fi compass
EAFRD

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

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DISCLAIMER

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Glossary and definitions

Abbreviation	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.
BVE	Bundesvereinigung der Ernährungsindustrie
CAP	Common Agricultural Policy
COSME	Programme for the Competitiveness of Enterprises and Small and Medium-sized Enterprises
DAFM	Department of Agriculture Food and the Marine
DKB	Deutsche Kreditbank
DLG	Deutsche Landwirtschaftsgesellschaft
EAA	Economic Accounts for Agriculture
EAFRD	European Agricultural Fund for Rural Development
EC	European Commission
EIB	European Investment Bank
EIF	European Investment Fund
ESIF	European Structural and Investment Funds
EU 24	The 24 EU Member States covered by the fi-compass '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
fi-compass survey[1]	Survey on financial needs and access to finance of 7 600 EU agricultural enterprises carried out by *fi-compass* in the period April - June 2018 and based on respondents financial data from 2017.
GAK	Gemeinschaftsaufgabe Agrarstruktur und Küstenschutz
GFCF	Gross Fixed Capital Formation

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.

GMO	Genetically modified organism
GVA	Gross Value Added
ha	Hectare
KfW	Kreditanstalt für Wiederaufbau
MA	Managing Authority
RDP	Rural Development Programme
ROE	Return on Equity
SMEs[2]	Small and Medium-sized Enterprises
SO	Standard Output
UAA	Utilised Agricultural Area

2 Small and medium-sized enterprises (SMEs) are defined in the EU recommendation 2003/361. Micro enterprises have less than 10 employees, small enterprises have less than 50 employees and medium-sized enterprises less than 250 employees, https://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en.

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EXECUTIVE SUMMARY

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

The analysis draws on the results from two comprehensive and representative EU-level surveys carried out in 2018 and 2019. These were the *fi-compass* survey on financial needs and access to finance of EU agricultural 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 Germany

Germany has maintained its position as one of the largest agricultural producers in the EU despite having faced difficult years since 2015. As a result of the structural transformation process in the sector, farmers have shifted away from mixed farming and have increasingly specialised in a single type of production. At the same time, large farm holdings have been gaining economic significance.

Investments in the agriculture sector are stable. The investments made have been steady and at a relatively high level since 2012. In 2018, EUR 9.2 billion was invested in the agriculture sector in Germany, which equated to 56% of Gross Value Added (GVA) significantly higher than the EU 24 average of about 30%,[3] with most investments made in farm equipment and machinery.

The analysis identified the following **main drivers of investment** in the German agriculture sector:

(i) The **expansion and specialisation** of farm holdings as part of the on-going structural change. This mainly concerns the increase in farm size through the purchase or lease of land.

(ii) **Modern production technologies**, following the trend towards more capital-intensive agriculture.

(iii) **Regulations and standards**, both at EU and federal level, which push farmers to invest in their holdings to ensure compliance with these requirements.

(iv) **Investments in non-agricultural activities**, as income diversification is gaining importance, many German farmers are depending on a mix of income sources.

(v) **Adaptation to climate change** and investments in resource efficiency. These are relatively new trends that gained importance after the prolonged drought in 2018. As the uncertain weather conditions are foreseen to persist, further demand for finance related to the adaptation to climate change is expected, in particular for investments in adaptation technology.

The Common Agricultural Policy (CAP) is another driver of investments in Germany. The direct payments contribute to the stabilisation of farm incomes and facilitate the access to finance for farmers by providing an acceptable form of guarantee for repayment by the banks. The availability of more than EUR 1 billion of investment support by the end of 2019 through the EAFRD and the regional Rural Development Programmes (RDP) has increased the demand for finance as farmers often complement the grant support with bank loans (as they have to co-finance the operations). However, availability of investment support varies by region, as each federal state defines its own agricultural and rural development priorities. However, overall, the uptake has been good and above the EU 28 average.

The agricultural loan portfolio is growing stronger than the overall loan portfolio for the full economy. By the end of 2017, outstanding loans to the agriculture sector amounted to EUR 53.2 billion which is an increase by 25% compared to 2010. A large share of this portfolio consists of preferential loans which are provided by Landwirtschaftliche Rentenbank, the public development bank for the agriculture and agri-food

3 Eurostat, Economic Accounts for Agriculture.

sector. The positive loan portfolio development was mainly driven by farms with a higher income and equity, while other farmer segments have had a cautious investment attitude, preferring to withhold investments.

Although the German banking system has more than 1 700 financial institutions, agricultural lending remains the domain of cooperative banks followed by savings banks. Only a few commercial banks see the agriculture sector as a strategic priority.

Preferential loans and agri-guarantees are available to German farmers and are subsidised from national and EU funds (e.g. COSME[4]). Apart from Landwirtschaftliche Rentenbank, which operates on a national level, each federal state has a development agency, a public guarantee bank and a public equity fund which provide support to farmers.

The EAFRD has supported the creation of a regional credit fund, the scope of which has been recently revised and enlarged. The credit fund was originally set-up to support the market launch of innovative products by SMEs in the agri-food sector in Mecklenburg-West Pomerania. The initial assumption was based on a market failure, but this limitation was removed as the fund became matched by the local banks. As a result, the target group was extended to include agricultural enterprises, among others.

Despite this favourable economic and policy context, the analysis shows that an estimated financing gap of between EUR 0.5 billion and 1.7 billion exists in Germany. The gap mainly concerns small and medium-sized farms,[5] and most difficulties in accessing finance relate to long-term loans (above 5 years).

Access to finance is constrained for farmers mainly due to a lack of collateral and a lack of credit history. In particular, small-sized farms and young farmers are sometimes not in the position to provide sufficient amounts of collateral for securing the loans. Agricultural land is traditionally the key collateral used by banks when lending to farmers, but in Germany, due to rising land prices, it has become unaffordable for the small-sized farms, as well as for young farmers and new entrants.

While it is true that the current overall lending environment is very favourable also for the agriculture sector, there are still some persisting limitations, which prevent more banks from investing in the agriculture sector. The main constraint identified on the supply side relates to the fact that some financial players lack knowledge of agriculture and do not fully understand the specific risks of the sector.

RECOMMENDATIONS

Based on the findings of the study and its analysis the following recommendations are provided:

- **The introduction of EAFRD financial instruments within the new CAP Strategic plan could be considered, in particular to facilitate access to finance for new entrants (including young farmers) and small-sized farms,** which face specific collateral constraints or have taken over farms that have existing debt.
- The possibility for the EAFRD to support counter-guarantees with higher than the current guarantee rate offered by COSME could also be considered. This could prove to be an interesting option for the relatively well-developed German financial market and in particular for the federal states' guarantee funds. It could also complement the grant implementation of the RDPs.
- 'One-stop-shop' options combining one scheme with single entry grants and financial instrument(s) could be another cost-saving opportunity worth consideration.

In any case, given the overall situation of the market and taking into account the number of public instruments already available, the Managing Authorities (MA) should be careful not to create duplications, but rather seek to create synergies or improve the impact and design of the available products by considering various financing opportunities and implementation approaches.

4 COSME is the EU Programme for the Competitiveness of Enterprises and Small and Medium-Sized Enterprises.

5 For this study, the *fi-compass* survey results will be analysed. The analysis of the survey divided farms into small farms (below 20 hectares), medium-sized farms (20-100 hectares), and large farms (>100 hectares).

Financing gap for the agri-food sector in Germany

Manufacturing of food and beverages is one of the key sectors of the German economy. By turnover, the agri-food sector in Germany is the third largest sector of the manufacturing industry. It accounts for 10.2% of industrial output and contributed 1.6% to total GVA in 2017. Like for other manufacturing industries, it is affected by the overall shortage of qualified labour.

The sector shows a positive investment trend. In 2018, investments in the sector amounted to EUR 5.7 billion, which corresponds to 13.7% of the GVA of the sector.

The analysis highlights the following drivers of demand for finance in the agri-food sector in Germany:

(i) **Expanding production capacities** to achieve economies of scale and greater efficiency, to withstand strong competition in the market.

(ii) **Digitalisation and industry 4.0**, as new trends which help agri-food companies to increase production efficiency and meet consumer demands in terms of quality and transparency.

(iii) Changes in nutritional behaviour and life-style choices, to which German agri-food companies are eager to respond through **product innovations**.

Lending to the agri-food sector follows the positive trend of the manufacturing sector. By the end of 2018, the portfolio of outstanding loans to agri-food companies amounted to EUR 16.7 billion. Finance to agri-food companies is provided by a larger number of commercial, savings and cooperative banks as compared to those serving the agriculture sector.

Agri-food businesses benefit from a large range of support programmes. On a national level, Rentenbank offers a specific preferential loan for agri-businesses while the Kreditanstalt für Wiederaufbau (KfW), as the largest public lender, provides several financial instruments to support SMEs. Besides this, agri-food companies can approach public financial institutions on the federal state level such as development agencies, guarantee banks and equity funds.

The CAP supports investments in the agri-food sector in almost all regions. The demand for financing is stable and the businesses that apply show a very good business and financial literacy, with very few applications for support being turned down.

EU-funded financial instruments support agri-food SMEs in Germany. Among the programs, the EAFRD credit fund in Mecklenburg West-Pomerania is the only financial instrument that specifically targets the agri-food sector. Further assistance could be provided by COSME loan guarantee fund and InnovFin.

A financing gap of EUR 2 billion is estimated. The gap mainly concerns small-sized enterprises (less than 50 employees) and long-term loans (>5 years). The market gap is comprised of (i) the rejected loans, which made up 10% of applications for bank products and 12% for credit lines/bank overdrafts, and (ii) entrepreneurs that were discouraged from submitting a loan application, which was the case for 10% of the applications for bank products and 7% for credit lines/bank overdrafts.

Agri-food companies experience constraints in accessing finance resulting from a lack of collateral, which affects in particular small-sized enterprises and new businesses. They also lack the knowledge and awareness of the available public financial and non-financial support tools. On the supply side, it was observed that banks are risk averse towards the agri-food sector, which often has low profit margins due to the strong competition within the sector. Banks are also cautious in lending to higher risk projects like start-ups or projects that mainly focus on product innovation.

RECOMMENDATIONS

Based on the findings of the study and its analysis the following recommendations are given:

- Dedicated support to the agri-food sector is only available to a limited degree and as a result food and beverage producers have to make use of general SME lending support schemes. Therefore, new financial instruments that specifically target agri-food businesses might provide benefits to the sector. However, the demand may not be large enough to justify such an EAFRD supported instrument in every region due to the regional diversity of Germany.

- The fact that there will be a single CAP Strategic Plan in 2021-2027 may facilitate the introduction of a CAP/EAFRD financial instrument applicable to all federal states. This may well only target start-ups or small-sized agri-food companies that lack assets for collateral. Investments in innovation might constitute an additional target.
- CAP/EAFRD counter-guarantees could also be considered as an upgrade of the available COSME financing, which may benefit mostly the federal states' guarantee funds. It can also support the grant execution of the RDPs.

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 Germany. 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 the current operating financial instruments, or for creating 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 is 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 the 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 the 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, as well as

(ii) lending not applied for (by the viable enterprises) due to the 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 agricultural 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 covers financing for the agriculture sector; and Part II discusses 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 German agriculture sector
• Agriculture accounted for 0.7% of total Gross Value Added (GVA) and 1.3% of total employment in 2018. Agricultural output in Germany was EUR 52 billion in 2018. • While 44% of the 266 000 farms are small-sized (below 20 ha) and family owned farms, they only cultivated 7% of the utilised agricultural area (UAA) in 2018. • Farms are becoming more specialised in their production, with 47% of them engaged in animal production, 30% in arable crops and only 13% in mixed farming. The key products are meat and dairy, which are also the main exports. • Organic agriculture production is important and Germany ranks fourth in the EU, in terms of organic crop area and number of producers. • 14.7% of the German farmers are young farmers (under 40 years of age), which is higher than the EU 28 average of 10.6% in 2016. • The average annual farm income was EUR 65 200 in 2017/18. • A third of the German farms diversify their income through other income generating activities, mostly through the generation of renewable energies, forestry and contractual work. • While the overall performance of the sector is sound, the dairy crisis in 2015/16 and the drought in 2018 had a negative effect.

Germany is a highly urbanised and industrialised country, but still half of its land area is farmed. In 2018, the agriculture sector in Germany accounts for around 0.7% of Germany's total Gross Value Added (GVA) [6] and although this figure is below the EU 28 average (1.6%), Germany belongs to the largest agricultural producers of the EU. There are 266 000 farms[7], and the agriculture sector generates income for almost one million people[8] and plays an important role in sustaining rural economies and promoting social stability. Farmers in Germany contribute to the supplies of raw materials and energy to the wider economy.

German agriculture is in a process of transformation which leads to a concentration and specialisation of farms. The farm structure in Germany is still characterised by a large number of small and medium-sized family owned farms. However, in recent years a shift towards larger farm holdings was observed, resulting in an increase in the average farm size from 56 ha in 2010 to 62.4 ha in 2018.[9] As a consequence of this structural transformation process in the sector, many small-sized farms are unable to compete with the medium and large-sized farms, because they produce insufficient quantities for large retailers, lack economies of scale and are less able to cope with high fluctuations in input and market prices.

Large-sized farms with more than 100 ha are gaining economic weight. Although they only accounted for 14.1% of all farms in 2018, they managed more than 60% of the total UAA.[10] A parallel trend is the increasing specialisation of German farms. In 2016, already nine out of ten farms specialised in a certain production with two thirds of them opting for livestock husbandry.[11] However, the overall number of farms with livestock has been declining by 17% in comparison to 2010.[12]

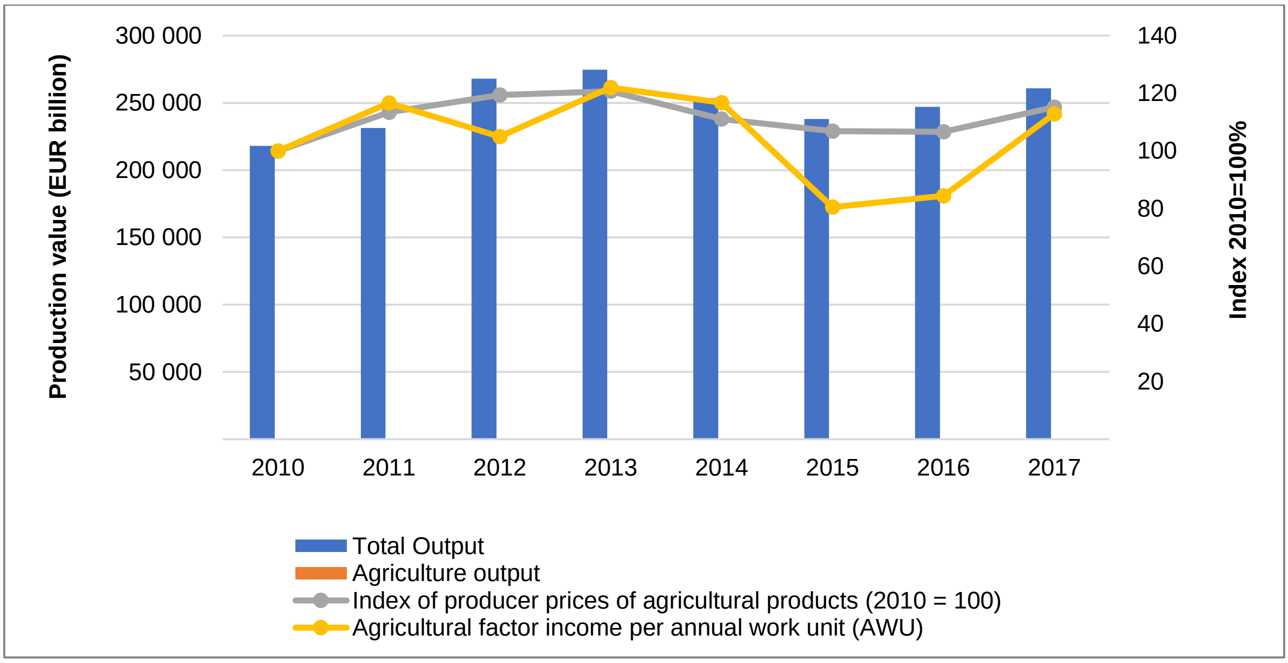
6 European Commission, DG AGRI, 2019, Statistical Factsheet for Germany.
7 Deutscher Bauernsverband, 2020, Situationsberichjt 2019/20, Trends und Fakten zur Landwirtschaft.
8 Federal Ministry of Food and Agriculture, 2017, Daten und Fakten.
9 Deutscher Bauernsverband, 2010, Situationsberichjt 2019/20, Trends und Fakten zur Landwirtschaft.
10 Federal Ministry of Food and Agriculture, 2017, Daten und Fakten.
11 Federal Ministry of Food and Agriculture, 2017, Daten und Fakten.
12 Ibid.

