and livestock), management set-up, human resources (HR), farm house, and the proven production record of the owner. For the bank, however, the most important elements are the farmers' total equity and earning ability. However, a high liquidity ratio does not a guarantee that the farmer is able to manage the farm properly and create sufficient levels of return and liquidity to run the daily operations. The bank will benchmark its own records on the client with the farm's business budget and they will assess to what extent the farmers investment plans are feasible and manageable. Applications are processed individually and for medium and long-term loans are often tailor-made for the individual farmer. A similar approach is also taken by Nordea Bank.

Source: Danish Agriculture and Food Council of Bornholm, 2018.



2.3.2 Analysis of the supply of finance

The supply of financing from both banks and mortgage banks has decreased slightly in the course of the last six years. The outstanding amount of finance to agriculture, forestry and fishing was EUR 44.6 billion, as of October 2019 (Figure 16). Commercial banks accounted for EUR 8.52 billion of the outstanding amount, while mortgage banks accounted for EUR 36.08 billion. The decrease in the portfolios can be partly explained by the fact that many banks still have a high share of non-performing loans in agriculture, which stops them from increasing their exposure. However, the decrease in outstanding loans can also be attributed to an increase in repayments of old debts by farmers.

There is no indication that write-offs have been a cause of the decrease in the outstanding portfolio. While the annual account of banks in 2013 recorded impairment losses on loans and receivables of EUR 1.2 billion (DKK 14 920 million), these figures showed a decreasing trend. For 2017, they were actually -EUR 133 million (DKK 996 million). For 2018, they increased slightly to EUR 83 million (DKK 618 million).



Figure 16: Outstanding loan amount of both banks and mortgage banks to the agriculture, forestry and fishing sector in Denmark, 2015-2019, EUR million

Source: Calculations based on National Bank of Denmark data, 2019.



2.4 Financing gap in the agriculture sector

This section presents an assessment of the financing gap in the Danish agriculture sector, broken down by farm size and financial product.

Key elements of the financing gap in the Danish agriculture sector

- The financing gap was estimated to range between EUR 76 million and EUR 79 million in 2017. Interviewees, however, consider that the financing gap could be even higher.
- Full-time, large production farms (over 100 ha) make up the largest part of the gap. There is a financing gap for both long-term and working capital loans.
- The key constraints are the high levels of non-performing loans and outstanding debt leading to the tightening of credit policies and procedures.
- Some farmers also face the problem of being unable to present a credit history with timely payment of instalments, resulting in banks being hesitant to lend. Other reasons for banks rejecting loan applications include a lack of a high-quality business plan or a lack of personal credibility.
- New entrants trying to access financing face difficulties in raising the required levels of equity required by banks. As a consequence, about 36% of the total financing gap may be attributed to young farmers and new entrants.
- New entrants consider bank procedures as too cumbersome which limit their access to finance.
- To address some of the causes of the gap, counter guarantees on existing guarantee schemes and technical support in the area of business management and financial projections could be considered. These measures would be particularly beneficial for young farmers and new entrants.

This section presents an estimate of the total value of unmet financing needs of financially viable agriculture enterprises, defined as the financing gap, for 2017. The estimate is calculated by multiplying the total number of farms in the financing market by the proportion of financially viable farms reporting unmet demand for finance multiplied, in turn, by the average obtained loan value to farms.

Financing gap = Number of farms X percentage of financially viable farms with unmet demand X average loan volume

All the calculations are based on the results of the *fi-compass* survey for Danish farms and statistics from Eurostat (see Annex A.4 for more information). The methodology used for calculating the gap is described in Annex A.3.

The financing gap arises from unmet financing demand from economically viable farms⁶⁹. The unmet demand for finance includes:

- (i) lending applied for but not obtained, or;
- (ii) a lending offer refused by the potential borrower; and
- (iii) lending not applied for due to expected rejection.

For the purpose of this report, 'turnover growth' is used as a proxy of farm viability. In particular, two different criteria for viability are used, which lead to the calculation of a range for the financing gap between an upper and a lower boundary:

- The lower bound gap is calculated under the hypothesis that only enterprises which reported a stable (nonnegative) turnover growth and no cost increase in the previous year can be considered as viable.
- 69 The financing gap presented in this section is different from the total unmet demand presented in Section 2.2.2. In the quantification of the total unmet demand, all the enterprises in the population applying for finance are considered independent from their economic viability.



 The upper bound gap is calculated under the hypothesis that all enterprises which reported a stable (nonnegative) turnover growth can be considered as viable.

The following results are obtained:



Figure 17: Financing gap by product in the agriculture sector, 2017, EUR million

Source: Calculation based on results from the fi-compass survey.

The financing gap for the Danish primary agriculture sector was estimated to be between EUR 76 million and EUR 79 million (Table 7). While the financing gap mainly concerns large farms, considerable gaps also exist for small and medium-sized farms. In terms of maturity, the gap is clearly concentrated in long-term lending.

		Total	Short-term Loan	Medium- term Loans	Long-term Loans	Credit lines/bank overdraft
	Small-sized farms	21.2	2.8	4.7	13.0	0.7
Upper	Medium-sized farms	23.8	3.6	4.7	14.7	0.8
bound	Large-sized farms	34.5	6.9	7.6	17.1	2.9
	Total	79.5	13.3	17.0	44.7	4.4
Lower bound	Small-sized farms	20.4	1.9	4.7	13.0	0.7
	Medium-sized farms	22.7	2.6	4.7	14.7	0.8
	Large-sized farms	32.5	4.9	7.7	17.1	2.9
	Total	75.6	9.4	17.0	44.7	4.4

Table 7: Financing gap by farm size in the agriculture sector, 2017, EUR million,

Source: Calculation based on results from the fi-compass survey.

The banks and farmers representatives interviewed for the study believe the gap is higher. This based on the high levels of loans in unpaid debt and the associated lending limits of banks, which would imply that economically viable farmers that demand finance do not have access to it.

Banks and farm representatives interviewed believe that the **segment with the most difficulties in** accessing finance are full-time large production farms. They have an unmet financing demand for both long-term investment and short-term working capital loans. There are several drivers of the gap:

- The very high levels of non-performing loans, which lead to tightening credit policies and procedures.
- Many famers still have old debt to repay and thus do not have the capacity to take on additional debt.



- Banks require an equity contribution from the client and some farmers are unable to provide the required levels. This is particularly the case for young farmers and new entrants, who struggle to meet the high equity contribution requirements or to pay the higher interest rates.
- Young farmers also perceive the administrative requirements for applying for loans as being too cumbersome.
- Some banks pointed to a lack of appropriate business plans, a lack of personal credibility and poor farm set-up as reasons for rejecting loan applications.

About 36% of the overall gap might be attributed to young farmers. The survey did not report any rejection of a viable loan application submitted by applicants under 40 years old (as it did not cover the cases classified as 'temporary conclusion'), but it did find that 38.7% of the discouraged farmers were young farmers. The young farmers association, however, pointed out that between 10% and 15% of their members have experienced a rejection of their business plan and loan application. The high entry barriers for young farmers and new entrants, especially regarding equity requirements, is regarded as one of the main challenges for the Danish agriculture sector today and in the future, as described in previous sections.⁷⁰

Over the coming years, the structural shift will continue with fewer, but larger, farm units requiring more flexible financial support. Private Banks will only be expected to provide standard risk loans and participate in generational handovers or consolidations in partnership with other financial institutions, including pension funds. New models are expected to be linked to green farming and climate neutral farming and supported by blended finance (public-private). Possible stepped-up support from private financial institutions might limit the financing gap for young farmers and bolster a start-up sector in agriculture which, in turn, could potentially be supported by the CAP/EAFRD in the 2021-2027 programming period.

⁷⁰ As mentioned before, lack of opportunity for young farmers to buy their own farms and make the required investments to operate them profitably means that many will be forced out of the agriculture sector as it does not provide enough income to sustain the farmers and their families. This will amplify the ageing of the farming profession and potentially stifle growth in rural areas.



2.5 Conclusions

The Danish agriculture sector has seen decreasing investments since 2013. In 2018, most of the investments made were for the purchase of machinery and equipment, followed by investments in buildings and livestock. Even so, investments represented more than 50% of the agriculture GVA in Denmark in 2018, which is above EU 28 levels of approximately 30%.

The need for working capital, to cover preparation and cultivation expenses and to respond to consumer trends, as well as the need to invest in infrastructure, technical facilities, and farm technology and equipment has been driving demand for finance. The need to purchase land (to generate economies of scale) also requires farmers to borrow.

The CAP facilitates access to finance by smoothing income volatility caused by the seasonality of agriculture production. Direct payments thus provide important support for the profitability and liquidity of farms. When evaluating loan applications, banks need to ensure timely repayment. Direct payments help this process thereby facilitating farmers' access to finance. The EAFRD provides support for on-farm investments, but its limited resources do not cover the whole demand of the agriculture sector.

While banks are the preferred partner of Danish farmers who are looking to finance investments, bank lending is constrained by very high levels of non-performing agriculture loans. While this limits banks' capacity to expand their agriculture finance on a large scale basis, they continue to finance the agriculture sector (particularly as the market prices of agriculture commodities increase and price risks of farmers decrease). Banks even continue to finance delinquent clients, in order to avoid all delinquent loans having to be written off. Instead, delinquent clients are being financed when there is strong evidence that additional capital will help them to be profitable and to repay the old debt. In addition, the Danish National bank concluded that the agriculture loan portfolio in arrears is not a systemic risk to financial stability in Denmark. The Danish Financial Supervisory Authority concluded⁷¹ that the losses experienced by financial institutions have been decreasing significantly over the 2013-2017 period.

The financial gap in the agriculture sector has been estimated to range between EUR 76 million and EUR 79 million, with larger farms facing the greatest difficulties in accessing finance. However, constraints have also been identified for small and medium-sized farms. Access to long-term investment lending is the most complicated for Danish farmers, and 36% of the financial gap can be potentially attributed to young farmers. Stakeholders even consider the gap to be much higher and further analysis focused on the country could be beneficial for better understanding the specificities of any unmet demand.

Very few farmers in Denmark are discouraged from applying for a bank loan or have their application rejected. Rejection levels tend to be low, as often there are personal contacts with staff members of agriculture associations and/or bank officers prior to applying. These meetings increase trust between both parties and can help keep non-eligible clients from applying. This thus reduces rejection levels. Overall, rejection rates are below 1% and mostly occur for short-term loans. According to farmers, banks reject applications because the applicant is a new farm (and thus a higher risk client) or because banks' have strict lending policies. Farmers also believe that banks might have been too accommodating to the larger producers prior to the financial crises, granting long-term loans that, after some years, have sometimes turned into non-performing loans, whereby banks may be more hesitant in providing loans today.

The loan market in Denmark is fully accessible and available to all farmers through the internet and almost all Danish farmers are in direct contact with their bank. However, further improvements in the agriculture lending market can be facilitated by the following recommendations.

- Problems related to non-performing loans, affecting mostly large-sized farms and specific sub-sectors, could be addressed through specific instruments for debt restructuring. However, this would have to be done with national resources, as the current EU level instruments do not generally allow for this.
- Farmers not affected by over indebtedness and non-performing loans might be indirectly impacted by this situation through a more risk-averse banking sector. For these farmers, a reinforcement of the current



available financial products (i.e. guarantees and subsidised loans) could be considered. For example, while public guarantees and loans are currently offered, their prices are high. A reduction of the financing cost, including through combination with EAFRD grants, could be considered.

- Specific measures for new entrants who lack equity capital for the start-up their business could also be considered. This includes also the possibilities offered by CAP/EAFRD financial instruments.
- Young farmers and new entrants would benefit from business plan support and financial management training.
- Blended financing models (public-private) could particular support green farming and climate neutral farming. This will contribute to a reduction of the financing gap for young farmers and bolster a sector in agriculture.



3. PART II: AGRI-FOOD SECTOR

3.1 Market analysis

Key elements on the Danish agri-food sector

- The Danish agri-food sector produced goods worth more than EUR 22 billion in 2017 and employed almost 56 000 people. Overall, the sector is characterised by a small group of very large companies, often agricultural cooperatives, and many SMEs.
- Denmark's agri-food sector is largely export-oriented, particularly the large enterprises, while SMEs tend to focus on the domestic market and neighbouring countries.
- Almost 50% of the value of manufactured food is exported, making the sector dependent on international prices and trends.
- A large share of the processing plants is owned by cooperatives, who play a significant role in both the agriculture and agri-food sectors. As a result, the food processing industry production is highly correlated to that of the primary sector.
- The agri-food sector's main segments are meat, dairy, fur, beverage, and bakery. Meat is also the main export product.
- The Danish agri-food sector intends to become climate-neutral by 2050.

The production of Danish agri-food enterprises is highly correlated with the Danish agriculture sector and, hence, is concentrated in the dairy, meat, beverage, and bread segments. In 2017, the manufacture of food products and beverages had a turnover and gross premium⁷² of EUR 25.6 billion and EUR 0.99 billion, respectively (Table 8). In 2016, a total of 55 666 people were employed in the manufacture of food and beverages.⁷³ The gross value added of Danish manufacturers of food products, beverages and tobacco was EUR 4.6 billion (DKK 34.5 billion) in 2018.⁷⁴

	Manut	facture of	food pro	oducts	Manufacture of beverages			
	2014	2015	2016	2017	2014	2015	2016	2017
Number of enterprises	1 467	1 458	1 479	1 474	122	129	149	170
Number of employees	57 968	55 909	53 053	n/a	4 613	3 820	2 613	n/a
Production value, EUR million	20 239	20 198	20 523	21 167	1 404	1 021	1 004	967
Turnover or gross premiums, EUR million	24 349	24 616	24 481	25 628	1 470	1 039	1 020	997
Export, EUR million ⁷⁵	9 825	9 611	10 240	n/a	464	382	357	n/a

Table 8: Breakdown of structural and economic elements of agri-food companies in Denmark, 2014-2017

Source: Eurostat – Structural Business Statistics, 2019.

The agri-food sector is dominated by a small group of cooperative-owned conglomerates, which largely control production and exports, and large firms that compete with cooperatives in terms of prices. Small-sized enterprises focus on innovation and agri-tech,⁷⁶ as an effective means to support upstream

- 72 The total revenue from a contract expected to be received.
- 73 Figures for 2017 not available; Source: Eurostat.
- 74 Statistics Denmark, 2019.
- 75 2017 data not available.
- 76 Agri-tech refers to technological innovations in agri-food to increase outcome, efficiency, and profitability.



primary production, and are located in rural areas. Many of the smaller agri-food producers and wholesalers concentrate on the domestic market and markets in neighbouring countries, which are characterised by intense competition and low profit margins. A large share of the processing plants are owned by cooperatives. For example, Arla Foods owns the vast majority of milk and dairy plants while the Danish Crown own the vast majority of slaughterhouses. In total, the 12 largest cooperative enterprises have a share of approximately 90% of all agri-food production in Denmark. The cooperative movement secures certain continuity between the primary sector and agribusiness due to the fact that the elected leadership of their boards of directors is decided upon by, and consists of, farmers.

A large share of processed food and beverage production is exported, and the sector has strong demand from export markets. For example, there is a high demand for Danish pork in Asia. This leads to a significant focus on trade. In November 2019, the value of exports was EUR 8.59 billion (DKK 64.2 billion). Exports of live animals, food, beverages and tobacco accounted for EUR 318 million.⁷⁷ Denmark mainly exports meat, eggs, cheese and other dairy products.⁷⁸ Given the significance of exports, Denmark is exposed to international trade issues, such as the Russian trade embargo, and the sector is significantly affected by the development of commodity prices.

Climate change, as well as environmental protection considerations, play an increasingly important role in the Danish agri-food sector. The Danish agri-food industry intends to be climate-neutral by 2050,⁷⁹ and businesses have realised that this can only be achieved with innovative concepts and approaches. To boost innovation in the sector, based on a strong public-private partnership culture, the 'Danish Food Cluster' was established in 2014. The organisation, which is closely related to the major food processors, is a network where agri-food and public institutions jointly promote innovative activities, events and networking, typically for SMEs and start-ups. Members of the network represent around 75% of the turnover in the Danish food processing industry, including sub-sectors and downstream companies, and they cooperate with 'European link for food innovation'.⁸⁰

⁷⁷ Trading Economics, 2019, Denmark Exports, https://tradingeconomics.com/denmark/exports.

The Large quantities of fish are also being exported but this study does not focus on fish.

⁷⁹ Danish Food and Agriculture Council, 2019.

⁸⁰ European Institute of Innovation & Technology (EIT) Food is a pan-European consortium that focuses on entrepreneurship and innovation in the food sector. The members of the EIT Food community are world-class players in the international food domain: over 50 partners from leading businesses, research centres and universities across 13 countries. https://www.eitfood.eu/.



3.2 Analysis on the demand side of finance to the agri-food sector

This section describes the drivers of demand for finance in the agri-food sector, and analyses the met and unmet demand. It seeks to identify the main reasons for agri-food enterprises to request financing and the agri-food sub-sectors showing the largest need for finance. The section also provides an analysis of the type of enterprises, which face more constraints in accessing credit. The analysis of the demand for agri-food finance is based on the findings from the agri-food survey results of 50 Danish firms, as well as on interviews with key stakeholders from the agri-food sector, combined with national statistics.