Regional diversity in farm structure and agricultural production. Agricultural production in Germany is concentrated in certain regions depending on the type of activity. The Northern federal States, for example Schleswig-Holstein or Lower Saxony, are regions with a high density of livestock farms while in other regions arable crops are more dominant (Baden-Wurttemberg).[13] With respect to farm size, large-sized farms are more common in Eastern Germany where most of the farms are managed as legal entities.[14] Small-sized farms, on the other hand, are frequent in the southern part of Germany including in Baden-Württemberg and Bavaria. Still, agricultural cooperatives, which can be found almost exclusively in Eastern Germany, have a structural organisational feature that has remained from the past.[15]

The agricultural output in Germany is fluctuating, but maintains a high level compared to other EU countries. After the first dairy crisis in 2008/2009, the agricultural output in Germany recovered in 2010 and rose steeply until 2013. The abolishment of the milk quota and the crisis in the dairy sector in 2015/2016 led to a slow-down of the growth and also the prolonged drought in 2018 impacted the development of the agricultural output.

In 2018, agricultural output amounted to EUR 52 billion which is an increase of 13% compared to 2010 (Figure 1)[16]. The agricultural factor income per annual work unit followed this trend and recovered in 2017.

Figure 1: Development of output in EUR, producer prices and factor income, 2010-2017



Source: Economic Accounts for Agriculture, Statistics Germany 2019.

Agricultural output is driven by animal and meat production. Although the shares of animal and crop output are almost equal, dairy (21.4%) and pig farming (13.4%) are the sub-sectors that contribute most to the overall agricultural output. They are followed by cereals (11.9%) and forage plants (10.6%) as the most important crops.[17]

13 Deutscher Bauernverband, Situationsbericht 2018.
14 Federal Ministry of Food and Agriculture, 2017, Daten und Fakten.
15 Agrarheute, https://www.agrarheute.com/media/2017-09/2017_10_am_eG_online.pdf.
16 Index of producer prices was not available for year 2018 at the time of writing, whereby the figure is presented only until year 2017.
17 European Commission, DG AGRI, 2019, Statistical Factsheet for Germany.

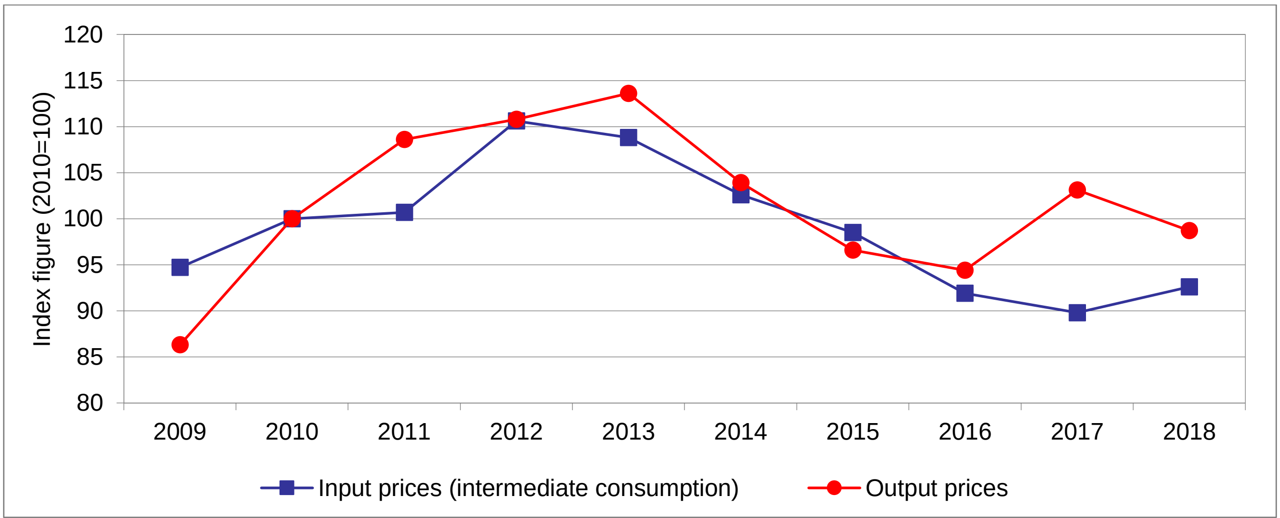
Organic agriculture is gaining importance. Between 2010 and 2016, the number of farms cultivating organically increased by 20% and reached 27 132 holdings.[18] This corresponds to 7.5% of the UAA. In comparison to other EU countries, Germany ranks fourth in terms of UAA cultivated organically and the number of operators in the sub-sector.[19]

Farming is often not the only source of income. Almost a third of all German farms diversify their income through other income generating activities on their farm estate.[20] Most of the additional income (46%)[21] stems from the generation of renewable energy (11% in the EU average) which is a result of the incentives provided by government regulation. Processing of farm products (14%) and tourism (8%) play a minor role when compared to the EU average (23% and 11%).[22]

While there are more young farmers in Germany than for the EU average, the share of older farmers is increasing. In Germany, 14.5% of the farm managers are younger than 40 years old which is above the EU 28 average of 10.6%[23]. Nevertheless, the overall trend in the agriculture sector is a shift towards farmers staying longer in the business and thus leading to an ageing of the sector. The share of farm managers younger than 45 years dropped from 46% in 1999 to 26% in 2013. At the same time, the share of farmers older than 55 years increased from 29% to 36%.[24]

Farmers' profit margins are low. Since 2009, input and output prices have followed a similar trend, but the limited difference between the two, as can be observed in Figure 2, reflects the low profit margins of German farmers. While overall input prices have been decreasing since 2012, output prices started to recover after 2016, only to drop again in 2018. However, they remain above their 2015-2016 levels.

Figure 2: Evolution of agricultural input and output prices in Germany, 2009-2018

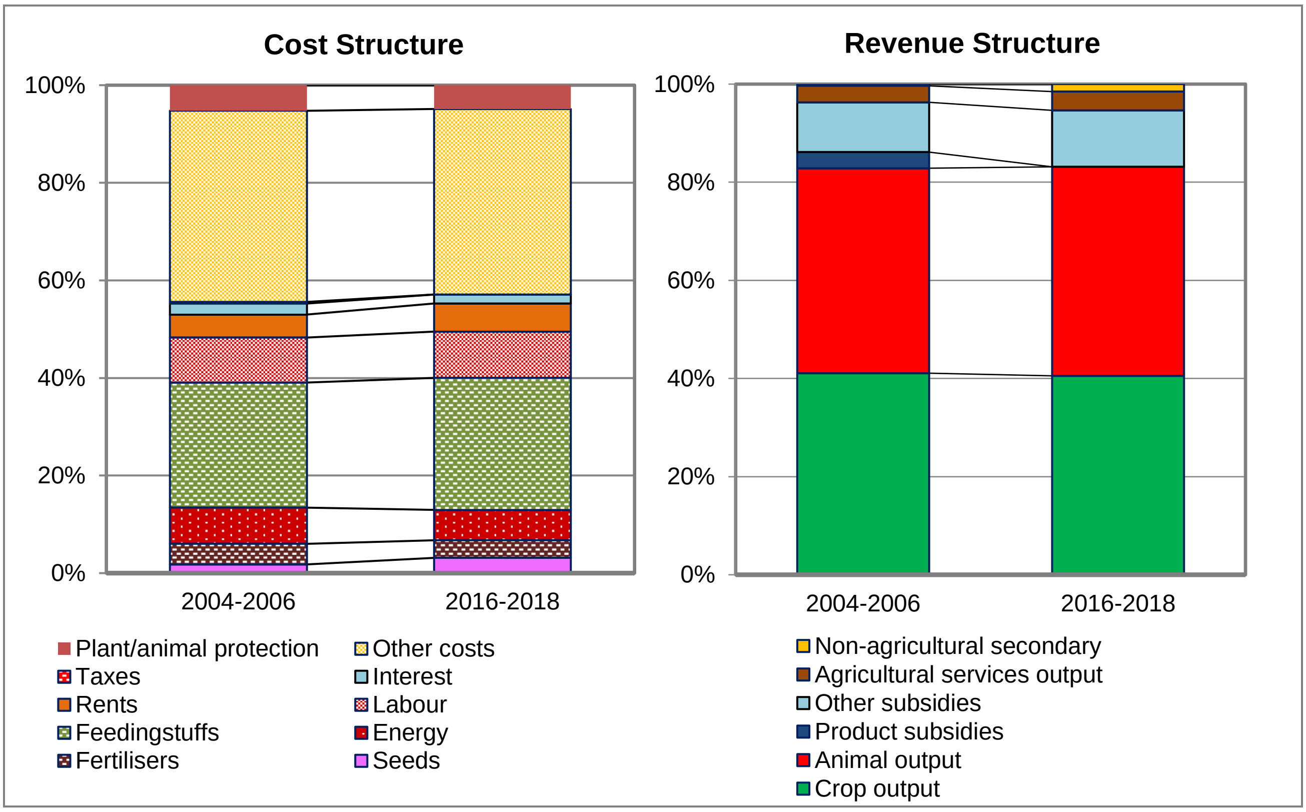


Source: European Commission, DG AGRI, Statistical Factsheet for Germany, June 2019.

No significant changes in the cost structure for farmers can be observed when comparing the cost structure for the period from 2004 to 2006 with the period from 2016 to 2018. Over the last 15 years the costs for seeds increased the most, as well as the cost of rents (presumably land). In terms of revenue, the results of numerous CAP reforms can be seen in the significant drop that has occurred for product specific subsidies whereas the importance on non-agricultural secondary income has increased (Figure 3).

18 Federal Ministry of Food and Agriculture, 2017, Daten und Fakten.
19 Eurostat, Organic Farming.
20 Deutscher Bauernverband, Situationsbericht 2018.
21 Deutscher Bauernverband, Situationsbericht 2018.
22 European Commission, 2018, Agriculture, forestry and fishery statistics 2017.
23 European Commission, 2018, Agriculture, forestry and fishery statistics 2017. Figure as of 2016.
24 BMEL, 2019, Statistisches Jahrbuch.

Figure 3: Agricultural income – only cost and revenue structures in Germany, 2004-2018



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

Statistical factsheet Germany, 2019
More data on the agriculture indicators from Germany can be found in the **Statistical factsheet Germany 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 and quantifies the met and unmet demand. It seeks to elaborate the main reasons for farm enterprises to request financing and identifies the agricultural sub-sectors displaying 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 agricultural finance is based on the findings from the *fi-compass* survey of 376 German 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 of finance demand from the German agriculture sector

- Gross Fixed Capital Formation (GFCF) amounted to EUR 9.2 billion in 2018, equivalent to 56% of GVA.
- Demand for finance is driven by (i) expansion and specialisation of the agricultural activity, (ii) investments in modern production technologies, (iii) compliance with regulatory requirements, (iv) investments in non-agricultural activities for income diversification and (v) adaptation to climate change.
- Farmers seek finance for investments in machinery, equipment and buildings as well as working capital. Additionally, they request finance for non-agricultural investments, mainly renewable energy generation.
- Small-sized farms rather seek finance for land purchases while larger farms apply for loans for investment and working capital purposes.
- CAP plays an important role for German farmers. Under both pillars of the policy, German agriculture will receive more than EUR 44 billion for the 2014-2020 period. The demand for investments under the EAFRD is stable and more than EUR 800 million of projects are funded until the end of 2019.
- The sub-sectors with the highest demand for finance are dairy and pig farms.
- In total, large farms accounted for 78% of all liabilities in 2017.
- 35% of German farmers are concerned about access to land, which is over three times higher than the EU 24 average of 11%. This is also reflected in the fact that German farmers reported using loans for land purchases nearly twice as often as the EU 24, with 21% and 11%, respectively.
- German farmers mostly apply for long term loans and credit lines.
- The rejection rates are, according to the *fi-compass* survey, between 3-12% (depending on the product maturity), which is significant, but still below the EU 24 average for all loan products.
- The total unmet demand for finance from the German agriculture sector is estimated to EUR 1.9 billion.
- The main reasons for the rejection of loan applications are (i) a lack of credit history, (ii) economic non-viability of the farm, and (iii) a lack of collateral by small-sized farms (under 20 ha) and young farmers.

2.2.1 Drivers of total demand for finance

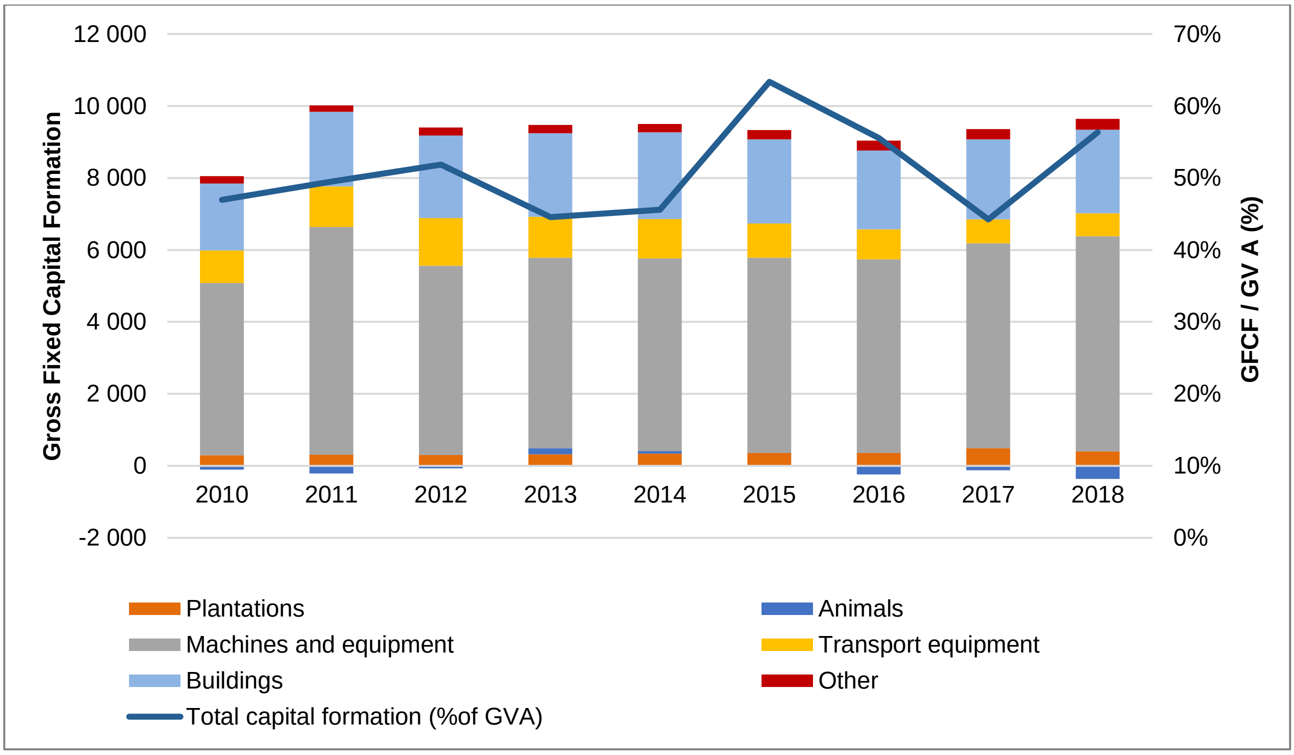
The Gross Fixed Capital Formation (GFCF[25]) dynamic shows a relatively stable investment trend in the sector. In 2018, the GFCF in German agriculture, (i.e. capital that was used for investments in physical assets), amounted to EUR 9.2 billion (Figure 4). According to interviews with farmers' representatives, German farmers have had a cautious investment attitude over the last years. Many farmers preferred to withhold investments and mainly the farms with a higher income and equity were the ones that invested and asked for

25 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.

external finance.[26] Nevertheless, the GFCF as a share of the GVA was 56% in 2018, which is above the EU 28 average. Despite some fluctuations over the last years (Figure 4), this indicator shows overall a positive investment attitude in the sector.

The majority of the GFCF are investments in non-agricultural items. About 64% of the investments were made in machines and equipment. Between 2010 and 2018, the share of those items in total GFCF rose by 25% to EUR 6 billion manifesting the leading position. The second range of investments was in buildings (25%). However, investments in barns and stalls are declining due to an uncertain regulatory environment[27] and increasing construction costs.[28] For transport equipment (7%), a declining trend can be observed since 2012. Agricultural items such as plantations or animals are of less importance in the GFCF composition. In the case of animals, figures have been negative since 2010 with the exception of 2013/14 which is related to the overall reduction of the number of farms keeping livestock.

Figure 4: Gross Fixed Capital Formation in the German agriculture sector, EUR million



Source: Eurostat, Economic Accounts for Agriculture, 2019.

A number of drivers of demand for finance of the agriculture sector in Germany can be highlighted:

(i) expansion and specialisation of the agricultural activity, mainly increases in farm size through the purchase or lease of land,

(ii) investments in modern production technologies following a trend to more capital-intensive agriculture,

(iii) improvement and adaptation of production standards to meet regulatory requirements,

(iv) investments in non-agricultural activities for income diversification, and

(v) climate change adaptation, including coping with unforeseen weather events (e.g. drought).