Key elements on finance demand from the Danish agri-food sector

- The Gross investments by the agri-food sector in tangible assets amounted to EUR 675 million in 2017. Investments by enterprises in the food sub-sector have slightly increased over the last years, while investments in the beverage sub-sector have been fluctuating.
- The need to expand capacity and to develop new products, driven by the high international demand for Danish agri-food products, are the key drivers of investment. Enterprises have had to utilise new production technologies and to invest in compliance with high food safety and hygiene standards. Another driver of finance demand is the need to cover operating costs.
- 25% of Danish agri-food enterprises applied for finance in 2018. Sufficient own funds, as well as company specific reasons, are among the key reasons for not applying for loans.
- Access to finance was not an important challenge for agri-food enterprises in 2018. Danish agri-food enterprises mostly worry about access to qualified labour and high production costs.
- Only some agri-food enterprises are discouraged from applying for loans, with the levels of discouragement in Denmark below EU 24 levels.
- Few loan applications are rejected, but a relatively high number of loan offers have been refused by agri-food enterprises.
- The unmet finance demand from the Danish agri-food sector is estimated at EUR 80 million.
- Start-ups face the most difficulties in accessing finance due to a lack of sufficient collateral and the risk they represent to banks.
- Banks mainly reject applications due to investment risks that are considered too high. Another reason includes applications that are of poor quality, which is due to the lack of time or business skills of entrepreneurs. Cumbersome applications also lead some potential borrowers to abstain from applying.

3.2.1 Drivers of total demand for finance

Gross investment into the Danish agri-food sector shows a slight upward trend (Figure 18). This is particularly the case for the manufacturing of food products, which show investment levels that are almost eight times as high as for the beverage sector (the beverage sector is also much smaller in terms of output).⁸¹ The gross investment in tangible assets for food products reached EUR 665 million in 2017, compared to only EUR 10 million for the manufacture of beverages.





Figure 18: Gross investment in tangible goods in the Danish agri-food sector, 2010-2017, EUR million

Source: Eurostat, 2019, Structural Business Statistics.

The overall investment rate in the Danish agri-food sector is relatively low. The investment rate over GVA was 16.13% for 2017 and the levels of investment have remained relatively unchanged over the previous four years (Table 9).

 Table 9: Gross Investment over GVA in the Danish agri-food sector 2012-2017, EUR million

	2012	2013	2014	2015	2016	2017
Gross Investment in agri-food	793	684	630	610	650	675
GVA in agri-food	3 548.1	3 720.2	3 758.5	4 024.4	4 247.1	4 182.2
Gross Investment over GVA	22.3%	18.4%	16.8%	15.2%	15.3%	16.1%

Source: Calculations based on Statistics Denmark and Eurostat, 2019, Structural Business Statistics.

The demand for finance in the Danish agri-food sector is mainly driven (Figure 19) by:

- (i) capacity expansion needs;
- (ii) new product development; and
- (iii) working capital needs.







Source: Agri-food survey.

To remain competitive and efficient at the domestic and international level, agri-food enterprises have invested into equipment, machinery and buildings to upgrade and expand their production (Figure 19). Interviews confirmed that companies have invested into additional machinery and new processing and packaging lines⁸² to ensure they can produce the quantities and quality of products demanded. For example, slaughterhouses have invested into robots that take precise images of pork loins and automatically cut the loin with the desired layer of fat. This saves a lot of time compared to manual work and the product is more uniform with less pork meat wasted.

Food safety concerns contributed to investments into high-tech solutions. Given the high importance of the export market, Danish agri-food enterprises need to respond to consumer demands. This is particularly the case for countries in Asia, where the demand for products respecting high food safety and hygiene standards is high.⁸³ This has resulted in Danish meat processing plants investing in the latest technology. Interviews in the context of this study confirmed that production errors or faulty controls in food processing can have serious economic consequences for agri-food enterprises. For them it is a pre-requisite to invest in the best technical solutions possible, for example digital monitoring and control systems. In parallel, investing in the most technically advanced solutions is becoming common practice for many Danish food producers. They are increasingly marketing their focus on consumer and animal well-being to customers.

Agri-food enterprises have invested in the development of new products, particularly related to the trend for healthier food. Interviews confirmed that often the key challenge in new product development has been to maintain the food quality and taste requirements of customers, while reducing fat levels. Agri-food enterprises in the processed meat sub-sector have invested into technology to produce lean cuts and to replace some of the fat with vegetable fibre. In the bakery sub-sector, investments have been made to increase the share of whole grains in baked goods. Higher levels of whole grains require different machinery and equipment.

The increasing focus on sustainable food production has also stimulated investments into low emission equipment. Given the high CO2 emissions of non-fuel efficient trucks, agri-food enterprises bought new vehicles that consume less fuel. Buildings are also renovated to be more efficient and some energy needs are being met by solar, wind and biogas.

⁸² Some agri-food enterprises shared, during interviews that for example abattoirs have invested into robots that take precise images of pork loins and automatically cut the loin with the desired layer of fat. This saves a lot of time compared to manual work and the product is more uniform with less pork wasted.

⁸³ Given concerns over African swine fever.



To meet their operational expenses, agri-food enterprises have obtained working capital from private banks. Typically, working capital loans are needed to finance the production process, including for the purchase of raw materials. Once the products are sold, the loan is repaid, usually within a period of 1.5 years.

Compared to the EU 24, inventory and working capital needs are very low in Denmark (Figure 19). However, during interviews with both banks and agri-food enterprises, it was argued that this low level might be underestimated. One of the reasons mentioned was that 'inventory and working capital' covers a vast set of specific needs and are considered by many established agri-food companies as at least two separate areas.

The EAFRD does not support investments in agri-food companies as the managing authority has not programmed the available sub-measure 4.2.

Danish agri-food enterprises have not requested loans to finance employment and training of employees, or for refinancing, according to the Agri-food survey. Most agri-food enterprises finance inhouse staff training using current accounts, while technical training in new technology is often provided by the suppliers of the technology as an integrated part of the sales service.

Results from the Agri-food survey show that access to finance is not a key difficulty for Danish agri-food enterprises. Less than 5% of the Danish companies had difficulties securing funding for investments or working capital in 2018, which is almost half of the EU 24 average (Figure 20).



Figure 20: Difficulties experienced by Danish agri-food enterprises in 2018

Source: Agri-food survey.

The key concern for enterprises is their access to qualified labour, followed by the high cost of production and their access to markets. With employment being relatively stable in Denmark, partly due to labour market regulations, the majority of enterprises have a significantly higher demand for labour than what is available. This is particularly the case for SMEs and start-ups, which have an increasing demand for new staff. The shift towards sustainable food production and food safety requires well educated staff with good knowledge of the latest IT and digital trends. Agri-food enterprises mentioned that they face challenges finding the number of experts needed. At the same time, and as discussed in Part I: of this report, high production costs are also partly driven by high labour costs.

Access to markets is a significant concern for Danish agri-food enterprises given the importance of the export. Without access to the EU and global markets, many agri-food enterprises would go bankrupt. Danish agri-food enterprises also need to diversify their export markets, as foreign demand fluctuations can heavily impact them. A number of well-functioning public-private partnerships, referred to in Danish business circles as the



'Danish model', have been established in the food export promotion sector to combat trade barriers of technical and commercial nature. This explains the relatively low perception of trade barriers and red tape, experienced by only 16% of Danish companies compared to 20% for EU 24 companies.

Regarding the current 2014-2020 programming period, Denmark did not implement sub-measure 4.2 under its Rural Development Program.⁸⁴ This means that no EAFRD resources are being used by the agri-food sector in the form of grants, financial instruments or any combination of the two.

3.2.2 Analysis of the demand for finance

The potential total demand for finance combines both met and unmet demand. The met demand consists of the value of all applications for finance, which were accepted by the financial institutions in the relevant year. The unmet demand consists of the assumed value of applications rejected by a financial institution, offers of credit refused by farmers, and cases where farmers are discouraged from applying for credit due to an expectation of rejection or refusal.

According to the Agri-food survey, the unmet finance demand from the Danish agri-food sector is EUR 80 million.

Mostly small enterprises have an unmet demand for finance, as confirmed by interviewees from both the agri-food sector and the banks. For start-ups, the individual situation of the enterprise is decisive. While some enterprises might face challenges, others are provided with the financing they require based on ordinary business terms.

Few Danish agri-food enterprises applied for finance in 2018. Only 25% of respondents to the agri-food survey said that they had applied for finance. One of the key reasons for the low levels of loan applications is the availability of sufficient own funding, as confirmed by the agri-food survey (see Figure 22 and the analysis further down in this section).

Almost 50% of the Danish agri-food companies applied for credit lines. Although the share of Danish enterprises applying for financing in general is significantly lower than for the EU 24, from these that applied, the share that applied for credit lines is significantly higher (48% compared to 29%). The second most popular product was long-term loans (28%), followed by short-term loans (27%) (Figure 21). Only 4% of enterprises applied for medium-term loans. Those findings were not entirely shared by the stakeholders interviewed for the study indicating that agri-food companies in good standing with banks usually prefer to borrow over the medium-term, with a maximum loan maturity of 5 years, instead of applying for classic mortgage loans which have longer maturity.



Figure 21: Danish agri-food enterprises applying for finance, by financing product, 2018

Source: Agri-food survey.