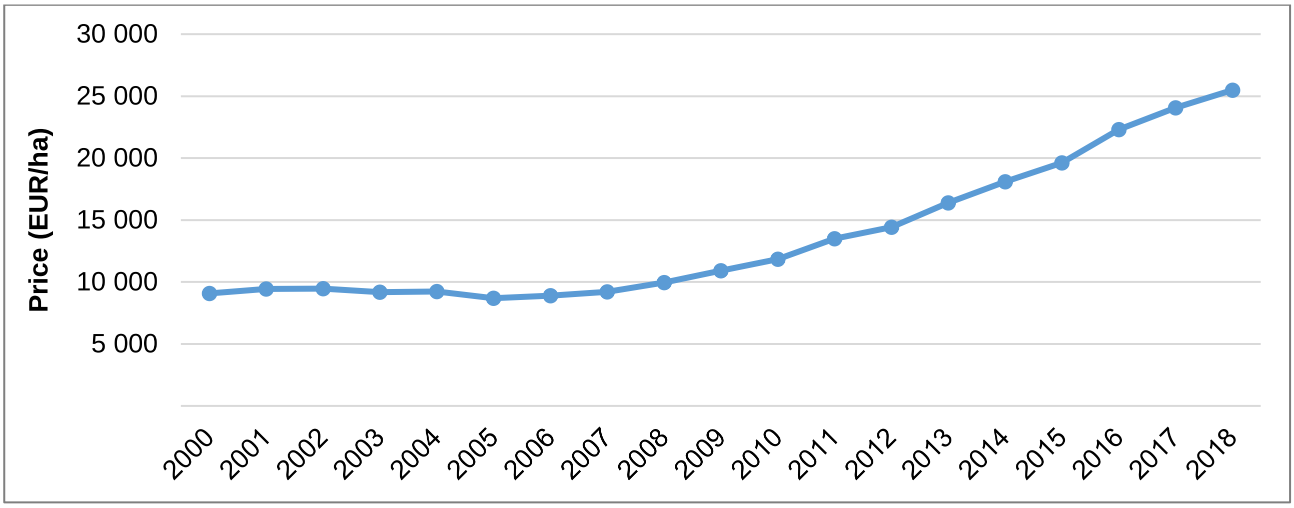
26 Deutscher Bauernverband, Situationsbericht 2018. 36% of the full-time farmers invested (net investments) more than EUR 5 000/ year during the last three years, on average EUR 52 000. Their farm income, equity and liability was above the overall averages.

27 The uncertain regulatory environment refers for example to the planned introduction of tighter regulations concerning animal welfare and environmental standards.

28 Rentenbank, 2019, Annual Report 2018.

High land prices drive demand for finance, but are also making expansion of farm activities increasingly difficult. As a result of the progressing transformation of the agriculture sector, the share of large agricultural holdings with more than 100 ha has been increasing constantly.[29] Nevertheless, most of the farms are still small and medium-sized and in order to be able to operate profitably they need to increase their farm size. However, it is becoming increasingly difficult to purchase land because prices for agricultural land more than doubled between 2010 and 2018 reaching EUR 25 000 per ha (Figure 5).[30]

Figure 5: Development of prices for agricultural land in Germany, 2000-2018



Source: Statistisches Bundesamt, 2019.

The development of prices for agricultural land is driven by many factors. Germany is a highly urbanized country where different types of land use compete with each other leading to a general increase of prices for land. Furthermore, non-agricultural investors are increasingly purchasing land to compensate for a lack of alternative investment opportunities given the overall low interest rate level offered by local banks. Mainly, East Germany is affected with for example, Mecklenburg-West Pomerania, having 20% of land owners not being from the region nor the sector.[31] Banks mentioned that agricultural investors from other countries seek to purchase land especially in Eastern Germany for which they offer exceptional prices. Farmers who lease their land and depend on a regular renewal of the lease contract, as is the case for the large-sized farm estates in Eastern Germany, find it difficult to compete with these investors.

Lease prices follow the trend that can be observed for purchase prices of agricultural land. The average rent in 2016 was EUR 288 per ha, which was 19% (EUR 45) higher than in 2013.[32] The development of the leasing prices is important since more than half of the agricultural land (59%) is leased. The share of leased land is increasing, and this has implications on the availability of land as collateral, especially in the case of young farmers and new entrants.[33] It also implies that less CAP direct payments remain on the accounts of the farmers, as these resources leave the farming business through lease payments.

In Germany, there is a need to encourage a new generation of farmers, but high prices for agricultural land create a significant obstacle. Although the share of young farmers in Germany is above the EU 27 average, the sector is experiencing an ageing problem. Elderly farmers stay longer in business than wished for, because almost 70% have not solved the succession aspects of the farm holding.[34] In particular, farms

29 European Commission, DG AGRI, 2019, Statistical Factsheet for Germany.
30 There are large difference between the regions. For example in Upper Bavaria prices can reach up to EUR 116 000.
31 Deutscher Bauernverband, 2019, Situationsbericht 2018/19.
32 BMEL, 2017, Daten und Fakten. Land-, Forst- und Ernährungswirtschaft mit Fischerei, Wein- und Gartenbau.
33 L-Bank, Geschäftsbericht 2018.
34 Federal Ministry of Food and Agriculture, Betriebsstruktur in der Landwirtschaft.

with an UAA of up to 50 ha and in the crop production sector face problems in organising the succession.[35] The main obstacles for succession planning are the diverging interests and expectations within a farmer family. Therefore, increasingly succession to outsiders is considered, but the difficulty consists in finding the right match.[36] An important point is also the attractiveness of the farm that is going to be handed over. Many small-sized farms lag behind in terms of modernisation and the income they generate is not enough to sustain the farmer´s family or to finance investments. This situation affects the demand for finance in two ways: On the one hand, young farmers and new entrants need to purchase land to establish their farm business, but they lack the financial means to do so. High land prices create a huge hurdle for them since the agricultural income is not sufficient to repay the upfront investment in a reasonable timeframe. On the other hand, elderly farmers are reluctant to invest in their farms if the succession issue is not solved.[37]

Stricter standards in environmental, animal and consumer protection can generate demand for finance. In Germany, the topic of animal welfare and conditions of livestock husbandry are subject to the political and civil society debate. It is common for farmers to undertake investments to respond to new regulations and requirements. The coalition agreement between the ruling parties foresees, for example, the creation of an animal welfare label, an inspection authority and the promotion of animal-friendly stalls. Overall, there is a high degree of uncertainty about further developments and, as a consequence, many farmers foresee to slow down their investment activity in the livestock sector.[38] However, once new agreements are reached, investments can be expected to take off again.

Consumer demand and new food trends open new niches in the agriculture sector. Within the EU 28, Germany is the main market for organic food products with EUR 9.5 billion in retail sales.[39] In fact, in organic farm production, Germany ranks among the top EU producers. The shift away from intensive/conventional farming to organic and extensive farming already has and is likely to generate further demand for finance. Farmers might need to invest in additional land for pasture or cultivation of fodder plants as well as adjusting barns and stalls to meet organic farming requirements. Besides this, additional expenses for an organic certification and short-term liquidity during the transition phase can incur. The Federal Ministry of Environmental Affairs states that organic farmers still need support mechanisms to be able to operate competitively.[40] This is particularly important, if the target of increasing the share of organic farming in the total UAA to 20%, that was defined in the Federal Government 'Organic farming - Looking forwards" strategy, is to be reached by 2030.[41]

Farmers supplement their farm income with other income-generating activities which require investments. Around 75 000 farmers, which is more than a third of all German farmers, diversify their income by using the farm assets and performing farm-related activities. In comparison to other EU countries this share is high. Interviews with financial institutions confirm that farmers frequently take loans for non-farming purposes. For example, given that the Renewable Energy Law[42] provides incentives for the set-up of biogas, wind or solar power generation, many farmers seek investments for this purpose. In a survey carried out for the German Farmers Association, 5% of the farm businesses who are planning to invest in the near future foresee expenditures in renewable energies (3%) and non-agricultural activities (2%).[43]

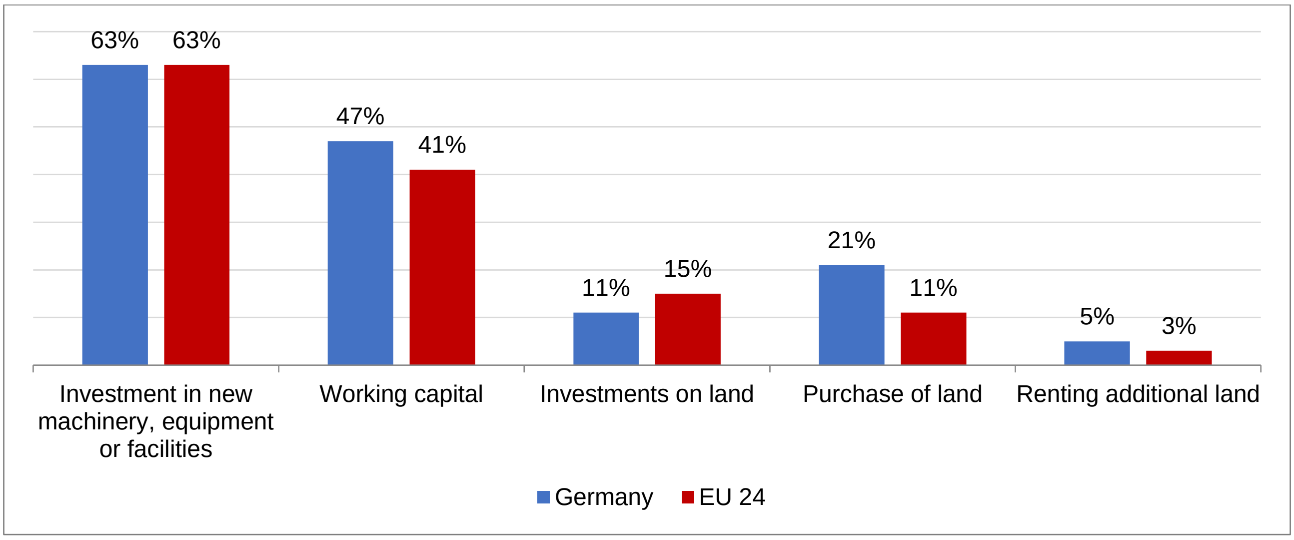
Increasing weather risks drive farmers' working capital needs. In 2018, large parts of Germany, but in particular the Northern and Eastern part, were hit by a severe drought. Interviews with farmers confirm that not

35 Ibid.
36 There is a range of internet platforms that seek to intermediate farm succession to non-family members.
37 Interview with Farmers‘ Association.
38 Deutscher Bauernverband, Situationsbericht 2018/19, Konjunkturbarometer.
39 European Parliament, 2019 https://www.europarl.europa.eu/news/en/headlines/society/20180404STO00909/the-eu-s-organic-food-market-facts-and-rules-infographic.
40 Umweltbundesamt, 2019, https://www.umweltbundesamt.de/daten/land-forstwirtschaft/oekologischer-landbau.
41 BMEL, 2019, https://www.bmel.de/SharedDocs/Downloads/EN/Publications/OrganicFarmingLookingForwards.pdf;jsessionid=C2581F52FF3FB42CFF4E4742CBCDC22A.2_cid296?__blob=publicationFile.
42 BMWI, 2019, https://www.bmwi.de/Redaktion/EN/Downloads/renewable-energy-sources-act-2017.pdf%3F__blob%3DpublicationFile%26v%3D3.
43 Deutscher Bauernverband, Situationsbericht 2018/19, Konjunkturbarometer.

only crop farmers but also livestock farmers suffered from decreasing revenues. Yields on cereals (excluding maize) dropped below 16% of the average of the three previous years.[44] Livestock farmers were affected as they could not produce sufficient fodder and had to purchase animal feed. As a consequence, expense levels in both sub-sectors remained constant or even increased, causing farmers to renew short-term loans for the purchase of inputs. As the uncertain weather conditions are foreseen to persist, further demand for finance is expected not only for working capital, but also for investments in adaptation technology.

More loans are used for land purchases compared to the situation for other EU countries. In Germany, 63% of the farmers stated that they had asked for bank loans to invest in machinery, equipment or farm facilities, and 47% needed a loan for working capital purposes. These results are in line with the EU 24 average of 63% and 41%. However, a significant difference exists regarding land purchases. German farmers reported using loans for land purchases nearly twice as much as the EU 24 average, with 21% and 11%, respectively (Figure 6). This finding from the *fi-compass* survey confirms the trend towards larger farm estates and increasing land prices, and is also supported by information from interviews with banks whereas, in particular, small-sized farms tend to apply for loans for land purchases while larger farms seek loans for investment and working capital purposes.

Figure 6: Purpose of banks loans obtained in 2017 compared to EU 24



Source: fi-compass survey.

Access to land is the major concern of German farmers. With regards to difficulties experienced over the last few years, German farmers are much aligned with their European peers. The topic for which answers between German farmers and those in the EU diverge significantly is access to land, which was a challenge for 38% of the German farmers interviewed compared to 11% for the EU 24 average (Figure **7**). Interviewed stakeholders confirmed this finding and added that it also applies to the purchase prices of land and to land lease prices.

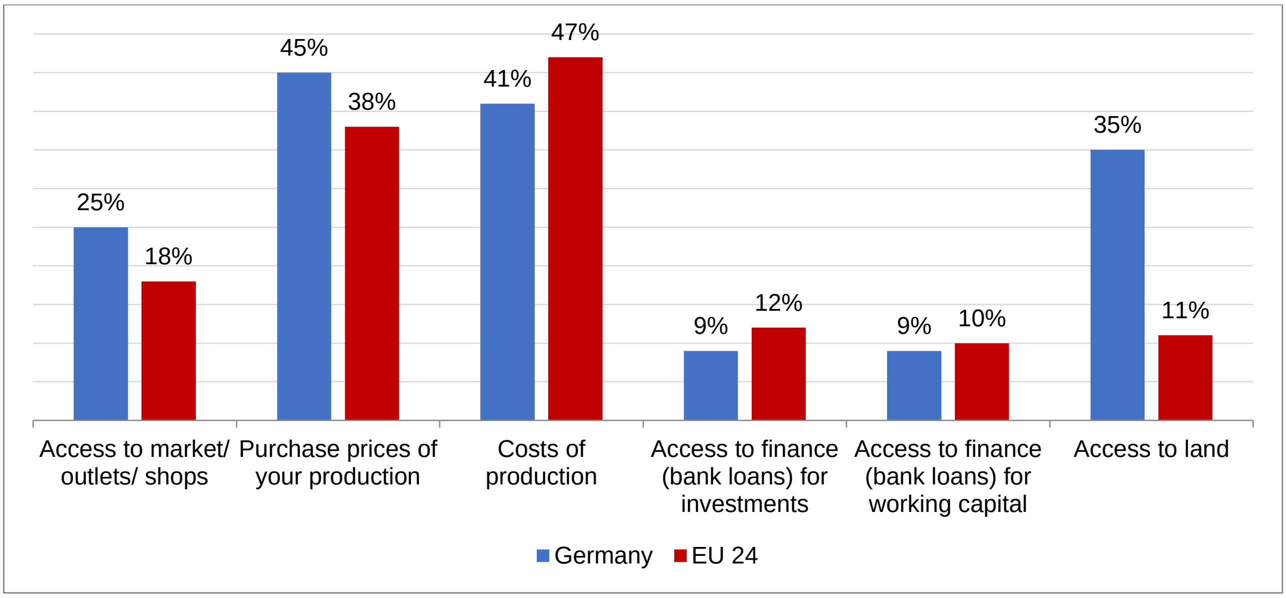
German farmers are struggling with low output prices and high cost of production. According to the *fi - compass* survey, 45% of the farmers (Figure 7) were affected by difficulties related to the purchase prices of their products which is clearly above the EU 24 average (38%) and is an indicator for the highly competitive market for agricultural commodities in Germany. Prices for agricultural output are always subject to a certain volatility, but in some years this impact is felt stronger than in others. In the case of Germany, the performance of the agriculture sector slowed down significantly in 2015/16 due a drop in the prices for milk leading to a crisis in the dairy sector. Germany was affected in particular because of the heavy weight of milk production

44 Bundesministerium für Ernährung und Landwirtschaft: Trockenheit und Dürre 2018-Überblick über Maßnahmen.

in the agricultural output.[45] The country is the main milk producer in the EU 28[46] and dairy products are its key export.[47] The crisis revealed a further need for restructuring and modernisation of the sub-sector.

Production costs were a concern for 41% of the farmers, which is in line with the EU 24 average of 47%. Farmers' representatives mentioned that especially small-sized farmers find it difficult to sustain their production given the increase in expenses for rent of agricultural land and for wages of farm workers.[48]

Figure 7: Difficulties experienced by farmers, 2017



Source: fi-compass survey.

Demand for finance is driven by large-sized farms. According to FADN data, large-sized farms[49] with a standard output (SO)[50] above EUR 500 000 hold 78% of all farm liabilities (Table 1). They have the highest liabilities to asset ratio (37.6%), but the lowest share of short-term liabilities (28.2%) which indicates that they are using external finance mostly for investment purposes. In contrast, small-sized farms with SO below EUR 50 000 have high short-term liabilities (33.7% of total liabilities) which points to liquidity constraints.

45 Milk is responsible for 21.% of the agricultural output (European Commission, 2019, Statistical Factsheet Germany).
46 European Commission, 2018, Agriculture, forestry and fishery statistics.
47 Statistisches Bundesamt, 2018, Jahresbericht für Betriebe im Verarbeitenden Gewerbe.
48 Expenses for rent increased by 33% since 2010 and labour cost by 30% (Eurostat, Economic Accounts for Agriculture).
49 The farm size classification used in this report generally refers to the ha of UAA of the holding, with the distinction in three size classes (below 20ha, between 20 and 100 ha and above 100ha). This is also the classification used in the *fi-compass* survey. The classification used in this paragraph and in Table 1 is instead based on SO classes, due to limitations on data availability based on size.
50 The standard output of an agricultural product (crop or livestock) is the average monetary value of the agricultural output at farm-gate price, in EUR per hectare or per head of livestock.

Table 1: 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 25 000-<50 000	446 021	41 108	13 863	27 245	9.2%	33.7%	37 410
EUR 50 000-100 000	571 357	64 157	20 467	43 690	11.2%	31.9%	43 660
EUR 100 000-500 000	989 396	197 103	55 138	141 965	19.9%	28.0%	89 440
>EUR 500 000	2 816 285	1 058 073	298 169	759 904	37.6%	28.2%	17 080
All farms	950 093	213 452	60 968	152 484	22.5%	28.6%	187 590

Source: FADN, 2019 and authors' calculation.

The sub-sectors with the highest demand for finance are granivores and dairy. In terms of agricultural output, field crops (35%), dairy (21%) and pig farming (13%) are the largest sub-sectors by output[51] and proportionally also the ones with the highest liabilities. Among all farms, those specialised in granivores hold the largest amount of liabilities per farm (EUR 305 000) and also have one of the highest liabilities to assets ratios (28.2%) (Table 2). Investments in this sub-sector are related to farm infrastructure like modernisation of stalls. Considering the current discussion around standards in animal husbandry especially in pig keeping, it is likely that the demand for finance will increase.

Table 2: Assets and liabilities by type of farming in Germany, per farm, 2017/18

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	1 091 861	206 411	64 341	142 070	18.9%	31.2%	44 790
Horticulture	438 833	155 431	57 527	97 904	35.4%	37.0%	6 240
Wine	590 249	87 546	22 496	65 050	14.8%	25.7%	8 060
Other permanent crops	688 424	154 382	27 098	127 284	22.4%	17.6%	3 610
Milk	916 572	211 883	49 546	162 337	23.1%	23.4%	56 450
Other grazing livestock	695 858	145 569	43 547	102 022	20.9%	29.9%	24 130
Granivores	1 081 219	305 272	90 692	214 581	28.2%	29.7%	17 030
Mixed	1 187 531	289 261	92 551	196 710	24.4%	32.0%	27 280
All farms	950 093	213 452	60 968	152 484	22.5%	28.6%	187 590

Source: FADN, 2019 and project calculation.

The agriculture sector in Germany, like in all EU Member States, benefits considerably from CAP support. The agriculture sector in Germany receives CAP support through Pillar I, which is financed entirely by the EU budget and consists (principally) of direct payments and market support, and Pillar II, under the EAFRD, which is co-financed with national resources and consists of a whole catalogue of measures.

51 European Commission, DG AGRI, 2019, Statistical Factsheet for Germany, Field crops includes cereals, forage plants, industrial plants and potatoes.

The national contribution to Pillar II is financed out of the funds of the Joint Task of Federal and State governments for 'Improvement of the agricultural structure and coastal protection' (in German 'GAK').[52] The National Framework Plan is elaborated in conjunction, but the implementation of the GAK is a Task of the German Federal states. The GAK is financed by federal (60%) and state budgets (40%).

In Germany, the federal state governments are in charge of defining agricultural policy priorities. For this reason, the Rural Development Programmes (RDP) under Pillar II are managed on a decentralised basis through 13 RDPs.[53] A national framework defines the common elements. The total RDP budget for Germany for the full 2014-2020 programming period is EUR 16.9 billion. Of this, EUR 9.45 billion is financed by the EAFRD (including the transfer from Pillar I) and the remaining part is co-financed by the federal states (EUR 4.7 billion) and covered by additional national top-ups (EUR 2.7 billion).[54]

Germany is the third largest recipient of direct payments in the EU, and the payments facilitate access to finance. Over the total programme period from 2014-2020, an amount of EUR 34.7 billion has been allocated to direct payments under Pillar I. This amount corresponds to 79% of the total CAP budget of Germany (EUR 44.1 billion).[55] Besides contributing to stabilising farmer's income, direct payments also helps in guaranteeing the repayment capacity of farmers and facilitates access to finance by being accepted as loan security by the banks[56].

Young farmers that take over an agricultural holding are eligible to receive an additional premium on the direct payments for a period of five years (EUR 44 per ha). In 2018, support to young farmers amounted to 1.2% of the direct payments in Germany.

The key funding priority in Germany for Pillar II and the EAFRD is related to restoring, preserving and enhancing ecosystems related to agriculture and forestry, with almost 49% of all funds being earmarked for this purpose. The promotion of the competitiveness of agricultural and forestry enterprises plays a rather subordinate role, with only a 15% share of the budget.[57] For social inclusion and local development in rural areas, 24% of the budget is earmarked.

In 2017, for example, the year of the *fi-compass* survey, Germany received a total of EUR 6.5 billion of CAP support of which EUR 4.8 billion were direct payments. For rural development programmes, EUR 1.4 billion was spent and another EUR 0.2 billion was consumed by market measures.[58]

The budget for investments in farm modernisation is under implementation and its execution has been developing smoothly. By the end of April 2020, 44.1% of the EAFRD budget program in Germany under Measure 4, including the support for agri-food processing and infrastructure related to the modernisation of agriculture and forestry as well as specific non-productive investments, had been executed. This places Germany among the well spending countries under the measure, with a share of 41.4%, which is above the EU 28 average.[59] Moreover, resources planned and made available for German farmers under sub-measure 4.1, amounting to EUR 1.2 billion until the end of 2019, satisfied the demand of those willing to invest with EAFRD and public support (Table 3). Approximately 214 regional grant calls were made, and the stable and high share of approved applications showed the capability of the sector to develop the necessary business plans and required documentation for the granting of the public support.

52 GAK funds are used of co-financing EU funds, but also for further measures related to rural development, innovation or animal welfare. One measure is for example access to broad band internet connection.
53 In the case of Bremen and Berlin they joined together with Lower Saxony and Brandenburg respectively. The city state of Hamburg does not have a rural development plan.
54 Bundesministerium für Landwirtschaft und Ernähurng, 2017, Das kann der ELER.
55 Germany decided to transfer EUR 1.14 billion from Pillar I to Pillar II. To be noted that these transfers could still change depending on the applicable EU law.
56 For example Sächsische Aufbaubank (state development agency of Saxony) accepts direct payments as collateral for the working capital loan (link).
57 Deutscher Bauernverband, Situationsbericht 2018/19.
58 European Commission, DG AGRI, 2019, Statistical Factsheet for Germany.
59 European Commission, Data from Directorate-General for Agriculture and Rural Development.

Table 3: Germany:* Public support and implementation of sub-measure 4.1 in the RDPs, 2014-2019

Sub-measures	Amount requested (EUR million)	Available budget (EUR million)	Amount not supported (EUR million)	Number of Applications received	Number of non-supported Applications	Number of Applications approved
4.1 Support for investments in agricultural holdings **	805.5	1 122.5	n.a.	9 055	1 247	7 808

Source: Ministry of Agriculture, 2020, Preliminary data.

**In Saxony, calls are not divided according to sub-measure – data only available for M4.1 and M4.2 together, introduced under M4.1.*

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.

According to an interview with one of the regional managing authorities, only a minor share of applications are rejected by the MA or withdrawn by the applicant. Usually, applicants are aware of the eligibility criteria or rely on consultants for submitting the application. The rejection of applications may happen due to administrative reasons, a lack of complete documentation, non-eligible applications, or applications being poorly ranked and thus lacking the necessary value-added.

Beneficiaries of sub-measure M 4.1 are micro, small and medium-sized farms which intend to invest in fixed farm assets, machines, facilities and farm buildings as laid out in the National Framework. However, certain purposes are excluded, such as the purchase of land, purchase of agricultural machinery for non-agricultural use, and investments in installation of renewable energy plants.[60] Investment support ranges from EUR 20 000 to a maximum of EUR 3 million. While the basic support rate is 20% of the investment amount, farmers can obtain higher grants if they fulfil certain conditions, such as young farmers who can receive an additional 10% of the investment amount (to a maximum of EUR 20 000) and investments in barns and stalls that respect animal welfare standards (up to 40% grant). Despite the top-up options, the various limitations to the use of investment grants may prevent farmers from applying for support, even if in reality they are investing or need to invest.

Sub-measure 6.1, supporting the start-up of young farmers at the time of their first setting-up, is only programmed in the Saxony-Anhalt region and will not be subject to further discussion in this report.

Currently, there is one EAFRD financial instrument (i.e. a credit fund) available in one of the German regions that supports innovative SMEs in rural areas. The credit fund was initiated by the Ministry of Agriculture of Mecklenburg-West Pomerania as a pilot project. Originally, it focused exclusively on supporting the market launch of innovative products in the agri-food sector by SMEs. However, in 2019 the limitation on the agri-food sector was removed as banks matched the conditions and became ready to cover that risk alongside a worsening economic situation (see next section). While this matching prevented the fund from continuing to spend, it showed a positive spill-over effect by improving an existing sub-optimal investment situation. Therefore, the regional managing authority decided to set a new target group for the fund that included agriculture. The initial fund was equipped with EUR 10 million but this was reduced to EUR 1.5 million in 2019 as a result of the bank's matching of the support conditions. More details on the fund are provided in Section 3.3.1.

Farmers across Germany can apply for agri-guarantees with a counter-guarantee from COSME. In 2015, under the COSME programme, a pilot project was introduced which offered counter-guarantees specifically dedicated for the agriculture sector. Under this initiative, credit guarantees were offered to farmers

60 Some of these investments could be supported under other EAFRD sub-measures, not necessarily sub-measure 4.1.

by 16 federal guarantee institutions (Bürgschaftsbanken) that could transfer part of the risk thanks to the counter-guarantee under COSME.[61] The first phase concluded with positive results and an extension of the programme was approved in March of 2019. More details are found in Section 2.3.1. One of the main objectives of the guarantee funds was to match the investment grant support under the regional RDPs.

Innovation in the farming sector is supported by the German Federal government. The German Federal government holds special purpose reserves at Landwirtschaftliche Rentenbank (Agricultural development bank – Section 2.3.1) which are used for financing innovation in agriculture, forestry, horticulture, fishery and aquaculture. SMEs and research institutes can apply for support for the development of new products and processes. Depending on the size of the enterprise and the project, grants are given between 35-70% of the eligible cost.[62]

Besides this, the Federal Office of Agriculture and Food supports research and development projects in plant breeding, crop protection, livestock breeding, keeping and welfare, food safety and quality, nutrition, food manufacturing, aquaculture, fishery and forestry. All types of enterprises, associations and research institutes can apply. Grant sizes vary depending on type of applicant and research project.[63]

Main findings of the ex-ante assessment for the use of Financial Instruments within the European Agricultural Fund for Rural Development in Mecklenburg-Vorpommern (Germany)[64]

- The ex-ante assessment was carried out with a specific focus on the agri-food sector. Several difficulties in accessing finance for the innovative agri-food companies were identified:
    - Market failure for SMEs seeking finance for launching innovative agri-food products;
    - Insufficient collateral levels;
    - Lack of credit history and corporate history;
    - Uncertainty regarding the success of the project and profitability;
    - Insufficient collateral.
- The initial target group were exclusively start-ups and SMEs from the agri-food industry sector based in Mecklenburg-Vorpommern. In 2019, the target group was enlarged to also include micro, small and medium-sized enterprises in rural areas without limitation on a specific sector. Now, also farmers can apply for loans from the fund.
- The gap between supply and demand was estimated at EUR 2 million annually especially affecting SMEs (expert estimates of the financing needs through finance not granted and rejected loan applications)
- Recommendation: provision of investment and working capital loans for the following loan purposes: personnel and marketing costs, investments and working capital. The loan amounts should not exceed EUR 1 million and the term up to 8 years.

Source: Ex-ante assessment carried out by PwC, 2015.

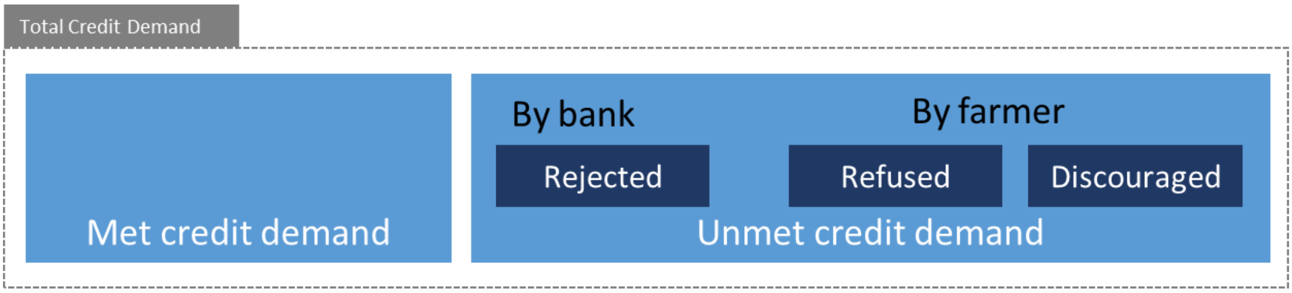
2.2.2 Analysis of the demand for finance

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

61 The SMEs/farmers are involved indirectly, the scheme is implemented through the guarantee banks as intermediaries and house banks as sub-intermediaries.
62 Rentenbank (link) and Federal Office of Agriculture and Food (link).
63 Federal Office of Agriculture and Food (link).
64 PwC, 2015, Ex-ante Bewertung für ein ELER kofinanziertes Finanzinstrument zur Unterstützung der Markteinführung innovativer Produkte von KMU der Ernährungswirtschaft in Mecklenburg-Vorpommern. Document available on the *fi-compass* website: https://www.fi-compass.eu/sites/default/files/publications/Ex-ante-Bewertung-fur-ein-ELER-kofinanziertes-Finanzinstrument-zur-Unterstutzung-der-Markteinfuhrung-innovativer-Produkte-von-KMU-der.pdf

credit refused by farmers, alongside cases where farmers are discouraged from applying for credit due to an expectation of rejection or refusal (Figure 8).

Figure 8: Schematic overview of the demand side of agriculture sector



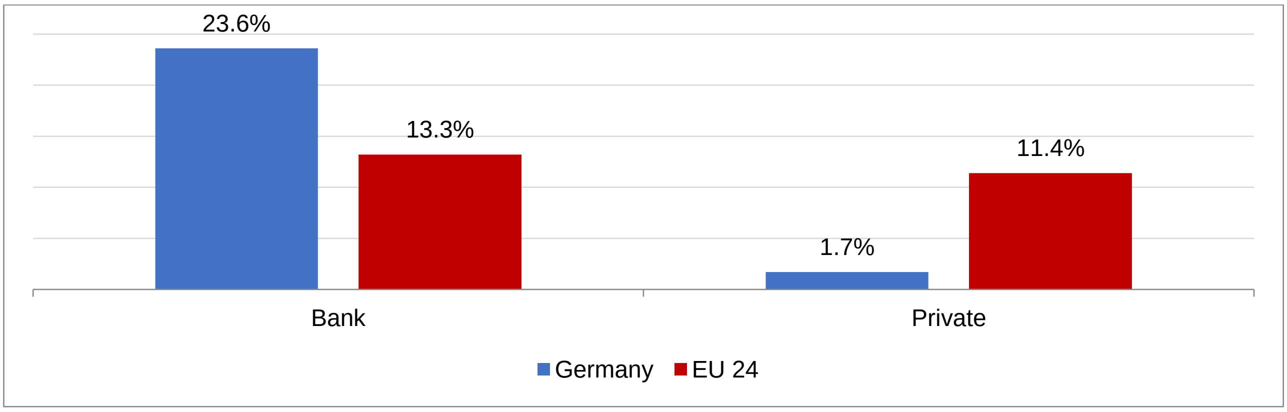
Source: Ecorys, 2019.

Based on the results of the *fi-compass* survey, the unmet demand for the agriculture sector in Germany is estimated at EUR 1.9 billion.

Almost a third of all farmers applied for finance in Germany in 2017, slightly more than for the EU 24 average (31% versus 29.6%).

German farmers rely mostly on banks for finance. In the *fi-compass* survey, 23.6% of German farmers interviewed stated that they used bank finance which is significantly more than the EU 24 average (13.2%). Private sources, such as financing from private individuals, played a negligible role (1.7% used only this source, versus 11.4% in EU) (Figure 9). This finding of the *fi-compass* survey points to the fact that the lending environment in Germany is favourable at the moment. This can be explained by the depth and outreach of the German banking sector combined with the favourable lending conditions, including generally low interest rates, and the overall high financial literacy which makes it more attractive to turn to external financing sources.