84 Information obtained from the Ministry of Environment and Food of Denmark.



Discouragement levels in Denmark are less than half of the EU 24 average (Figure 22). While the fear of a possible rejection keeps just 4% of Danish agri-food enterprises from applying for bank products, in the EU 24 the rate is twice as high (8%). For credit lines or bank overdrafts, only 3% of Danish agri-food enterprises are discouraged from applying, compared to 7% for the EU 24.

The main reason Danish agri-food enterprises do not apply for bank financing is the availability of own funds. This was mentioned by 41% of respondents for bank loan products and 47% of respondents for credit lines or overdrafts. Other reasons for no application, such as procedures that are too lengthy or complicated, or unfavourable terms and conditions, do not seem to be of relevance in the Danish context.



Figure 22: Reasons for not applying for loans in the Danish agri-food sector, 2018

Source: Agri-food survey.

While the vast majority of loan applications by agri-food enterprises are approved, the share of loan offers refused by applicants is significant (Figure 23). The Agri-food survey did not report any rejections for bank loans products, but a very high share of respondents reported that they had refused a loan offer (27%) because the loan conditions were not acceptable for them. In case of credit lines, rejections by the bank and refusal by the enterprises accounted for 11%, respectively.



Figure 23: Results from loan applications in the Danish agri-food sector in 2018

Source: Agri-food survey.



The high refusal rate might be due to a previous lack of awareness of loan conditions. The interviews indicated that the unexpectedly high withdrawal rate for loan product applications, which was particularly noted for short-term loans,⁸⁵ may suggest that those products are mostly applied for by entrepreneurial companies or start-ups with limited experience in the banking market. Applicants might also be surprised by the procedures (collateral requirements, or monthly repayment requests) and costs involved (administrative fees, as well as interest). Most of the established firms already have relationships with financial institutions and are aware of the applicable terms and conditions.

Another reason for the high withdrawal rate lies in the specificities of the Danish banking sector. Interviews with banks indicated that loan applications often lack the information necessary to understand the underlying business. Hence, banks are unable to assess the agri-food enterprise's creditworthiness as they are unable to verify whether the foreseen investment will likely result in higher profits. As the loan application process takes place in close cooperation between banks and clients, clients tend to withdraw their application once they become aware that the bank is unable to process their application (or at least not under mutually acceptable conditions). Agri-food enterprises might then approach other suppliers of finance, for example a development fund,⁸⁶ or they might apply for other loan products, such as credit lines.

While it is unlikely that the rejection levels by banks are 0%, interviewees underlined that approval levels of loans are generally high. This is due to both the use of the mortgage credit system and to the close relationships between banks and their clients. Furthermore, the SAFE survey results show high loan approval levels for Danish SMEs. The rejection rates for loan products for SMEs from all economic sectors was 7% in 2018, for credit lines it was 6%. While none of the Danish applicants refused a loan, the SAFE survey only captures refusals by the applicant due to costs that are considered too high, not for the fear of being rejected.⁸⁷

According to the surveyed enterprises, the main reason for the rejections of loan applications in **Denmark was due to banks considering the business risk of applicants as being too high**. The bank interviews confirmed that, in general, some agri-food enterprises face challenges in presenting a convincing business case. Hence, banks might evaluate the foreseen investment as being too risky and posing a general risk to the enterprise. In general, banks mentioned that they receive many low quality loan applications which prevents them from processing those applications further, resulting in rejection.⁸⁸

Lack of collateral is less of an issue for Danish agri-food firms. Insufficient levels of collateral/guarantees was not mentioned by the firms surveyed in Denmark as a reason for rejection. Interviewees from banks and the agri-food sector mentioned that the situation is different for start-ups who often lack sufficient levels of collateral. However, Danish financial institutions do not only focus on collateral. Instead, they undertake an overall evaluation of the nature of the loan application, including its purpose and the applicant company. The management of the company will be interviewed by the bank and if the financial institution decides it cannot go ahead on its own, it might even coordinate with another stakeholder, such as the Growth Fund or the Innovation Fund (see section 3.3.1). In this case, the agri-food enterprise could be redirected to a more suitable financing solution. If the applications and the business case comply with the overall objectives of those financial institutions, finance will often be granted either with reduced collateral levels or without it.

The loan applications of small agri-food entrepreneurs are rejected more often. The interviews conducted reveal that low quality loan applications are especially an issue for small agri-food entrepreneurs in more innovative sub-sectors. This is often the case for start-ups, since they have to concentrate their effort on boosting sales and earnings on a daily basis. Some might have the ambition to draft a comprehensive business plan and identify their specific needs for loans and credit lines, but a lack of time, resources or limited technical knowledge often stop them from doing so. Their loan application may therefore appear inadequate and

⁸⁵ The different approval rates for bank products with different maturities are not visible in Figure 23.

⁸⁶ An entity providing investments in companies resulting in increased growth and market development.

⁸⁷ European Central Bank, 2018Survey on the Access to Finance of Enterprises (SAFE).

⁸⁸ Interestingly, only 1% of the Danish agri-food companies find it too complicated or lengthy to process the paperwork (according to the outcome of the agri-food survey).



consequently be rejected. Due to the administrative burden that loan applications might represent, others are discouraged and waste the opportunity to raise funds that could promote and expand their business. Others may lack the business and financial skills needed to prepare quality business plans.

Overall, the low level of rejections of applications suggests a well-functioning and transparent financial system. This positive conclusion is also confirmed by an analysis done by the Confederation of Danish Industries (D.I.).⁸⁹ In the survey on the general investment climate in Denmark for 2018/2019, its member companies reported growing optimism (Figure 24). Approximately 65% of the companies surveyed find access to funding to be very good or good, with a net average response of 0.4 (a 0.5 value is 'good'). Information from the D.I. indicates a tendency for larger companies to have the most optimistic view of the investment climate and access to finance.



Figure 24: Expectations for gaining access to funding in terms of quantity and price in Denmark, 2011-2019

Source: DI Business Panel, 2019.

Note: The net figure is calculated by assigning the business and price that have the most optimistic value between -1 and 1. Very good/bad is assigned a value of 1/-1 and good/bad is assigned the value of 0.5/ -0.5. Neutral is assigned 0.

Providing loans and credit lines at lower interest rates would further facilitate access to finance. Most of the Danish enterprises (54%) mentioned that they would benefit from lower costs. Many agri-food enterprises (49%) also mentioned that loans with flexible repayment conditions, as well as guarantees provided by government agencies to reduce collateral requirements, would be beneficial to them (42%) (Figure 25).

⁸⁹ D.I., 2019, Exceptionally easy to borrow money, https://www.danskindustri.dk/english/latest-from-di/analysesreports/2019/05/exceptionally-easy-to-borrow-money/.



Figure 25: Solutions to reduce difficulties in accessing finance in Denmark, 2018



Source: Agri-food survey.

Provision of equity funding with a more reasonable risk-adjusted return is also desired by 31% of Danish agrifood companies, compared to only 26% for those in the EU 24. This suggests that enabling conditions for financial innovation, particularly for start-ups who need venture and early-growth capital, could ease the financing gap for numerous companies.

On this point, interviewees from both the banking and the agri-food sector spoke of a management gap rather than a financial gap (even though the former affects the latter). In general, start-ups have good chances to succeed and to establish a good, steady business. However, start-ups could improve their operations if they were provided with additional resources and know-how, as it is currently difficult for them to scale their operations beyond the start-up phase. As soon as the business is growing, it demands administrative, economic, export and management support skills. A lack of these skills often prevents them from increasing their operations (e.g. going from a 10-12 to 40-50 employee enterprise). The scaling of businesses is therefore an important challenge and the interviewees are pointing to the need for senior business people or 'business mentors' to get actively involved in advising the start-ups. For example, the 'Rockstart' global institution,⁹⁰ with 300 senior mentors, was mentioned, as well as the 'Early Warning' institution. However, the phenomenon calls for creative solutions to form the right network and support teams to boost the potential of the enterprises.

The future evolution of the demand for finance is unclear. In total, 30% of the Danish agri-food enterprises interviewed expect their financial needs to increase, while 26% of the companies are expecting them to decrease over the next 2-3 years.⁹¹ The quarterly member survey of 85 companies conducted by Danish Agricultural Council (DAC) depicted a strongly growing optimism from the 1st quarter of 2019 onwards (following two quarters on a low level). The outlook of increased sales of agri-industrial equipment for the livestock sub-sector was particularly positive after the drought in 2018. Especially positive expectations are noted in the domestic demand for food processing equipment, and almost half of the companies expect to hire staff and increase their investments during 2019. The only cloud that seems to darken the outlook is the uncertainty on Brexit, which is stirring concerns on the future market activities in the UK and has already resulted in the cession of the Danish Crown meat processing company Tulip UK Ltd. (the largest dairy outside of London). Further, the uncertainty on trade tariffs with the UK will almost certainly result in decreasing exports for Danish agri-food enterprises.

⁹⁰ It is a Dutch start-up accelerator working in the Netherlands, Denmark and Colombia with a body of 300 senior mentors.

⁹¹ Agri-food survey.



3.3 Analysis on the supply side of finance to the agri-food sector

This section provides an overview of the financial environment in which the agri-food sector in Denmark operates. It describes the main available financial products, including any currently operating financial instrument targeting the agri-food sector, with national and/or EAFRD resources. The section draws its information from interviews with financial institutions, as well as from national statistics.

An attempt is made to give a description of the general conditions for accessing finance, such as interest rates and requirements for collateral, and the availability of funding for agri-food enterprises. Potential differences in availability of financial products across different types of agri-food enterprises are reviewed and analysed.

Key elements on the supply of finance to the Danish agri-food sector

- The commercial and mortgage banks providing finance to the agri-food sector are the same as those that finance the agriculture sector.
- A specific, emerging trend in the agri-food sector is the growing popularity of leasing, offered by the private banks, which is used to replace costly investments in productive assets.
- Export guarantees play a role in financing Danish agri-food enterprises that sell abroad.
- Agri-food enterprises are considered ordinary businesses by private banks, and do not have special treatment. Hence, financial institutions provide lending at very attractive and competitive terms and conditions with low interest rates.
- Total outstanding loans from both commercial banks and mortgage banks to the sector was estimated to be EUR 2.6 billion (DKK 19.9 billion) in 2019.
- The loan portfolio quality for the manufacturing sector (including agri-food) is significantly better than for the agriculture sector.
- Small agri-food companies in rural areas could benefit from further supply of financial services.
- Banks face challenges in lending more to the sector, given the sometimes low quality of applications.

3.3.1 Description of the finance environment and funding availability

3.3.1.1 Finance providers

The financial providers to the agri-food industry include Danske Bank, Jyske Bank, Nordea, Sydbank Nykredit Bank, Spar Nord and Arbejdernes Landsbankare. They are the same providers as for the agriculture sector, as already listed in Table 4. It is believed that their share is comparable, based on the market penetration rate figures. Further details can be found in section 2.3.1.1.

Agri-food enterprises can also apply for funding from the Innovation Fund. It is a public fund formed in 2014 through the merger of a number of technical development funds. The Fund's role is to foster technological advancement, innovation and entrepreneurship in all sectors of business in cooperation with, for example, Joint Action Institutions, the EU and Eurostars (an EU start-up facility).

SMEs and start-ups can apply for funding through different windows of the Innovation Fund (Innobooster, Grant Solutions, and Rural Area Growth Pilot) and receive between 25% and 75% of the financial costs of their project as grants. Larger companies can receive 25% to 65%. The Innovation Fund has an annual budget of EUR 200 million, of which one-third is allocated to agri-food related projects (agri-digital development and new food products). Approximately 45% of applications are approved, but the Innovation Fund states that its potential could be harnessed even more efficiently if the quality of applications were stronger. The Innovation Fund estimates that strengthening project intake could boost companies in the downstream of the agri-food sector by a factor of 10.



Given the importance of exports for most Danish agri-food companies, export credit guarantees play a key role in financing the sector. **Eksport Kredit Fonden (EKF)** was established in 1922 as a state owned fund to provide credits and guarantees to the exporting industry. EKF issues guarantees to the banks of the enterprise, assuming the bank's risk, and thus facilitates credit to the enterprise. EKF has established a strong knowledge base of international trade, mainly in emerging and risky markets, which allows them to support exporters. When backed by an export credit guarantee from EKF, the exporting agri-food enterprise and their bank are assured of payment, even if the buyer is unable or unwilling to pay. This even includes if political conditions in a country prevent the completion of the business transaction. More details on EKF's products can be found in the subsequent section.

3.3.1.2 Financial products

Danish agri-food enterprises have access to mortgage loans as well as working capital and investment financing. Usually, mortgage and investment loans are for capital investments and, depending on exact purpose, can be of a short, medium or long-term maturity. Private banks' loans are typically used for working capital expenses and are thus of a more short-term nature.

Leasing offered by large commercial banks, such as Jyske Bank, seems to have gained some foothold in Denmark at the expense of short and medium-term loans for projects aimed at enlarging or improving production lines and expanding facilities. For such an arrangement, specific production units and equipment are being purchased by the bank and made available to the agri-food enterprise on a variety of leasing contract terms. The concept seems to be expanding not only to processing equipment, but also to IT systems, inventory and vehicles, as well as to others who provide the company with the opportunity to access the resources they need without tying down their own capital. Leasing can also save companies from the high maintenance and insurance costs of modern technical equipment, which would otherwise increase their overheads. The revenue of the rental and leasing of agriculture and agri-food related machinery and equipment in Denmark is projected to amount to approximately EUR 51 million (USD 56.9 million) by 2023.⁹² Unfortunately, no information on the detailed product offering could be identified.

The Innovation Fund offers funding through different windows as explained in Table 10.

⁹² In 2015 it was USD 33.48 million (EUR 30 million) and estimations for 2019 were USD 41 million (EUR 37 million); Statista, 2019, Industry revenue of "rental and leasing of agricultural machinery" in Denmark from 2012 to 2024, https://www.statista.com/forecasts/390783/rental-and-leasing-of-agricultural-machinery-revenue-in-denmark.

Table 10: Innovation Fund products

Innovation fund offer	Type of products	Target group	Amount	Specificities
Innobooster	Grants for Innovative Development Projects that increase enterprises' competitiveness	 SMEs (which either have a turnover of at least EUR 265 000 (DKK 2 million) during the past financial year or have attracted external capital of at least EUR 67 000 (DKK 500 000)) Entrepreneurs and start-up companies (under three years old) which have a strong team to implement the project and already have promising results to build on. 	Between EUR 6 700 (DKK 50 000) and EUR 667 000 (DKK 5 million).	Projects financed should be finalised within two years.
Grant Solution	Grant	Research and innovation projects that have the potential to create knowledge, growth and employment in Denmark.		 Three thematic calls have been launched: Better Health and Clinical Research, with an approximate budget of EUR 15 million (DKK 110 million). Research and Innovation solutions Aiding the Green Transition, with an approximate budget of EUR 94 million (DKK 700 million). New Technological Opportunities, with an approximate budget of EUR 17 million (DKK 130 million).
Innovation Pilot in rural districts	Grant to hire a graduate with a higher education	Companies in rural districts for the development or innovation project.	EUR 20 000 (DKK 150 000) for one-year projects and EUR 40 000 (DKK 300 000) for two-year projects.	This product can be used to hire a graduate with a higher education. The projects can address the development of new products, markets, services or production methods. It is essential that the project has considerable business potential and can lead to new opportunities for the company.

Source: Innovation Fund website, 2019.



Export guarantees offer important support in facilitating the exports of Danish agri-food enterprises. EKF offers both small and large company guarantees. A special SME guarantee is available for customers of the Danish agri-food enterprise for orders of up to EUR 3.5 million. The eligibility criteria for this product include:

- Financing for foreign customers is used for the sale of capital goods and with credit maturity of at least 6 months (a SME Guarantee cannot be used to finance the sale of consumer goods). EKF guarantees are issued with a term of maximum 5 years.
- At least 20% of the cost price of the product that the Danish agri-food enterprise exports must derive from materials from Denmark or work carried out in Denmark.
- Typically, the agri-food enterprise's customer will pay EKF an annual premium of between 0.5% and 4%, depending on the export country, the customer's credit rating and the term of the loan.
- The EKF pays compensation if the Danish agri-food enterprise's bank makes a loss on export transactions due to commercial or political risk. EKF guarantees up to 100% of the bank's loss, but the agri-food enterprise often has a deductible of 10%.

Total EKF portfolio was EUR 12.2 billion (DKK 90 billion) at the end of 2018.93

3.3.1.3 Description of the financing market

The financial market in Denmark is generally well-organised, transparent and by and large clientoriented, at least for enterprises. Competition in the banking sector has increased both the quality and quantity of loan products to all business sectors.

Banks tailor the business loans to the individual client. Agri-food enterprises negotiate the sale terms for the item to be purchased directly with suppliers, and the bank assesses the investment and works out a loan proposal. This includes rates of interest and a possible grace period. The maturity is usually 10 years for loans covering machinery purchases and 20 years for loans covering property purchases.

Banks are willing to negotiate on collateral to find agreement with agri-food companies. The agri-food sector is considered to have very high potential and banks expect higher rates of return than for the other business clients. The interviews with banks have confirmed that the private banking sector regards agri-food firms in Denmark as any other company, sometimes as even more profitable than those in other segments, and grants the same services as those granted to companies in any other sectors. Hence, no special services or products are offered to the agri-food sector.

Interest rates are also flexible, with banks offering fixed or flexible rates. By choosing a bank loan with a fixed interest rate, the agri-food company protects itself against unforeseen costs. However, the rate is generally higher than for a flexible interest rate. In cases where an agri-enterprise wants to expand its facilities or purchase new facilities, the mortgage credit system can be utilised, as in the farming and real estate market, providing 70% to 80% of the financing needs.