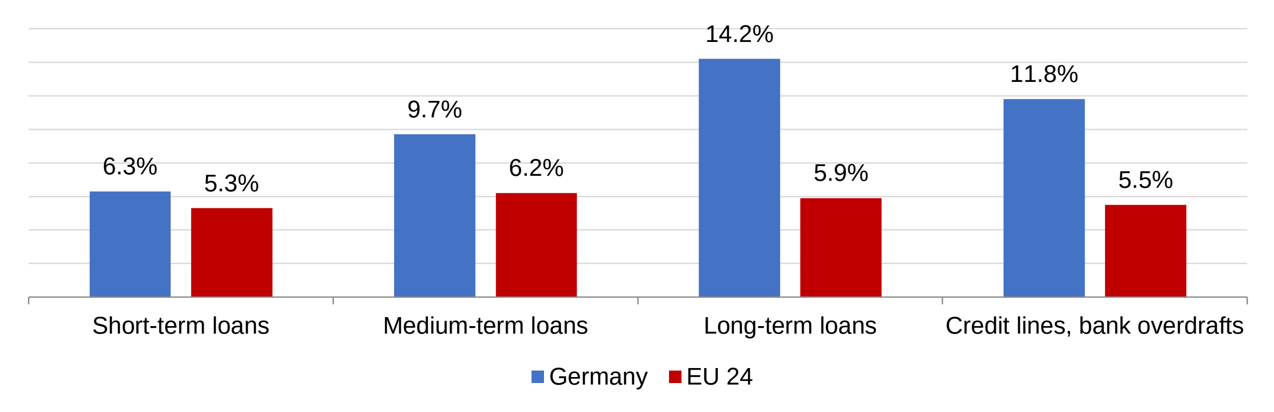
Figure 9: Percentage of farms applying for finance in 2017



Source: fi-compass survey.

Long-term loans as well as credit lines and bank overdrafts were the most sought-after products. Of the farmers who applied for finance in 2017, the highest share (14.2%) applied for loans with a duration longer than 5 years (Figure 10). This is significantly more than the EU 24 average of 5.9%. Credit lines and bank overdrafts were more popular among German farmers (11.8%) than among their EU 24 peers (5.5%). These accounts are the first choice for managing short-term liquidity. Interviewed banks, however could not confirm the number of applications for short-term loans (6.3%) and it is likely that respondents in the survey actually referred to credit lines.

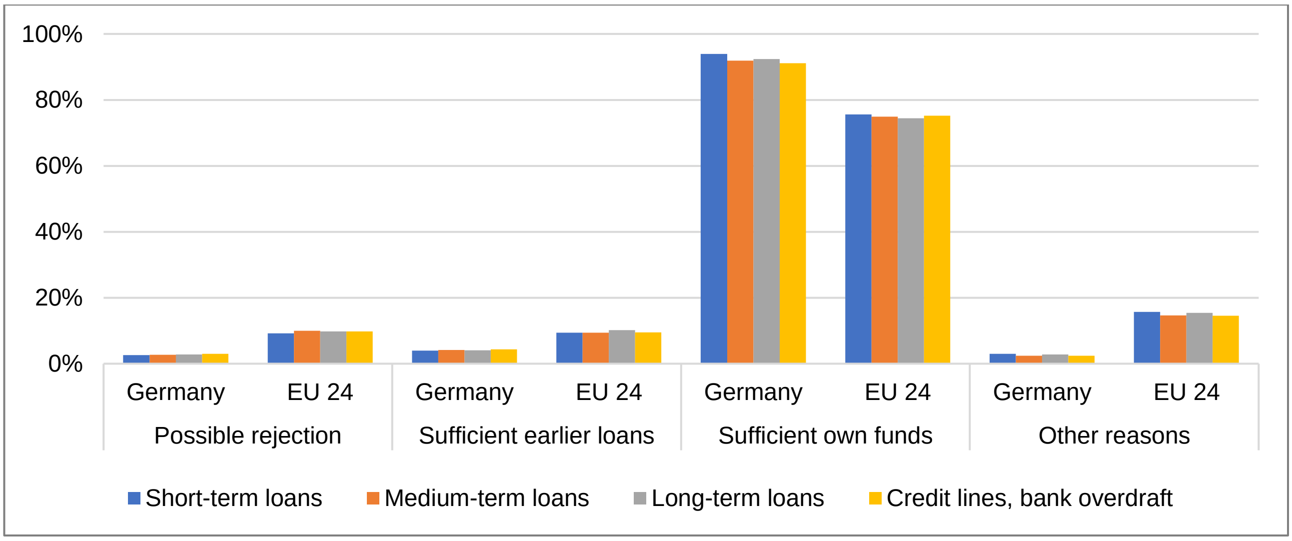
Figure 10: Farms applying for finance in 2017, by financial product



Source: fi-compass survey.

The key reason for not applying for a loan in 2017 for German farmers was the availability of sufficient own resources. Across all loan products, almost all farmers that did not apply for a loan (91-94%) stated that they used their own funds for investments and working capital, and therefore did not need to apply for a bank loan. This figure is clearly above the EU 24 average (74-75%) (Figure 11). According to the German Farmers' Association, many farmers had suffered losses in 2015/16 and even after they had recovered from the impacts of the crisis, the overall tendency was to build up equity and to consolidate their economic situation. Only very investment-active farm businesses made use of external finance in the financial years 2015/16 to 2017/18.[65] The Deutsche Kreditbank shared this observation and stated that after a period of weak producer prices in 2017, farmers were able to sell profitably and create liquidity reserves. Nevertheless, they preferred to withhold investments in their businesses.[66]

Figure 11: Reasons for not applying for loans in the agriculture sector, 2017



Source: fi-compass survey.

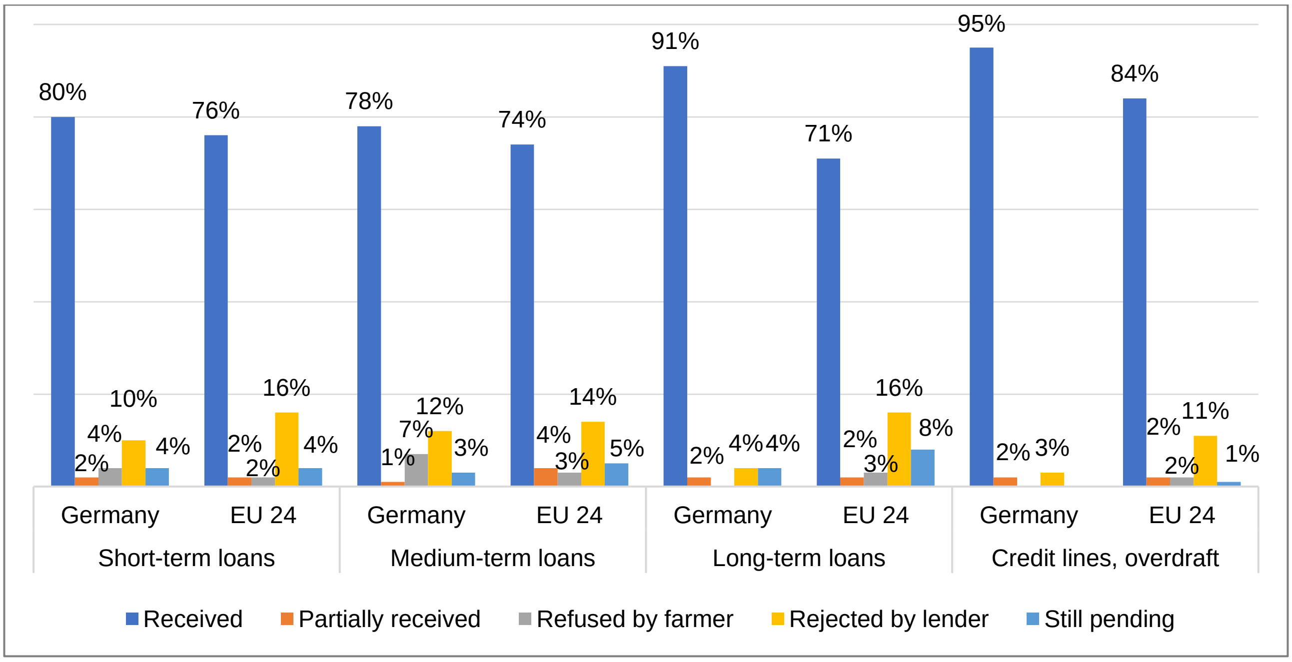
The share of discouraged farmers was significantly lower in Germany than in the EU 24. Only around 3% of the respondents reported that a possible rejection was a reason for them not to apply, compared with 10% for the EU 24. This suggests that German farmers are more confident in approaching banks for finance which results from the fact that loan conditions are rather favourable and farmers usually maintain good and

65 Deutscher Bauernverband, Situationsbericht 2018/19. Investments above EUR 10 000.
66 DKB, 2017, Annual Report.

long-term relationships with their preferred local cooperative or savings bank. On the other hand, farmers are not afraid to apply for loans at more than one bank if they need finance as the results from the *fi-compass* survey show (see further down in this section).[67]

A high share of loan applications of German farmers was approved. The highest rejection rates were found for short and medium-term loans. In general, the approval rate for loan applications for all products is higher in Germany than in the EU 24. In particular, long-term loan and credit line / bank overdraft applications are successful with an approval rate of 91% and 95%, respectively (Figure 12). Rejection rates were approximately 3% for both products. These were also the most sought-after bank products. Short and medium-term loan applications suffered more rejections than the other loans (10% and 12%), but these were still below the EU 24 average (16% and 14% respectively). Interviewees from financial institutions could not confirm the high share of rejections of short-term loans, but they agreed to the overall high approval rates. Banks interviewed for the purpose of the report did not perceive the agriculture sector as particularly risky and felt well equipped for dealing with farmers. Farmers and representatives of the farmers' association that were interviewed shared the impression that banks do not refrain from dealing with the agriculture sector as such. However, they emphasised that each individual situation is assessed carefully.

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



Source: fi-compass survey.

The share of German farmers refusing loan offers was higher for short and medium-term loans. In general, the share of loans that were refused by the farmers in Germany is low. All loan offers of long-term loans and credit lines/ overdraft were accepted by the farmers (Figure 12). For short-term loans the refusal rate was 4% and for medium-term loans 7%, which in both cases is above the EU 24 average (2% and 3% respectively). A large share of German farmers tends to approach more than one bank. In the case of medium-term loans, 43% of the farmers applied to more than one bank (34% in EU 24) while this figure reached 41% for long-term applications (39% in EU 24).[68] Farmers were more satisfied with the offer of the first bank in the cases for short-term loans and credit lines where only 25% and 11% respectively, approached more than one bank. Both results were below the EU 24 average (35% and 28%). The overall tendency to apply at more than one financial institution, although to a different degree depending on the product, shows that farmers are not

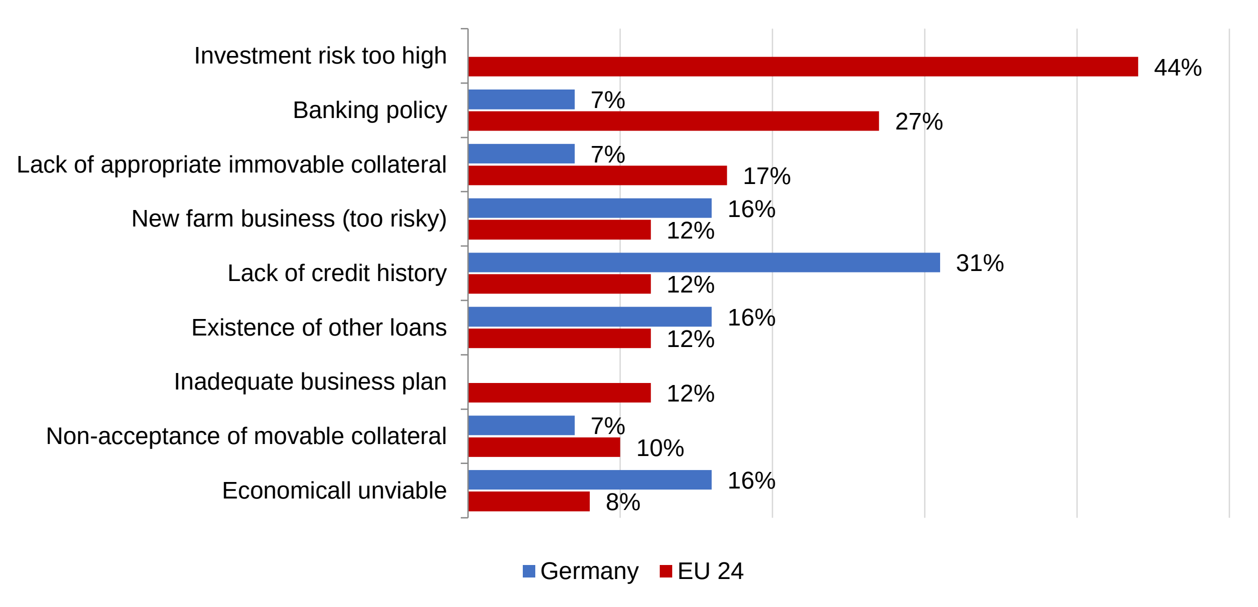
67 *fi-compass* survey, 2019, Survey on financial needs and access to finance of EU agricultural enterprises, Q8. Did you try to apply to more than one bank for the same project?, https://www.fi-compass.eu/publication/brochures/survey-financial-needs-and-access-finance-eu-agricultural-enterprises.

68 Ibid.

always offered favourable loan conditions at the first bank. Because of the high competition in the bank sector it seems worthwhile to approach more than one bank and compare loan offers.

The lack of credit history is the main reason why farmers' loan applications are rejected by the banks. In 31% of the cases banks said that a lack of credit history was the reason why loans were rejected (Figure 13), compared to only 12% for the EU 24 on average. New farm businesses were found to be too risky to finance for 16% of the applications.

Figure 13: Reasons for banks to reject farmers' loan applications, 2017



Source: fi-compass survey.

Existence of other loans was also a reason for rejection. According to information shared by financial institutions, it is common that farmers receive several loans with different maturities and for different purposes within one year. Although many farmers are able to serve more than one loan at a time, there are other parameters which influence the loan decision. If a farmer already has outstanding liabilities with a financial institution, this bank has a priority claim over collateral and guarantees which often comprises the whole farm including buildings of all purposes. Taking an additional loan from another lender under those circumstances becomes difficult.

In Germany twice as many applications as the EU 24 average were rejected for being economically unviable. The German Farmer association observed that 45% of the full-time farmers[69] in the last three financial years showed negative net investments. Low financial results do not allow for the building up of equity and finally result in a reduction of total assets. Weather and price fluctuations affect profit margins, which impacts on the repayment possibilities and may lead to banks' rejections. Interviews with financial institutions revealed that many farmers depend on subsidies to maintain their farming activity and are economically unviable without this support.

Lack of collateral is of less importance than in the EU 24, but it affects particular groups of farmers. According to the *fi-compass* survey, lack of appropriate movable and immovable collateral was a rather minor issue in Germany (Figure 13). However, despite the consolidation of farms and the trend towards larger, more professionally managed farm enterprises, the majority of German farms is still small-sized with less than 20 ha. Interviews pointed to the fact that these small-sized and often family-run farms find it difficult to provide sufficient collateral, especially if they are located in structurally weak regions where the prices of real estate are declining.

69 Deutscher Bauernverband, 2019, Situationsbericht 2018/19.

Lack of managerial overview and business planning were stated as further reasons for rejection by interview partners. According to their experience, farmers often lack knowledge of the overall financial performance of the farm because they do not fully control the income streams of the diverse farm activities. Previously, agri-lending was collateral-based and the focus was on determining the mortgage value of agricultural land and buildings. However, the disparity between investment amounts, driven by the structural change towards a capital-intensive agriculture, has increased the value of the collateral. As a result, banks had to shift to a loan appraisal based on the cash flows of the whole farm enterprise.[70] This creates challenges for the bank and for the client because many parameters have to be considered including fluctuating producer prices and input costs, regulations and legal requirements, both at the EU and national/federal levels, agricultural policy, and climate change. Farmers are required to present investment and business plans and they need to develop skills in the areas of management, financial control and human resources. In parallel, banks need to improve their knowledge of the sector.

During interviews, farmers' representatives shared the impression that banks were in general not reluctant to lend to the agriculture sector, but that they found it difficult to appraise the income situation of the farmers. The major screening criteria seemed to be the availability of official accounting records of all farm income so that the bank staff could calculate the overall repayment capacity.