The Danish financing market is currently providing agri-food loans with very attractive and competitive terms, including low interest rates. Bank loans from the larger banks have an interest rate of 5-8%, while 'business loans'⁹⁴ and credit lines have a rate of 1-5%, provided a sound asset (for example private property) is provided as collateral. Information on interest rates applied for the agri-food sector could not be obtained. Most of the loans to the sector are being treated as ordinary business loans. Public funds have higher interest rates (7% to 10%) than commercial banks as they tend to take on higher risks. Clients are not satisfied with the interest rates offered by public funds.

- 93 EKF, 2019, SME Guarantee Win the order by offering your customer, https://ekf.dk/en/ekf-s-guarantees/guarantees/sme-guarantee.
- 94 A business loan is a general short-term/medium-term bank loan facility for new established companies to finance purchase of office systems, IT equipment, processing facilities with flexible maturity (1-5 years). Interest depends on collateral and guarantees provided by the client.



The overall quality of lending has increased in Denmark. The share of non-performing loans (over total gross loans) has been declining and stood at 1.7% as of March 2019. Since 2013, it has been decreasing almost constantly.⁹⁵ Information on non-performing loans for the agri-food sector could not be obtained, but the manufacturing sector performed better than other sectors (particularly better than agriculture, construction and property). At the end of the first half of 2017, NPL for manufacturing was at about 3% for large banks and 7.5% for medium-sized banks.⁹⁶ Overall, NPLs are concentrated in the medium-sized banks in Denmark and this trend has continued since 2018.⁹⁷

Leasing is becoming more attractive in Denmark. As already mentioned in section 3.3.1.2., some agri-food companies, such as start-ups or those who plan renewals in equipment, IT systems, vehicles, and machinery, prefer to sign a leasing contract with the bank instead of taking a loan. Many companies see the leasing option as a flexible and attractive form of investment, as they get 100% financing and do not have to tie any capital to the assets, while also getting a full tax deduction for the monthly instalments. For example, complex IT systems can be highly sensitive and require regular after-sales service that would increase costs for newly established companies. A leasing contract can mitigate this since the bank is the owner of the equipment and is responsible for dealing with the supplier. In bank terms, however, a leasing contract has the same status as a loan, and leasing is therefore an example of met financial demand.

Banks are not very active in the rural areas where small, successful agri-food companies are emerging. The interviews conducted revealed that in rural areas many small successful agri-food companies are being established that might benefit from increased access to finance. The economic strength of those enterprises has often been supported by new partnerships, including the Confederation of Danish Industry, the public sector,⁹⁸ local businesses and the Chamber of Commerce in regional cities. Those activities are showing positive results with job creation and youth entrepreneurship.

3.3.2 Analysis of the supply of finance

Domestic lending to the agri-food industry decreased during the 2014-2017 period, but has shown an upward trend since 2018. While the Danish National Bank does not publish disaggregated lending figures to the agri-food industry, it publishes lending to the manufacturing sector (that includes agri-food). As of March 2019, the outstanding portfolio for both banks and mortgage banks in manufacturing was EUR 11.6 billion (DKK 86.5 billion).⁹⁹

While the exact figure for the outstanding loans to the agri-food sector cannot be presented, the evolution of loans to manufacturing may be used as a proxy for the evolution of loans to the agri-food sector. It is assumed that in line with the share of food products, beverages and tobacco in total manufacturing production (23% in 2019)¹⁰⁰ accounts for 23% of loans to the agri-food sector. Hence, total outstanding loans from both commercial banks and mortgage banks to the sector was estimated to be EUR 2.6 billion (DKK 19.9 billion) in 2019 (Figure 26).

- 95 In February 2013 non-performing loans represented 5.24% of gross loans, Danish National Bank, 2019.
- 96 Danmarks Nationalbank, 2017, Financial Stability Second Half of 2017.
- 97 Danmarks Nationalbank, 2019, Financial Stability First Half of 2019.
- 98 With a view to bolstering innovative business activities in rural Denmark, the government launched the Local Action Groups program in 2014. The idea is to better harness the potential of the local activities that are taking place in most of the 98 counties of Denmark by forming local associations in 56 counties and 27 islands and allocating funds within the framework of the RDP administered by the Agency for Commerce. In 2016, another 10 fisheries action groups were added in the counties where the associations representing citizens and local businesses boost innovation and economic development, often at a micro business level.
- 99 Danish National Bank, 2019.

¹⁰⁰ Trading Economics, 2019, Denmark Industrial Production, https://tradingeconomics.com/denmark/industrialproduction.







Source: Ecorys own elaboration based on Danish National Bank, 2019.

Overall, the agri-food sector seems to enjoy access to credit at reasonable terms and conditions, as long as the business case is adequate. This is not only for established agri-food enterprises, but also for start-ups who, in many instances, also have access to banking services. They might also receive technical advice from the banks to apply for loans from public financial institutions, to use crowdfunding to raise money or to seek professional investors.

Of particular interest for the financial sector are agri-tech firms. Focus group discussions confirmed that financial institutions see high potential in these companies and are very keen to support them. The DAC estimates that investment loans will grow the activities of these companies by a factor of 5. The potential of these agri-tech companies is further illustrated by recent buy-ups by foreign companies (mainly from the United State). The latter aim at scaling their own global activities by acquiring technical and human resources, on a short-term basis, from these companies. Although in the long-run it is believed that they will drain the SMEs off their growth potential.

New products and services are required from banks to increase their outreach. Interviews with banks indicate that they would be interested in increasing their outreach to agri-food clients. The competition in the market requires banks to implement new products and associated services to ensure that profitable agri-food enterprises become their clients. They are hence required to improve their services and to provide product packages that not only provide loans but also support the agri-food companies' administration, controlling functions and factoring. The commercial ambition of banks is to increase their future clientele and to support the formation of new viable companies that could become new customers. At the same time, start-ups and SMEs are struggling to get more attention from banks, with interviews with industry associations pointing to a lack of time and advice on the side of banks in the application process for smaller companies.

COSME and EaSI also play in important role in supporting agri-food enterprises in accessing finance. Details on those products are outlined in section 2.3.1.2.



3.4 Financing gap in the agri-food sector

This section presents an assessment of the financing gap in the Danish agri-food sector broken down by firmsize and financial product.

Key elements of the financing gap in the Danish agri-food sector

- The financing gap for the agri-food sector is estimated at EUR 76 million.
- The financing gap is the largest for small-sized firms (less than 50 employees) who have difficulties in accessing both short and long-term loans.
- The general drivers of the gap are the imbalances between start-up ambitions, inadequate business plans, and a lack of technical advice in the application process.
- Many stakeholders speak of a 'resource gap' rather than a financing gap.
- The evolution of the financing gap in the agri-food industry will be related to business innovation and sustainable growth in the Danish food cluster.

This section presents an estimate of the total volume of unmet financing needs of financially viable agri-food enterprises, defined as financing gap, for 2018. The estimate is calculated by multiplying the total number of firms by the proportion of financially viable firms reporting unmet demand for finance multiplied, in turn, by the average obtained loan value to firms.

Financing gap = Number of firms X percentage of financially viable firms with unmet demand X average loan volume

All the calculations are based on the results of the Agri-food survey for Danish firms (see Annex A.5for more information). The methodology used for calculating the gap is the same as the methodology used for the agriculture sector (see Annex A.3).

The financing gap arises from unmet financing demand from economically viable firms¹⁰¹. The unmet demand for finance includes:

- (i) lending applied for but not obtained, or;
- (ii) a lending offer refused by the potential borrower, as well as;
- (iii) lending not applied for due to expected rejection.

For the purpose of this report, 'turnover growth' is used as a proxy of firm viability. In particular, we make the hypothesis that all enterprises which reported a stable (non-negative) turnover growth can be considered as viable.

¹⁰¹ The financing gap presented in this section is different from the total unmet demand presented in Section 3.2.2. In the quantification of the total unmet demand, all the enterprises in the population applying for finance are considered independent from their economic viability.



Figure 27: Financing gap by product in the agri-food sector, 2018, EUR million

Source: Agri-food survey.

The financing gap for the Danish agri-food sector is estimated at EUR 76 million (Figure 27 and Table 11). The gap mainly concerns small firms and start-ups that are constrained for short and long-term loans. Interviews with industry associations suggest that small firms are too tied up with the daily tasks of securing sales and ensuring earnings, which prohibit them from devoting the time and resources necessary to prepare high-quality business plans and well-written loan applications. This is more likely to lead to rejections by banks or the withdrawal of an application by the firm itself. Medium-sized firms are also affected by the gap. It is of no surprise that large companies do not have a large gap in accessing finance, given that they often have long standing relationships with financial institutions. This relationship means they can benefit from other support measures, in terms of access to finance. The large firms can also access funding from international sources.

	Total	Short-term Loan	Medium-term Loans	Long-term Loans	Credit lines /overdraft
Small-sized firms	45.0	12.6	8.4	17.0	7.0
Medium-sized firms	22.5	8.2	3.8	7.5	3.0
Large-sized firms	8.5	2.0	1.6	3.3	1.5
Total	75.9	22.8	13.8	27.7	11.5

Table 11: Financing gap by firm in the agri-food sector, 2018, EUR million

Source: Agri-food survey and methodology.