The offer for advice and training opportunities is already well developed in Germany. There is a whole array of organisations and associations related to the agriculture sector which also offer capacity building and technical support. As mentioned in the context of the RDPs, agricultural policy is under the domain of federal state governments. Therefore, not only the priorities of agricultural policy might vary, but also the type of subsidies (financed from state budget) and technical support offered to farmers. In the northern and western part of Germany, Chambers of Agriculture are in charge, while in the southern and eastern states this task is under the responsibility of the state Departments of Agriculture. In addition, federal state development agencies provide finance and advisory services (Section 3.3.1) and vocational colleges offer education and training for farmers including certified courses. For example, in Baden-Wurttemberg, the Ministry of Agriculture has a roster of approved training providers which offer training and advisory services on a list of agricultural topics. The Ministry supports these providers by assuming between 50-100% of the cost.[71]

Young farmers and new entrants experience more difficulties in accessing finance than established farmers, but interviewees take contrasting views. Financial institutions did not perceive that new entrants face particular challenges when applying for a loan. Contrary to this, farm union interviewees mentioned that new farmers are in a less favourable position to obtain a loan because they do not possess enough collateral and equity. In particular, high prices for agricultural land create an entrance barrier to the agriculture sector, because it is difficult to finance this high up-front investment in a reasonable timeframe given the fluctuation of the agricultural income. The *fi-compass* survey results also seem to indicate that new entrants and young farmers are particularly disfavoured, as they tend to lack credit history and as their business is considered riskier than already established businesses (Figure 13). The case is different for young farmers that inherit the farm holding from their parents. Since succession is a problem in Germany, some new entrants are able to set up hire-purchase arrangements with elderly farmers to take over the farm holding and thus also become eligible for loan applications.

Also older farmers may face constraints in accessing finance. Interviewees from banks added that many older farmers lack succession plans and that banks tend to turn down loan applications for this reason. This affects in particular farmers older than 50 years old which make up a significant share of the German farmer population.[72] In this case, age in itself is a reason for rejection because banks cannot expect repayment from a farmer near retirement.

70 Hein, Gerald (DKB), Auf der Suche nach der ‚richtigen' Bank, in Hofnachfolge und Existenzgründung, dlz Agrarmagazin.

71 Agrarpolitik & Förderung, 2019, Beratung landwirtschaftlicher Betriebe, https://foerderung.landwirtschaft-bw.de/pb/,Lde/Startseite/Foerderwegweiser/Beratung+landwirtschaftlicher+Betriebe.

72 Section 2.2.1.

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 Germany 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 agricultural producers. Potential differences in the availability of financial products across different types of agricultural producers are reviewed and analysed.

Key elements of the supply of finance to the German agriculture sector

- The agricultural lending market is dominated by cooperative banks (50% market share), followed by savings banks (23%) and commercial banks (11%).
- The total agricultural outstanding loan portfolio was EUR 53.2 billion at the end of 2018.
- Total lending to the German agriculture sector has increased by 32% between 2010 and 2018.
- A variety of loans are available to address capital investments and working capital needs. However, lending to the agriculture sector is mostly long-term in nature.
- In Germany, the public financial tool kit for agricultural firms and rural development is rich, complex and over-lapping with instruments from other sectors.
- Several development agencies offer support programmes to the agriculture sector, both on a country-wide and on the federal state level. The key player among them is Landwirtschaftliche Rentenbank.
- Overall, the sector benefits from a diversified and highly competitive financial market.

2.3.1 Description of finance environment and funding availability

2.3.1.1 Finance providers

The German financial sector is currently characterised by strong competition, low interest rates and easy access to finance, which makes lending conditions for farmers, favourable**.** Currently, the traditionally highly fragmented banking sector is in a phase of consolidation. Nevertheless, there are still 1 783 banks with almost 28 000 branches in Germany.[73] The large number of finance providers helps understand why competition in the German banking sector is so high. This is also reflected in the relatively low return on equity (ROE) earned by commercial banks (2.4% compared to the EU 28 average of 6.1% in 2018).[74]

The German banking system distinguishes between commercial banks, savings banks and cooperatives banks. Together they account for 78% of the total assets of the banking system (Table 4). In addition, there are specialised financial institutions which can be either public or private which make up 16% of the total assets.

73 Deutsche Bundesbank, 2019, Bankstellenentwicklung im Jahr 2018. Figures as of end of 2018.
74 EBF, 2019, Facts and figures, Banking in Europe 2019, https://www.ebf.eu/facts-and-figures/banking-sector-performance/.

Table 4: Main types of finance providers for farmers in Germany, end of 2018

Type of finance providers	Assets in EUR billion	Share of total assets of banking system
Commercial banks	3 139	40%
Savings banks including regional head banking institutions	2 050	26%
Cooperative banks	934	12%
Specialised financial institutions	1 237	16%

Source: Deutsche Bundesbank, Monatsbericht Februar 2019.

All types of banks offer financial products for farmers, but traditionally agricultural lending has been the domain of cooperative banks. Cooperative banks are rooted in the regions[75] where they were founded and have been enjoying close links to their client base. Many of them emerged from farmer and small business associations. Just as savings banks, cooperatives are non-profit oriented and can rely on an exceptionally cheap refinance mainly from deposits. In 2015, they had a share of 50% of the agricultural lending market, followed by savings banks (23%), and commercial banks with a share of 11%.[76]

Only few commercial banks target farmers. Among them are Deutsche Kreditbank (DKB) which focuses its activities on large-sized farm holdings in East Germany, and several smaller commercial banks, such as AKF Bank and Gefa Bank. In 2017, DKB had 8 600 active farmer clients and an outstanding agricultural loan portfolio of EUR 3.4 billion.[77]

Landwirtschaftliche Rentenbank ('Rentenbank') is the public development bank of the agricultural and agri-food sectors. The bank was founded in 1949 as a public development bank in order to refinance lending and provide guarantees to the agricultural and agri-food sectors, and to support rural development. With total assets of EUR 90.2 billion (2018) it belongs to the fifteen largest banks[78] in Germany. The cost-income ratio of 30.5% and a ROA[79] 0.7%[80] is proof that the bank is non-profit oriented and has relatively small operations. Rentenbank offers its loan products through the network of savings, cooperative and commercial banks and limits itself to establishing the eligibility criteria for the specific products. The creditworthiness has to be analysed by the retail bank which also bears the credit risk of the borrower. Since it is a public development bank, it is counter-guaranteed by the federal government and thus can access cheap refinance and offer attractive loan conditions.

Each federal state has its own development agency which provides finance to farmers. In total, there are 16 federal state development banks, 17 guarantee banks and 15 private equity funds. Some of the agencies, for example the LfA Förderbank Bayern in the Bavaria region, can be quite large with total assets of EUR 21 billion in 2018.[81] While loans and guarantees are available for farmers, currently there is no private equity program for the agriculture sector in place due to a lack of demand.[82]

Leasing is also available for farmers, mainly through captive leasing companies of agricultural equipment manufacturers. In 2018, the new business in the German leasing market amounted to almost

75 Overview of cooperative banks, 2018, https://www.bvr.de/p.nsf/0/D3E488DF22571CECC1257D0A005439B7/$file/Liste_AlleBanken_2018.pdf.
76 Deutsche Bank Research, September 2015, German bank lending: Market share developments in individual sectors.
77 DKB, Annual Report 2017.
78 WELT, 2019, Nur eine deutsche Bank knackt die Billionen- Grenze, https://www.welt.de/finanzen/article197318385/Banken-Das-sind-die-50-groessten-Geldhaeuser-in-Deutschland.html.
79 Return on Assets.
80 Rentenbank, 2019, Facts and Figures, https://www.rentenbank.de/en/about-us/rentenbank/facts-and-figures/.
81 WELT, 2019, Nur eine deutsche Bank knackt die Billionen- Grenze, https://www.welt.de/finanzen/article197318385/Banken-Das-sind-die-50-groessten-Geldhaeuser-in-Deutschland.html
82 Information provided by the Association of Guarantee Banks which is the joint representation of public guarantee banks and private equity funds.

EUR 70 billion.[83] The total primary sector, which includes also agriculture, holds a share of 4% in the total leasing market in Germany or EUR 2.8 billion[84]. Around 300 leasing companies are registered in Germany.[85] Most of the leasing providers (59%) are attached to manufacturers of machines, equipment or vehicles. The remaining part is linked to banks (32%) or are independent providers (9%)[86]. According to a leasing expert, agricultural leasing is more common in the Northern part of Germany and tends to be utilised by large-sized farms.

2.3.1.2 Financial products

Private banks, savings banks and cooperative banks offer a variety of financial products. These include short, medium and long-term investments loans, as well as credit lines and overdrafts for working capital needs. In general, large-sized farms who apply for higher loan amounts are provided with more flexible terms, like for example grace periods and additional service such as money market access and foreign exchange. Banks that refinance loans from their own funds tend to charge interest rates of 2-3% p.a. (for good ratings), while overdrafts cost between 5% and 9.5% depending on the loan size and rating result,[87] which is in line with the *fi-compass* survey results of 8%.

The overall low interest rates in the German banking sector also apply to agricultural loans. A large share of agricultural loans are refinanced by the Rentenbank which offers promotional loans for agriculture, forestry, aquaculture, agribusiness and renewable energies. In principle, the loan products are available for all kinds of enterprises in these sectors, but only SMEs among them are eligible to receive subsidised interest rates.

For farmers, four different loan products are available which are displayed in Table 5. Rentenbank finances up to 100% of the eligible cost and a maximum amount of EUR 10 million. All loan products are available as annuity or instalment loans with loan tenors from 4 to 30 years. Currently, Rentenbank does not offer interest rate subsidies due to the overall low interest rate level. Instead, they offer a grant in the form of a certain percentage of the approved loan amount which is paid out once the loan is disbursed through the applicant´s bank. Young famers can apply for 'top' conditions which consist of a subsidy of a grant of a higher percentage of the approved loan amount.[88] Interviewees appreciated the products and services of Rentenbank, but found that more marketing would be needed to increase the outreach. The additional administrative effort of an application for a preferential loan was considered as moderate from the side of the retail banks. From the farmer perspective the additional documentation requirements were sometimes confusing.

83 Bundesverband Deutscher Leasingunternehmen, Marktbericht 2018.

84 Ibid. There are no figures only for agriculture available. The primary sector also includes mining, energy and water sector.

85 Bundesanstalt für Finanzdienstleistungsaufsicht (Bafin), https://www.bafin.de/SharedDocs/Downloads/DE/Liste/Unternehmensdaten bank/dl_li_fidi_leas_fac.html.

86 Bundesverband Deutscher Leasingunternehmen, die Mitglieder.

87 Information was collected during interviews with banks.

88 As per product conditions from 08.01.2020 the grant amounts to 1% for 'basis' clients and 1.5% for 'top' clients (link).

Table 5: Overview of Rentenbank loan products for German farmers

Loan product	Product criteria
'Wachstum' (Growth)	• For investments in buildings, machinery, permanent cultures • Excluded (selection): purchase of land, company take over, cultivation of energy crops, cultivation of annual crops, irrigation
'Erwerbssicherung' – (Securing income)	• Eligible costs: purchase of land, company take over, working capital, animals, specific costs related to farm succession
'Nachhaltigkeit' (Sustainability)	• Eligible cost: energy efficiency, reduction of emissions, joint purchase of machinery, organic agriculture, animal welfare, direct marketing of agricultural products • Excluded (selection): purchase of land, company take over, cultivation of energy crops, cultivation of annual crops, irrigation
'Liquiditätssicherung' (Securing liquidity)	• Agricultural enterprises which suffered minimum 30% income losses due to drought and weather induced disasters • Instalment loans with maturity of 4.6 or 10 years, quarterly repayments, 1 year grace period

Sources: Rentenbank, 2019.

There is one EAFRD financial instrument[89] available in Germany. The EAFRD credit fund in Mecklenburg-West Pomerania was initially set up to support the market launch of innovative businesses from the agri-food sector. After the banks matched the conditions offered by the Fund, with which a positive impact on the market was achieved, the managing authority enlarged its scope to include agriculture and rural SMEs. For more details see section 3.3.1.2.

German farmers benefit from the COSME Agri Guarantee Facility. In Germany, various intermediaries benefited from COSME involving both direct guarantee structures (KfW, LfA) and counter-guarantees (Bürgschaftsbanken). The latter had a specific agriculture focus.[90] Within this context, German guarantee funds have started to offer agri-guarantees since 2015 with the major aim to match the EAFRD grant investment financing under the regional RDPs. The facility aims to support agriculture, agri-food, forestry and rural businesses. It also supports the 'creation and development of non-agricultural activities in rural areas and forestry technologies'. Furthermore, the target group comprises explicitly of start-ups, company successors and existing SMEs in the mentioned sectors.[91] During the first phase from October 2015 to March 2019, guarantees worth more than EUR 40 million were made available for the guarantee institutions. In the first phase, 16 federal guarantee institutions (Bürgschaftsbanken) benefiting from the COSME counter-guarantee, acted in cooperation with Rentenbank, which would provide on-lending to banks to be disbursed to SMEs. The programme has been extended until 2022 with additional funds of EUR 60 million, totalling EUR 100 million, being made available to guarantee institutions. A limitation in the first phase was the mandatory link of the guarantee to a refinancing by the Rentenbank. In the second phase of the programme, this limitation was removed and this allows financial institutions to act with more flexibility.[92] The banks involved welcomed the initiative, but also recognised that the guarantee is not sufficient to serve a larger market. As of 31 December 2019, 200 agricultural enterprises had benefitted from the facility with a total financing amount equal to EUR 85 million.

89 *fi-compass*, 2018, Food and agricultural loan fund 2014-2020 - Mecklenburg-Vorpommern, Germany, Case study https://www.fi-compass.eu/publication/case-studies/case-study-food-and-agricultural-loan-fund-2014-2020.

90 The counter-guarantee rate is 50% and the average guarantee rate on transaction level used by the guarantee banks is 60%.

91 Bürgschaftsbank, 2019, Agrar-Bürgschaft, https://www.buergschaftsbank.de/buergschaftsbank-baden-wuerttemberg/fuer-kreditinstitute/programme/detailansicht/item/39-agrar-buergschaft.

92 Agrar-Bürgschaft, 2019, Weitere 60 millionen euro für Agrar-Betriebe, https://www.agrar-buergschaft.de/de/budget-fuer-agrar-buergschaft-aufgestockt.

2.3.1.3 Description of the Financing Market

The agriculture sector benefits from attractive lending conditions and a broad offer of financial products. The current environment of low interest rates and excess liquidity in the banking sector leads to a broader offer of financial products to the agriculture sector. Financial institutions are willing to assume higher risks which results in an increase of financial products for farmers from the public as well as private sector. Public financial institutions do not limit themselves to channel loans through the retail banks but also offer loans which farmers can apply for directly.[93] On the other hand, private sector banks use their own funds to refinance loans to farmers besides public support schemes.

Collateral requirements are not an obstacle for established German farmers. In the *fi-compass* survey, 97% of the farmers stated that they had provided personal collateral to secure their loan. The collateral coverage ratio experienced by the participants of the survey is more favourable for the German farmers than for their EU peers. In Germany, almost all loans (95%) were disbursed with a collateral coverage ratio below 100% compared to 61% in the EU 28 average. Usually, farm property is used as collateral, which includes in the first line land, buildings (also private), vehicles and machinery. Many farmers in Germany have invested in renewable energies and those installations are also used as collateral as well as the assignment of income from feed-in of the generated energy into the grid.[94] Besides this, a claim on the direct EU payments is accepted for securing a loan. Nevertheless, as discussed in the demand section, providing sufficient collateral can be a challenge for small-sized farms and new entrants.

The level of debt of the agriculture sector varies across Germany. The federal states with the largest share of agricultural loans are Lower Saxony (23%), North Rhine-Westphalia (21%) and Bavaria (17%) as shown in Table 6. These states are also the ones with the highest number of farms and the highest agricultural output. Although the East German states have experienced strong growth rates over the last decade, the level of agriculture sector debt is still lower than their share in terms of area or farm population. For example, in Saxony, Brandenburg and Saxony-Anhalt, agricultural lending made up less than 3% of the total lending in 2018.

93 See for example Sächsische Aufbaubank (link).
94 Rentenbank, Finanzierungsleitfaden.

Table 6: Breakdown of number of farms, agricultural output and outstanding loan portfolio by federal state (excluding city states of Berlin, Hamburg and Bremen)

Federal State	number of farms (2016)		Agricultural output (2017)		outstanding agricultural loans (2018)	
	number	share (%)	EUR million	share (%)	EUR billion	share (%)
Baden Wurttemberg	40 366	14.9%	4 610	8%	9.2	18%
Bavaria	89 506	33.1%	10 642	19%	5.0	10%
Brandenburg	5 212	1.9%	2 462	4%	1.3	3%
Hesse	16 213	6.0%	1 825	3%	2.1	4%
Mecklenburg-West Pomerania	4 794	1.8%	2 539	5%	1.5	3%
Lower Saxony	36 991	13.7%	12 367	22%	12.3	24%
North-Rhine Westphalia	32 034	11.8%	7 804	14%	11.2	22%
Rhineland- Palatinate	17 447	6.5%	2 919	5%	1.8	3%
Saarland	1 212	0.4%	126	0%	0.1	0.3%
Saxony	6 343	2.3%	2 230	4%	1.1	2%
Saxony-Anhalt	4 213	1.6%	2 574	5%	1.3	2%
Schleswig-Holstein	12 603	4.7%	3 435	6%	4.0	8%
Thuringia	3 530	1.3%	1 634	3%	0.8	2%
Total	270 464	100%	55 165	100%	51.6	100%

Source: Statistisches Bundesamt, Bundesbank, Eurostat, 2019.

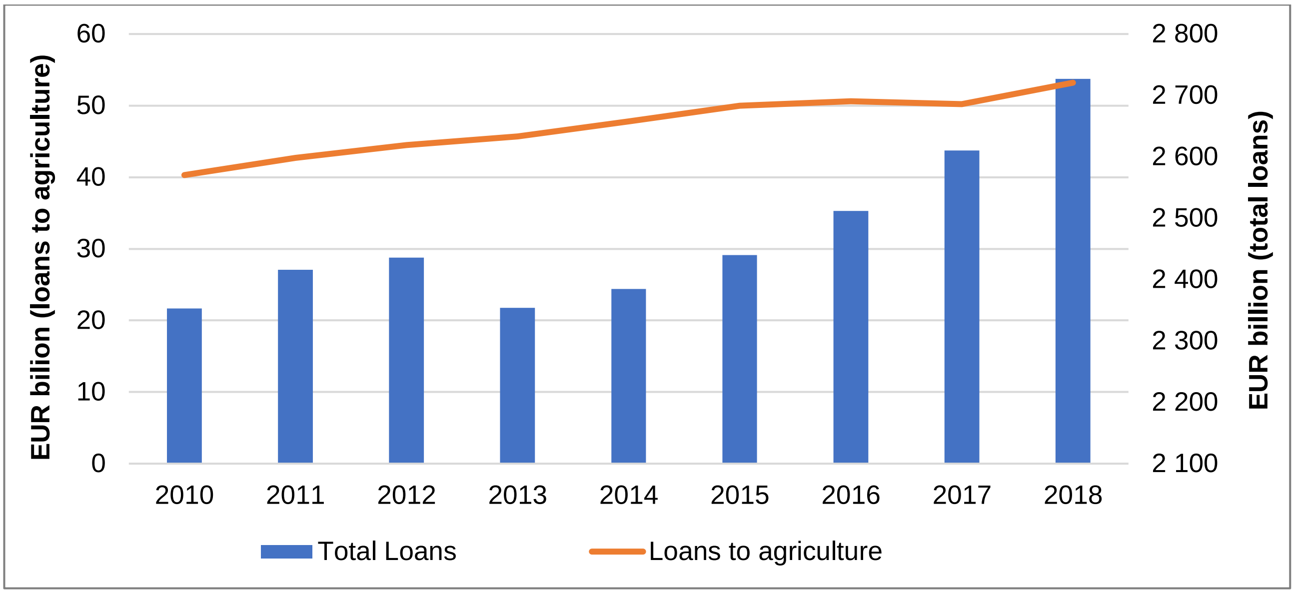
Despite these differences, all regions in Germany are well covered by the banks and there are no disadvantages in terms of access to finance. The 27 000 bank branches that exist in Germany (2018), are distributed across all regions. Although there are concentrations of banks in commercial and industrial hubs, each region has at least a savings bank and a cooperative bank. Since those are in charge of channelling the funds of state development agencies like Rentenbank, all farmers have access to those financial instruments. Besides this, commercial banks are particularly active in regions with larger and usually more professionally managed farms, such as the Deutsche Kredit Bank which is focusing on the farm estates in the New federal states.[95]

2.3.2 Analysis of the supply of finance

Total lending to the German agriculture sector has been increasing continuously (Figure 14). By the end of 2018, the Bundesbank reported total outstanding loans to the sector of EUR 53.2 billion. This constitutes an increase by 32% compared to 2010 and is above the growth rate of 13% in lending to enterprises in all sectors.

95 Saxony, Thuringia, Mecklenburg-Vorpommern, Saxony-Anhalt, Brandenburg.

Figure 14: Outstanding loans to agriculture and to all domestic enterprises, Germany (end of 2017)



Source: Deutsche Bundesbank, 2019.

The only financial institution that publishes annual lending figures to the agriculture sector is Rentenbank. According to this, in 2018 new loans worth EUR 2.1 billion were disbursed to farmers of which EUR 952 million were under the 'top' lending scheme benefitting from a grant representing a higher percentage of the total loan (see section 2.3.1.2). Compared to the previous year (EUR 2.2 billion) this constitutes a slight decline in demand.[96]

Table 7: Rentenbank promotional loans (new loans)

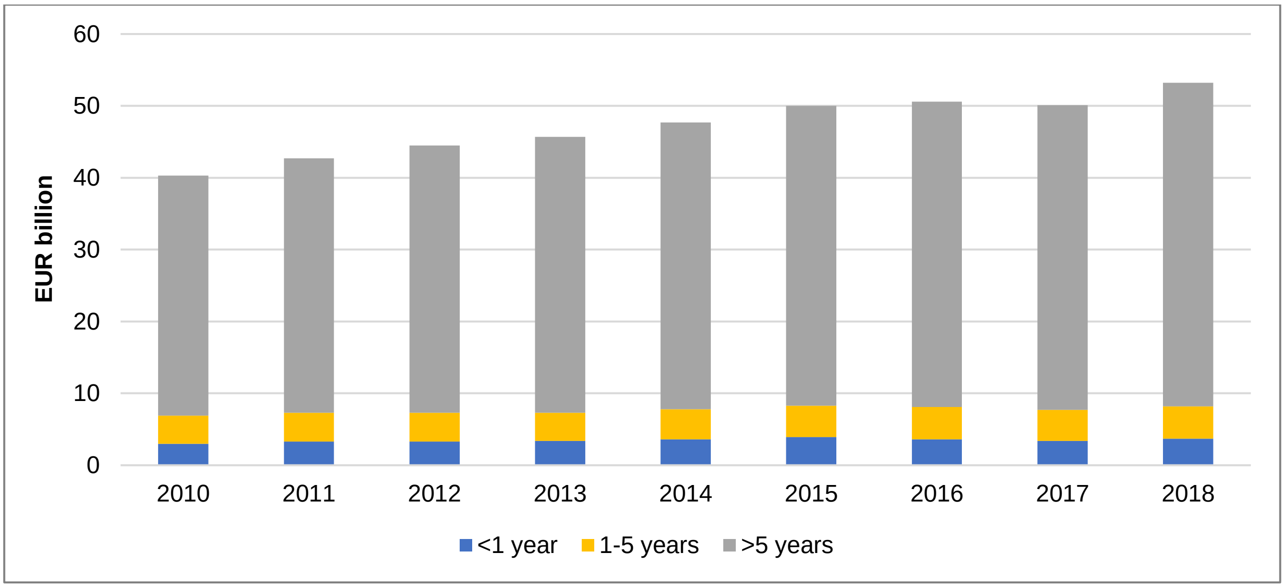
	2016		2017		2018	
	EUR million	**Share (%)**	**EUR million**	**share (%)**	**EUR million**	**share (%)**
Agriculture	2 383	31%	2 211	30%	2 117	32%
Aquaculture	3	0.04%	15	0.2%	10	0%
Agri-business	954	12%	1 054	14%	1 173	18%
Renewable Energies	1 914	25%	2 358	32%	1 425	21%
Rural development	2 433	32%	1 797	24%	1 969	29%
Total	7 687	100%	7 435	100%	6 694	100%

Source: Rentenbank, 2019.

Lending to the German agriculture sector is of long-term nature. Long-term loans with an initial term above 5 years made up 85% of the outstanding loan amount (Figure 15) in 2018. While the total loan volume grew, the composition by maturity has remained fairly constant since 2010. This confirms the findings from the *fi-compass* survey.[97]

96 Rentenbank, 2019, Annual Reports 2017 and 2018.
97 Given the fact that the average loan term is 10 years and that most loans have annuity repayments, a simulation of their 'ageing' can be done. It shows that the 85% portfolio share of long-term loans corresponds to a 55% share in new lending business. Assumptions: 4% portfolio growth p.a., 3% nominal interest rate, average loan term for long-term loans is 10 years.

Figure 15: Lending to the German agriculture sector by maturity of the loan (outstanding portfolio)



Source: Deutsche Bundesbank, 2019.

In 2018, the average loan amount to German agricultural enterprises was EUR 166 000. According to information from Rentenbank, farmers received loans for their agricultural activity with an average amount of EUR 166 000. This is slightly above the findings from the *fi-compass* survey where the highest average loan amount was EUR 145 000 for medium-term loans. In the case of non-agricultural investments (e.g. renewable energy) the average loan amount was EUR 525 000 in 2018.[98]

98 Interview with Rentenbank.

2.4 Financing gap in the agriculture sector

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

Key elements of the financing gap in the German agriculture sector
• The total financing gap for German agriculture is estimated to be between EUR 0.5 billion and EUR 1.7 billion. • The gap is the largest for small and medium-sized farms and medium to long-term loans. • The key constraint is a lack of credit history, in particular for young farmers. • Young farmers and new entrants, together with small-sized enterprises, also face difficulties due to a lack of equity and/or private collateral.

This section presents an estimate of the total value of unmet financing needs of financially viable agricultural enterprises, defined as 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 firms that are both financially viable and have unmet demand X average loan volume

All the calculations are based on the results of the *fi-compass* survey for German 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 farms[99]. The unmet demand for finance includes:

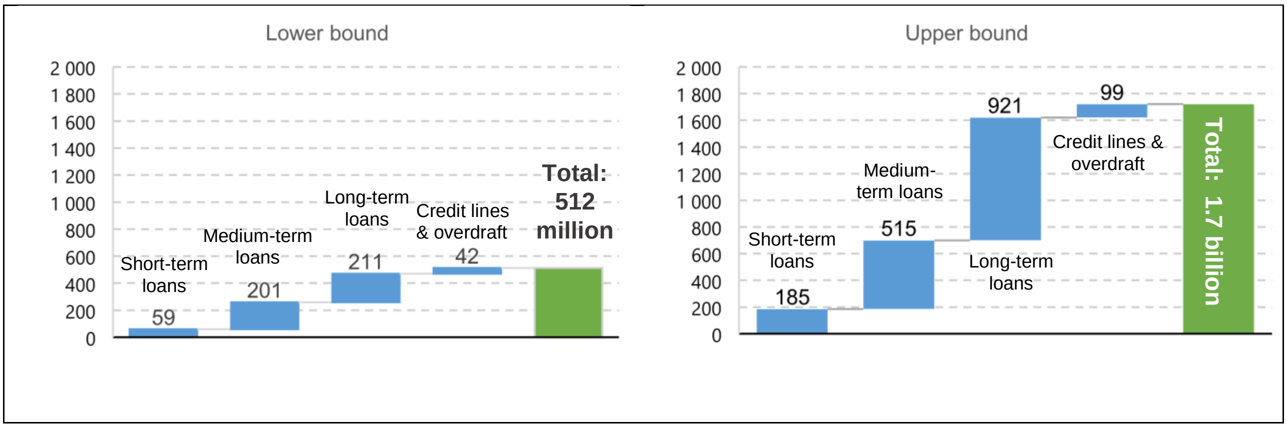
(i) lending applied for but not obtained, or
(ii) a lending offer refused by the potential borrower, as well as
(iii) lending not applied for due to expected rejection.

For the purpose of this study, '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 bound:

- The **lower bound gap** is calculated under the hypothesis that only enterprises which reported a stable (non-negative) turnover growth and no cost increase in the previous year can be considered as viable;
- The **upper bound gap** is based on the assumption that all enterprises which reported a stable (non-negative) turnover growth can be considered as viable.

99 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.

Figure 16: 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 German agriculture sector is estimated between EUR 0.5 billion and EUR 1.7 billion (Table 8). The gap is distributed among all size classes, although small and medium-sized enterprises (under 20 ha and 20-100 ha) are more affected.

By types of loan products, the gap is mainly concentrated in medium (18 months to 5 years) and, in particular, long-term loans (over 5 years) with the gap for short-term loans and credit lines/overdrafts being significantly lower (Figure 16).

Table 8: Financing gap by farm size in the agriculture sector, 2017, EUR million

		Total	Short-term Loan	Medium-term Loans	Long-term Loans	Credit lines/bank overdraft
Upper bound	Small-sized farms	**617.5**	54.6	192.1	345.5	25.3
	Medium-sized farms	**636.7**	67.2	177.5	364.7	27.3
	Large-sized farms	**465.8**	63.6	144.9	210.7	46.6
	Total	**1 719.9**	**185.4**	**514.5**	**920.9**	**99.1**
Lower bound	Small-sized farms	**182.1**	17.3	75.0	79.1	10.7
	Medium-sized farms	**185.6**	21.3	69.3	83.5	11.5
	Large-sized farms	**144.7**	20.2	56.6	48.2	19.7
	Total	**512.4**	**58.9**	**201.0**	**210.7**	**41.8**

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

According to interviews with farm representatives and banks, German banks are eager to lend in the current context of historically low interest rates and are prepared to accept less collateral (i.e. below 100% coverage), hence, this should facilitate farmers access to finance. However, several explanations for the gap have been identified in the study.

The main drivers of the gap are lack of credit history and lack of collateral. These two factors lead to the situation that, despite the favourable lending environment, loan applications still get rejected.

- **Absence of credit history** is an obstacle mainly for young farmers and new entrants who need to establish a relationship with a financial institution before being able to access finance. German banks work according to the preferential bank principle which honours a long-term relationship. While this has many benefits, for young farmers and new entrants it creates an obstacle since they lack credit history with financial institutions and therefore might not be granted access to finance or, if granted access, this may be to less favourable conditions.

- **Lack of collateral** is a concern for small-sized farms as well as young farmers and new entrants. They do not possess sufficient assets which could be used to secure a loan. Especially young farmers and new entrants which lack their own farm land due to the high land prices and rely on lease contracts instead.

Between 20% and 26% of the viable applications that were rejected came from young farmers. The financing gap that relates to this group of farmers is estimated to be between EUR 44 million and EUR 80 million. Young farmers are constrained by their lack of credit history and lack of guarantees especially if they are also new comers. As discussed earlier, young farmers that take over a farm from their parents are in a more favourable position to access finance.

German farmers have access to preferential loans and guarantees. On the national and federal state levels, farmers can apply for preferential loans which are channelled through the banking network. The additional effort of applying for a preferential loan is perceived as moderate and does not create an obstacle. More marketing efforts could be undertaken to better promote the Rentenbank loans. Dedicated agricultural guarantees are offered by the guarantee banks and financed under the COSME programme. The agri-guarantee programme is now in the extension of the pilot phase, but is still limited in its scope by the amount of funds allocated to it.

The EAFRD has supported the creation of a regional credit fund, the scope of which has been recently revised and enlarged. The credit fund was originally set-up to support the market launch of innovative products by SMEs in the agri-food sector in Mecklenburg-West Pomerania. The **ex-ante assessment**[100] was based on the assumption of a market failure[101] which soon became matched by the local banks ready to assume higher risks than expected at very low interest rates in the market.[102] As a result, the target group was extended to include agricultural enterprises, among others.

Over the coming years, the evolution of the financing gap will mostly depend on the risk appetite of German financial institutions. It is difficult to forecast how the risk bearing capacity and appetite of German banks will develop further under the unprecedented low interest rate environment. Demand for finance might increase once the overall monetary conditions change. The German banking sector is just starting a process of transformation and it is unclear how this will affect lending to the agriculture sector. Besides, the future demand for finance is likely to be driven by:

- The need of farmers to comply with requirements from regulations concerning standards in animal husbandry, animal welfare and environmental protection.
- Adaptation to climate change will become an increasingly important topic as erratic weather events are becoming more frequent.
- Investments in resource efficiency are likely to rise given the prices for energy and the increasing constraints in availability of water.

100 Since the ex-ante assessment was carried out for a specific section of the agri-food sector in one of the 16 federal states, it cannot be used to contrast the results of the gap analysis of this study.

101 *PwC*, 2015, Ex-ante Bewertung für ein ELER-kofinanziertes Finanzinstrument zur Unterstützung der Markteinführung innovativer Produkte von KMU in der Ernährungswirtschaft in Mecklenburg-Vorpommern.

102 Ministerium für Landwirtschaft und Umwelt Mecklenburg-Vorpommern, 2019, Annual Implementation Report 2018.

2.5 Conclusions

Investments in agricultural and non-agricultural assets have maintained a relatively stable level amounting to EUR 9.2 billion in 2017. This corresponds to 44% of the GVA of the sector which is significantly above the EU 28 average of 30.7%.

The main drivers of demand for finance in Germany are:

- (i) expansion and specialisation of the agricultural activity, mainly increases in farm size through the purchase or lease of land;
- (ii) investments in modernised production technologies;
- (iii) improvement and adaptation of production standards to meet regulatory requirements and consumer demands;
- (iv) investment in non-agricultural activities for income diversification; and
- (v) coping with unforeseen weather events (drought).

The agriculture sector in Germany benefits from an investment-friendly environment of a highly developed banking sector which facilitates access to finance at competitive conditions. Interviews with banks and farm unions suggest that the financial market is functioning well overall and most of the farmers find access to finance. This can also be seen in the share of agricultural loans in the total outstanding loan portfolio which has been increasing steadily, reaching EUR 53.2 billion by the end of 2018.