Agri-food enterprises and banks emphasised that for the segment most affected by the gap, i.e. small agri-food enterprises and start-ups, finance is not the key gap but rather the gap in terms of 'resources'. Scaling of the business is an important challenge¹⁰² and stakeholders therefore suggested introducing 'business mentors' who have a business advisory and knowledge transfer role for start-ups. Something like the 'Rockstart' institution has been suggested. Be it as it may, creative solutions should be used to boost the potential of SMEs.

102 Many enterprises face great challenges when they attempt to scale their operations beyond the start-up phase. As soon as the business starts to grow, a lack of administrative and management support skills, business projections, and scoping of export markets often prevent the companies from growing.



Over the coming years, the evolution of the financing gap in the agri-food industry will depend on innovation and sustainable growth in the Danish food cluster, itself very dependent on pressures from the global consumer market. While innovative start-ups may require short-term loans or bank credits to establish operations, established food processors may demand more robust and long-term credit facilities to undertake the green and carbon-neutral transformation of their production¹⁰³. Public support might be required to prevent the finance gap from deepening.

In conclusion, it is the general opinion amongst stakeholders that the supply and demand for finance in the agri-food industry is, overall, in equilibrium. Nevertheless, specific segments have unmet finance needs and are thus in need of measures that could potentially support them in further closing the gap:

- Stakeholders (including financial institutions and other public and private actors) could upgrade their advisory services to minimise the number of inadequate lending applications and poor or inadequate business plans.
- Small companies and new start-ups would benefit from the introduction of mentoring programs that would ensure knowledge transfer and the dissemination of best business practices.
- Equity funding is desired by a number of companies in Denmark. This suggests that enabling conditions for financial innovation, particularly for start-ups who need venture and early-growth capital, could ease the financing gap for this group of companies.



3.5 Conclusions

Gross investment into the Danish agri-food sector shows a slight upward trend. In 2017, the gross investment in tangible assets reached EUR 665 million for food products and EUR 10 million for the manufacture of beverages.

Danish agri-food enterprises invested to expand capacity, develop new products and meet their working capital needs. The former reason includes the purchase of equipment and machinery, buildings and transport equipment to remain competitive (on both the domestic and international market) and efficient. Food safety concerns have also driven investments into expanded capacity and new product development. The trend towards healthier food has led agri-food enterprises to invest in being able to offer new products to the market. To meet their operational expenses, agri-food enterprises have invested in working capital.

Access to finance has not been identified as a key challenge for Danish agri-food enterprises in the agri-food survey. The Danish agri-food sector is instead mainly concerned about access to qualified labour, followed by high costs of production and access to market.

Total outstanding loans to the agri-food sector increased for year 2018. As of March 2019, the outstanding portfolio for both banks and mortgage banks in manufacturing was EUR 11.6 billion (DKK 86.5 billion). The outstanding portfolio for food products, beverages and tobacco was estimated to be EUR 2.6 billion (DKK 19.9 billion). While banks would be interested in increasing their portfolio to the sector, they sometimes face difficulties in approving loan applications due to their low quality.

Few agri-food enterprises are being discouraged from applying for loans and few applications are being rejected. However, a significant share of refused loan offers has been identified for short-term loans. The withdrawal of loan applications by borrowers in Denmark is likely to be caused by the fact that smaller agri-food enterprises and young start-ups mostly rely on working capital and might not be familiar with banking procedures and associated costs. Also, the loan applications of small agri-food entrepreneurs, particularly in innovative sectors, are more often rejected due to their low quality.

The financing gap is estimated to be EUR 76 million and mainly concerns small agri-food enterprises and start-ups. The need for working capital and long-terms loans of small enterprises is sometimes not met due to the fact that small-sized firms do not have the time and resources necessary to prepare high-quality business plans and well-written loan applications. Large agri-food enterprises do not tend to face difficulties in accessing finance. This is because they usually have long-standing relationships with financial institutions or because they can benefit from other support measures allowing them to access finance. Additionally, they can access funding from international sources.

While the gap is relatively small, certain bottlenecks exist. This is particularly the case for small-sized firms and start-ups which would benefit from further advisory programmes. Advisory services should be rolled out to minimise the number of inadequate lending applications, and poor or inadequate business plans. The introduction of mentoring programs, to ensure knowledge transfer and the dissemination of best business practices among the smaller companies, could be considered. Terms and conditions of available support tools might be reviewed, particularly with reference to their cost. In the case of start-ups, equity funding is also of interest.

- Equity funding is desired by a number of companies in Denmark. This suggests that enabling conditions for financial innovation, particularly for start-ups who need venture and early-growth capital, could ease the financing gap for these enterprises. In this context, the possibility of establishing CAP/EAFRD equity financial instruments could be considered.
- Small companies and start-ups would benefit from the introduction of technical support. This assistance would enable knowledge transfer and the dissemination of domestic and international best business practices, particularly regarding state-of-the-art processing and manufacturing.
- Stakeholders (including financial institutions, as well as other public and private actors) could upgrade their advisory services to reduce the number of inadequate lending applications and business plans.

ANNEX

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A.2. Stakeholders interviewed

Type of Organisation	Name of Institution
Farmers Organisation	Danish Farmers Abroad
Farmers Organisation	Danish Food & Agriculture Council, including interviews with individual farmers
Young Farmers Organisation	Danish Young Farmers, interviews with individual farmers
Financial Institution	Nykredit
Financial Institution	Jyske Bank
Financial Institution	Growth Fund
Financial Institution	Finans Danmark
Financial Institution	IFU
Financial Institution	DLR
Financial Institution / Farm investment	Dansk Farm Management A/S
Food Industry Organisation	Danish Agro Industry
Food Industry Organisation	Confederation of Danish Industries
Knowledge Centre Cooperatives	SEGES
Managing Authority	Ministry of Food & Environment.



A.3. Methodology for financial gap calculation

This section of the report clarifies the terminology and proposes a method for estimating the financial gap formula for Target Group I and Target Group II. This version of the formula aligns with the *fi-compass* Factsheet on the financial gap in agriculture and the 2013 EC working paper on the Ex-ante assessment of the EU SME initiative. It is based on the data from the *fi-compass* survey of 7 600 farms carried out in mid-2018.

Financing gap definition

We define the financing gap to be the *unmet credit demand due to constrained or missing access to financing*. This definition includes market failures as well as other types of constraints.

Operationalisation of the financing gap formula

Each component of the formula can be obtained in the survey data under the following assumptions:

- *Rejected* credit applications include applications that are rejected by banks (or other credit organisations) and offered from banks, but turned down by the farmers/firms.
- The share of *Viable* firms is measured by the share of total firms that have a non-negative turnover growth¹⁰⁴ or a non-negative turnover and that are not in a situation of cost increase (these two criteria might be used to obtain an upper and lower boundary for the calculations).
- Discouraged application is proxied by the average size (financial value) of loan applications made by firms that applied for a similar type of financial product. This allows for grouping firms which did not apply for fear of rejection with rejected firms (see step 2 and 4 below).

To calculate the financial gap, we define the following four steps. Each step refers to the latest surveyed year for both the surveys.

Step1: Ratio of viable farms with unmet demand for finance

Rejection Rate^{Viable}: This refers to the share of viable enterprises whose application was unsuccessful. It is measured by the ratio of enterprises with unsuccessful applications over the total population. It includes rejected applications by the lending institution and offers turned down by the applicant itself.

$$Rejection Rate_{j}^{Viable} = \frac{Number of Rejected Viable Firms}{Total survey population_{j}}$$

with j = Short - term, Medium - term, Long - term Loans, Credit lines.

Discouraged Rate ^{Viable}: It represents the share of viable enterprise that were self-discouraged because of fear of rejection. It is computed as follows:

 $Discouraged Rate_{j}^{Viable} = \frac{Number \ of Discouraged \ Viable \ Firms}{Total \ survey \ population_{i}}$

with j = Short - term, Medium - term, Long - term Loans, Credit lines.

Unmet demand Rate ^{*Viable*}: The total share of survey respondents with unmet demand for finance is obtained by summing the two rates:

Unmet demand $Rate_i^{Viable} = Rejection Rate_i + Discouraged Rate_i$

Step 2: Number of farms rejected or discouraged

N. of Farms in unmet demand^{*Viable*}: In order to get the number of farms constrained in accessing financing, we multiply total share of viable respondents with unmet demand from the survey sample (Step 1) by the total farm population from Eurostat by farm size.

For TG I, this total population is adjusted by removing farms having a Standard Output (SO) below EUR 8 000 EUR 4 000 or EUR 2 000, depending on the Purchasing Power Parity Index (PPI) of the country. The EUR 8 000 EUR 4 000 or EUR 2 000 SO thresholds are used for countries with their 2017 PPI respectively

104 A turnover that has been stable or growing in the last year.



above the 66th percentile, between the 33rd and 66th percentile, or below the 33rd percentile of the PPI index in the EU. We assume equal rates of rejections among small, medium and large-sized farms, and disentangle the share of farms with constrained in obtaining credit by financing product.

N. of Farms rejected_{ii}^{Viable} = Eurostat Farm population_i * Rejection Rate_i^{Viable}

N. of Farms discouraged d_{ij}^{Viable} = Eurostat Farm population_i * Discouraged Rate_j ^{Viable}

 $N.of Farms in unmet demand_{ij}^{Viable} = N.of Farms rejected_{ij} + N.of Farms discouraged_{ij}$

for *i* = *Small*, *Medium*, *Large*

and *j* = *Short* - *term*, *Medium* - *term*, *Long* - *term Loans*, *Credit lines*.

Step 3: Standard Loan Application Size

Application Size_{ij}: For each type of financial product and each firm/farm size category, a standard size of application is constructed. A starting point for Country experts might be the EU wide geometric mean, adjusted at country level with the purchasing power parity index. This value might be further adjusted based on the results of the analysis.

Step 4: Financial gap across farm size and product type

The financing gap is obtained by multiplying the amount of loans (Step 3) by the total number of farms facing constrained access to credit as calculated in Step 2.

Note: when the survey sample size allows, an indicative breakdown of the gap will be provided for young farmers per member state. The breakdown is obtained from the age ratio within rejected loan applications.

Financial $Gap_{ij} = Application Size_{ij} \times N$. of Farms in unmet demand^{Viable}

for *i* = *Small*, *Medium*, *Large*

and *j* = *Short* - *term*, *Medium* - *term*, *Long* - *term Loans*, *Credit lines*.

Finally, the total gap is the sum of figures across size classes (*i*) and products (j).

Private financing (obtained from family or friends) will be included in a separate quantification for countries with a high share of private lending.

The methodology for the gap calculation for TG II is the same as for TG I, but no lower limit on the size of enterprises is applied in step 2 (all enterprises in the population are included in the calculation). For Target Group II, we obtain each component of the financing gap formula from the following questions in the agri-food survey of Target Group II carried out in mid-2019:

Lending/funding applied to: For what kind of finance did you apply in 2018 and with what amount?

Lending not applied to: For what reasons did you not apply for some kind of finance?

Rejected: What was the result of your application?

Viability: Has the following company indicator changed in the last year: Turnover?

It has to be noted that the surveys to be used by the Study for the calculations, the *fi-compass* farm survey and the agri-food survey, are designed to be statistically representative at national level. Regionalised figures and calculations could therefore be applied with a limited dimension and for only few countries. Information from interviews may complement such regionalised descriptions.

For Denmark, Table 12 and Table 13 report the elements used in the calculation of the financing gap for the agriculture and agri-food sector, respectively.


		Short-term Loans	Medium-term Loans	Long-term Loans	Credit lines/bank overdraft
Lower bound: farms with a non- negative turnover growth and no cost increase	Share of respondents rejected by creditor or farmer	1.66%	0.00%	0.00%	1.66%
	Share of respondents that have not applied because of possible rejection	0.83%	3.31%	3.31%	0.83%
	Total (sum of rejected and discouraged)	2.48%	3.31%	3.31%	2.48%
Upper bound: farms with a non- negative turnover growth	Share of respondents rejected by creditor or farmer	1.66%	0.00%	0.00%	1.66%
	Share of respondents that have not applied because of possible rejection	1.66%	4.14%	4.14%	1.66%
	Total (sum of rejected and discouraged)	3.31%	4.14%	4.14%	3.31%
Total unmet demand: all farms	Share of respondents rejected by creditor or farmer	1.66%	0.00%	0.83%	3.22%
	Share of respondents that have not applied because of possible rejection	2.39%	5.70%	4.88%	2.39%
	Total (sum of rejected and discouraged)	4.05%	5.70%	5.70%	5.61%
Farms with constrained access to finance, lower bound	Small-sized farms	550	734	734	550
	Medium-sized farms	1 667	2 222	2 222	1 667
	Large-sized farms	121	162	162	121
Farms with constrained access to finance, upper bound	Small-sized farms	734	917	917	734
	Medium-sized farms	2 222	2 778	2 778	2 222
	Large-sized farms	162	202	202	162
Standard Ioan application size (EUR)	Small-sized farms	21 773	52 817	145 664	19 657
	Medium-sized farms	27 587	50 201	158 167	21 805
	Large-sized farms	81 364	127 752	284 797	116 129

Table 12: Elements for the calculation of the financing gap in the Danish agriculture sector, 2017

Source: fi-compass survey.



Table 13: Elements used for the calculation of the financing gap in the Danish agri-food sector, 2018

		Short-term Loans	Medium-term Loans	Long-term Loans	Credit lines/bank overdraft
Firms with a non- negative turnover growth and no cost increase	Share of respondents rejected by creditor or farmer	0.00%	0.00%	0.00%	0.00%
	Share of respondents that have not applied because of possible rejection	0.00%	0.00%	0.00%	0.00%
	Total (sum of rejected and discouraged)	0.00%	0.00%	0.00%	0.00%
Total unmet demand: all firms	Share of respondents rejected by creditor or farmer	0.65%	0.65%	0.00%	0.00%
	Share of respondents that have not applied because of possible rejection	9.79%	0.65%	18.14%	4.90%
	Total (sum of rejected and discouraged)	10.44%	1.30%	18.14%	4.90%
Firms with constrained access to finance	Small -sized firms	-	-	-	-
	Medium-sized firms	-	-	-	-
	Large-sized firms	-	-	-	-
Standard loan application size (EUR)	Small-sized firms	103 469	141 645	401 753	116 828
	Medium-sized firms	822 021	774 055	2 153 277	625 438
	Large-sized firms	810 592	1 355 713	3 805 692	1 272 000

Source: Agri-food survey.



A.4. TG I: *fi-compass* survey

The analysis for the agriculture sector in the report relies on the *fi-compass* survey on financial needs of EU agriculture enterprises, conducted from April to June 2018 across 24 EU Member States (EU 24): Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, The Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden.

The survey was carried out targeting the completion of 300 questionnaires for each Member State. The target was reached in all countries except Lithuania (for few interviews) and Ireland, where the farmers were less confident in sharing information.

Overall, the survey consists of 7 659 respondents, of which 73% own the agriculture enterprise, 8% are member owners, 8% are owner's relatives, 7% administrative managers, 3% other employees, and 1% human resource managers. Table 14 reports the number of respondents by Member State.

Country	No. of Respondents	Country	No. of Respondents
Belgium	350	Latvia	315
Bulgaria	351	Lithuania	296
Czech Republic	309	Hungary	315
Denmark	302	The Netherlands	301
Germany	376	Austria	320
Estonia	310	Poland	320
Ireland	151	Portugal	349
Greece	350	Romania	350
Spain	354	Slovenia	300
France	350	Slovakia	312
Croatia	300	Finland	327
Italy	351	Sweden	300

Table 14: fi-compass survey sample size per Member State

Source: fi-compass survey.

Additionally, the sample covers 198 (94.7%) of the 209 NUTS2 regions in the 24 Member States. These regions have nearly 99% of EU 24 farms.

Almost 85% of questions were completely answered and 98% of all questions were answered on average. The most problematic questions were on confidential, financial aspects. Only 50% of interviewees replied concerning their turnover, 67% gave the specific amount of their loan and 56% the exact interest rate of their loan.



A.5. TG II: Agri-food survey

To mirror the *fi-compass* survey on the needs of EU agriculture enterprises, a computer assisted telephone interviewing (CATI) survey was conducted for the agri-food processing sector in mid-2019.

For the purpose of this survey, a commercial global register was used in each country. A commercial global register provides data in a single source, harmonises the information collected on businesses (e.g. Industrial classification, employee size, turnover, contact names etc.) and offers software platforms that allow users to easily access a sample of businesses for commercial purposes.

The survey was conducted targeting the completion of a minimum of 45 questionnaires for each Member State. The minimum sample size obtained varied per country mirroring the differences in the size of the sector. Table 15: reports the sample size per country.

Country	No. of Respondents	Country	No. of Respondents
Belgium	100	Latvia	50
Bulgaria	100	Lithuania	50
Czech Republic	66	Hungary	46
Denmark	50	The Netherlands	80
Germany	186	Austria	50
Estonia	50	Poland	130
Ireland	50	Portugal	100
Greece	70	Romania	150
Spain	197	Slovenia	50
France	180	Slovakia	50
Croatia	45	Finland	50
Italy	200	Sweden	48

Table 15: Agri-food survey sample size per Member State

Source: Agri-food survey.

The survey consists of 2 148 respondents, of which 85% were enterprises operating in the manufacturing food sector, and 15% in the manufacturing of beverages.



A.6. Data from the agriculture statistical factsheets

Figure 28: Evolution of agriculture input and output prices in Denmark, 2009-2018



Source: European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.



Figure 29: Evolution of harmonised indices of consumer prices in Denmark, 2009-2018

Source: European Commission, DG AGRI, June 2019, Statistical Factsheet for Denmark.

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