CAP support has a significant impact on investment behaviour. Direct payments continue to constitute an important income source of German farmers which help to smoothen their income situation and increase creditworthiness. Measures under RDP stimulate investments and are well executed, with support going beyond the threshold level of EUR 1 billion.

Despite the overall favourable context for finance to the agriculture sector, a financing gap between EUR 0.5 billion and EUR 1.7 billion has been estimated. The gap is largest for medium and long-term loans and it concerns all sizes of farms but is larger for the small and medium-sized farms.

Rejection rates are below the EU 24 average. For some products, namely short-term loans and investment loans, rejection rates are close to the EU 24 average, but higher than what would be expected given the situation of the banking market in Germany. Loans are mainly rejected for young farmers and new entrants lacking credit history and those who own equity to invest in the project. The same categories of enterprises, together with small holdings, sometimes lack sufficient collateral.

In order to increase access to finance for German farmers, the following recommendations could be considered:

- **Introduction of EAFRD financial instruments within the new CAP Strategic Plan could be considered, in particular to facilitate access to finance for new entrants (including young farmers) and small enterprises**, which face specific collateral constraints or have taken over farms that have existing debt.
- The possibility for the EAFRD to support counter-guarantees with higher than the current guarantee rate offered by COSME could also be considered. This could prove to be an interesting option for the relatively well-developed German financial market and in particular for the federal states' guarantee funds. It could also complement the grant implementation of the RDPs.
- 'One-stop-shop' options combining one scheme with single entry grants and financial instrument(s) could be another cost-saving opportunity worth consideration.

In any case, given the overall situation of the market and taking into account the number of public instruments already available, Managing Authorities are recommended to be careful not to create duplications, but rather seek to create synergies or improve the impact and design of the available products through considering various financing opportunities and implementation approaches.

3. PART II: AGRI-FOOD SECTOR

3.1 Market analysis

Key elements on the German agri-food sector

- In 2018, the agri-food sector accounted for 10.2% of the total industrial output in Germany and contributed 1.6% to total GVA in 2017.
- The sector shows a positive development and maintains its turnover on a high level. Between 2010 and 2018, turnover of food and beverage products increased by 18%.
- More than 6 000 companies generated a turnover of around EUR 179.6 billion in 2018.
- Most of the enterprises (92%) in the sector are small and medium-sized with up to 250 employees.
- The sector attracts many start-up enterprises that take advantage of new food trends.
- The agri-food sector directly employed 609 000 people which corresponds to 11% of the industry labour force. Meat processing and bakery are the most labour intensive sub-sectors with 20% and 32% of the total employees.
- By turnover, the most important sub-sectors are meat processing (24%), dairy (16%), beverages (12%) and bakery (11%).
- Around one third of the food and beverage production is exported, mainly to other EU countries.

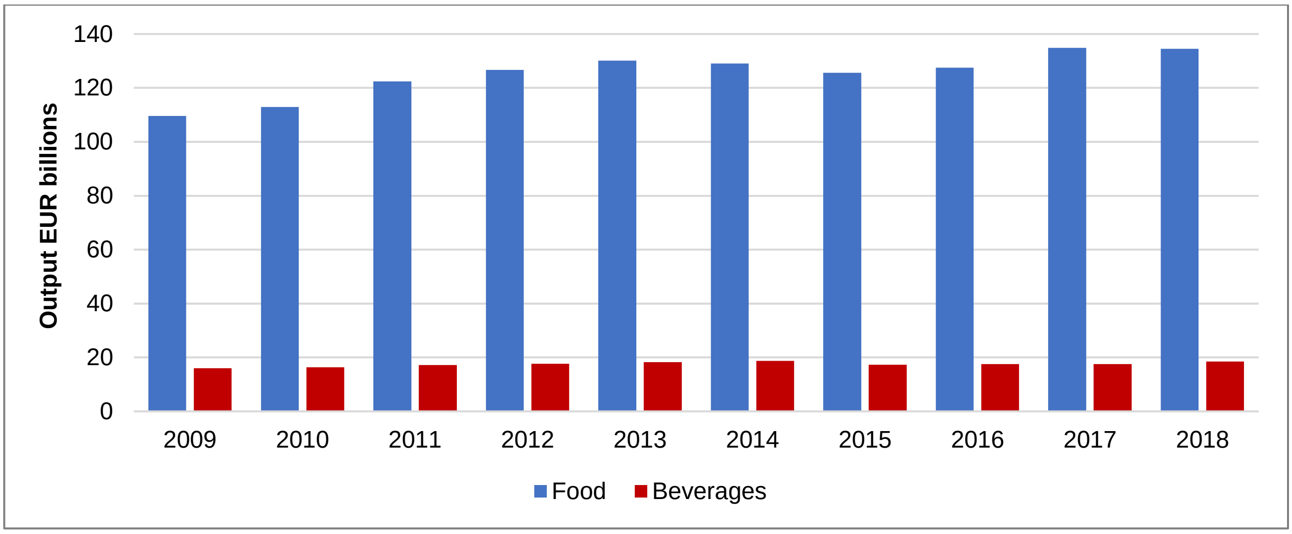
The manufacturing of food and beverages are important sub-sectors of the German industry. In 2018, the agri-food sector generated a turnover of EUR 179.6 billion and thus ranked third after automotive and mechanical engineering.[103] The manufacturing of food is the driving force in the agri-food sector and accounted for 88% of the total turnover (EUR 157 billion[104]). In 2017[105], the agri-food sector contributed 7% to the GVA of the manufacturing sector and 1.6% to total GVA[106]. With more than 600 000 employees[107], the sector is an important economic factor especially in rural areas. The production of food and beverages is distributed all over the country and closely linked to the primary production.

Most of the agri-food enterprises are small and medium-sized. More than half of the 6 119 enterprises[108] are small with less than 50 employees, but they only account for 11% of the turnover. Large-sized enterprises with more than 250 employees, on the other hand, generate 47% of the turnover while only comprising 8% of the companies.

The output of the agri-food sector is growing and a structural change of the sector is ongoing. The output of the food industry reached EUR 135 billion in 2018 which constitutes an increase by 19% compared to 2010 (Figure 17). During the same period the output of the beverages manufacturing sector grew by 14% reaching EUR 19 billion. The agri-food sector is in a process of structural changes, which is driven by an increasing industrialisation of the production, leading to larger operating units. Eventually, only large-sized companies are able to compete which increases the market concentration. Changes in nutritional behaviour have a direct impact on the sector, as well, as the advancing globalisation.

103 Statistisches Bundesamt, 2018, Jahresbericht verabeitendes Gewerbe.
104 Statistisches Bundesamt, 2018, Jahresbericht verabeitendes Gewerbe.
105 As of 04 march 2020, the 2018 GVA figures of manufacturers of food products, beverages and tobacco not available
106 Eurostat, 2019, National accounts aggregates by industry.
107 Statistisches Bundesamt, 2018, Jahresbericht verabeitendes Gewerbe.
108 Enterprises with at least 20 employees. If also micro-enterprises are considered, a number of 820 000 people were employed in the sector in 2018.

Figure 17: Output of the German food and beverage industry, 2009-2018



Source: Statistisches Bundesamt, 2019.

Germany is the largest retail market for food and beverages in the EU and a strong agri-food exporter. The domestic food and beverages retail market in Germany benefits from a large population with significant purchasing power, but at the same time it is very competitive. While still two thirds of the sector's turnover (EUR 120 billion)[109] are consumed domestically, foreign markets are becoming increasingly important. The main export destinations are The Netherlands, France and Italy. The United Kingdom ranks fourth which implies a factor of uncertainty about the impact of the Brexit on the agri-food industry:[110] Main export items are dairy products (21%), meat (19%) and confectionary (10%).[111]

109 Bundesvereinigung der Ernährungsindustrie (BVE), 2019, Jahresbericht 2018-2019.
110 Ernst&Young, 2019, Konjunkturbarometer Agribusiness Deutschland.
111 Statistisches Bundesamt, 2018, Jahresbericht für Betriebe im Verabeitenden Gewerbe.

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 186 German firms, as well as interviews with key stakeholders in the agri-food sector, combined with national statistics.

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

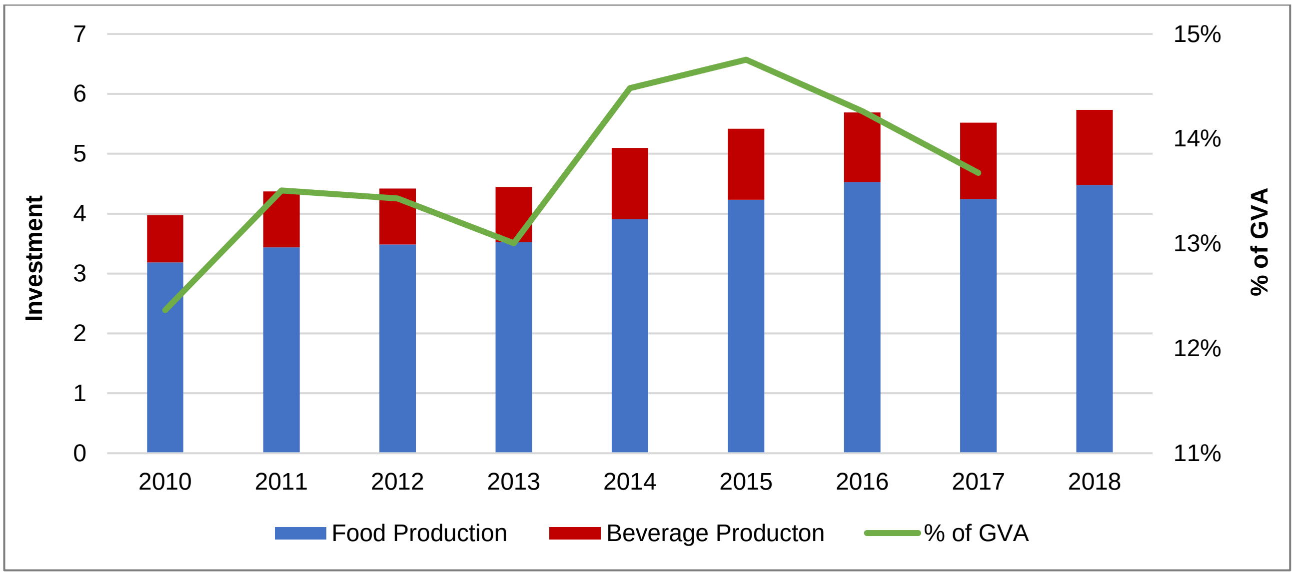
- In 2018, German agri-food companies invested EUR 5.7 billion which corresponds to 13.7% of the GVA of the sector.
- In 2018, the sale of organic food and beverages exceeded EUR 10 billion.
- Main drivers for investment are the need to expand production capacity, digitalisation, and innovation which is also reflected in the loan purposes reported in the Agri-food survey.
- The most important sources of finance are own funds (77%), followed by long-term loans (31%) and medium-term loans (28%).
- German enterprises mainly ask for finance for investments (77%) which is in line with the most requested loan products being long-term loans (44%) and medium-term loans (46%).
- The main reason why enterprises did not apply for a loan were the availability of sufficient own funds.
- The regional RDPs that support investments in the agri-food sector and agri-food companies show excellent literacy and documentation behaviour, as almost all applications by the end of 2019 were approved for funding. The easy access to bank finance for the majority of the businesses leaves room for a potentially large market for the remaining programme period.
- Obtaining finance for intangible assets like new product development is perceived as difficult.
- In 2018, more loan applications from agri-food companies were rejected in Germany than for the EU 24 average.
- The unmet demand for financing from German agri-food companies in year 2018 was estimated to EUR 2.5 billion.
- The main financing constraints identified relate to: (i) high business risk due to competitive pressure, low margins and market volatility and (ii) insufficient collateral.
- Start-ups and investment in innovations are particularly constrained in access to bank finance due to risk considerations.

3.2.1 Drivers of total demand for finance

German agri-food companies are investment active. Between 2010 and 2018, investments in the sector grew by 44% from EUR 3.9 billion to EUR 5.7 billion (Figure 18). The long-term trend is positive for food as well as for beverage production. In particular, investments in the beverage sector showed a strong growth (60%) during this period. According to a survey carried out in the manufacturing industry, this trend is likely to persist. Two thirds of the manufacturers of beverages answered that they are planning to increase their investments. In the food industry, the trend is not that clear with 55% of companies planning to increase and 41% to reduce investments.[112] Overall, the share of investments in the GVA of the sector was 13.7% in 2017.

112 BVE, January 2019, Konjunkturbericht, ifo Investitionsumfrage.

Figure 18: Development of investments in Germany by sub-sector in EUR billion[113], 2010-2018



Source: Statistisches Bundesamt, 2019.

The German food and beverage market is highly competitive and benefits from a growing population with a significant purchasing power. Against this background**, investments in the German agri-food sector are mainly driven by**:

(i) Expansion of production capacity;

(ii) Digitalisation;

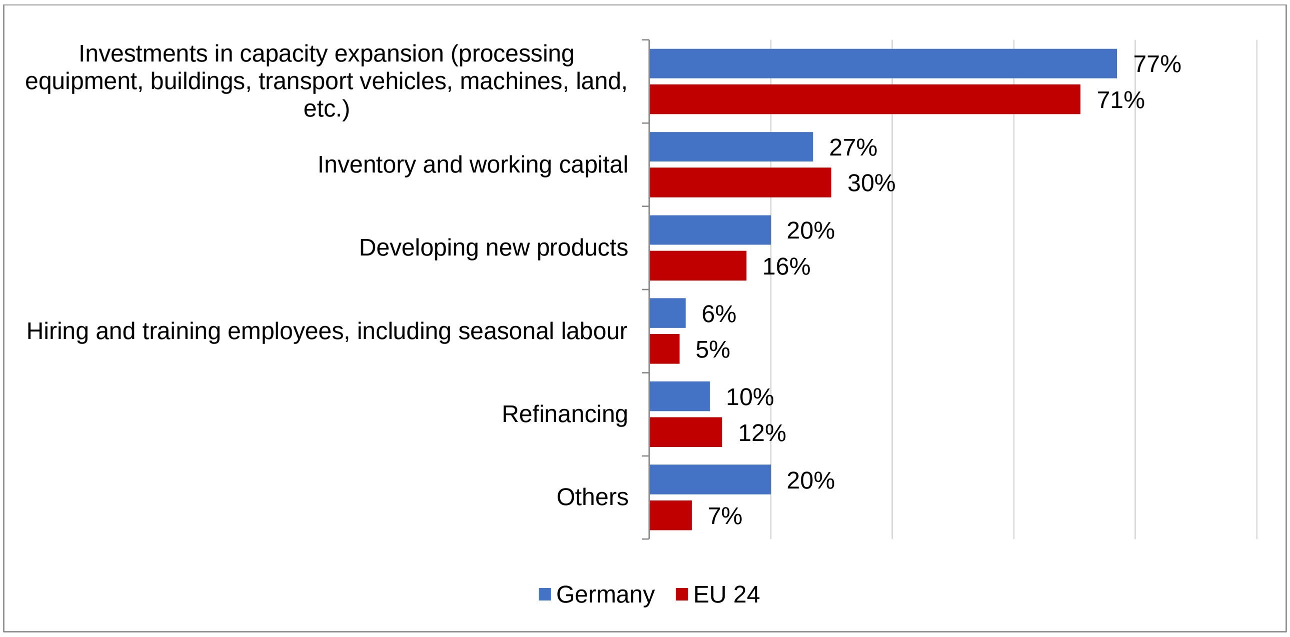
(iii) Innovation to respond to new food trends and lifestyle choices of consumers.

Agri-food companies invest in machines and real estate and foresee expenditures in innovation. In 2018, companies spent EUR 4.5 billion in machines which corresponds to 82.8% of the total investment amount. Almost EUR 1 billion (16.7%) was used for real estate including buildings.[114] Apart from the tangible assets, investments in innovation and R&D are an important item in the budget of German food and beverage enterprises. In 2018, they planned to spend EUR 1.7 billion on this which is 16% more than in the previous year.[115] The positive investment attitude is likely to persist with an estimate of 17% of all companies in the food and beverages industry expecting to introduce new products or product variations, invest in machinery and equipment to improve processes.[116]

More German companies seek finance for production expansion and new product development than in the EU 24 on average. According to the results of the Agri-food survey (Figure 19**:**), 77% of the German agri-food enterprises requested funds to expand their production capacity compared to 71% in the EU 24. It is also remarkable that 20% of the respondents in Germany borrowed funds for investments in new product development compared to 16% at EU 24 level. Working capital was equally important for 27% of the surveyed companies. Overall, this investment trend fits to a growing sector with a need for expansion and modernisation, as well as seeking to occupy niches through innovation.

113 For % of GVA data is only available until 2017.
114 Statistisches Bundesamt, Investitionserhebung im Verarbeitenden Gewerbe.
115 German Trade and Invest, 2019, The Food and Beverage Industry in Germany 2018/19.
116 German Trade and Invest, 2019, The Food and Beverage Industry in Germany 2018/19.

Figure 19: Purpose of bank loans obtained by agri-food companies in Germany and EU 24, 2018

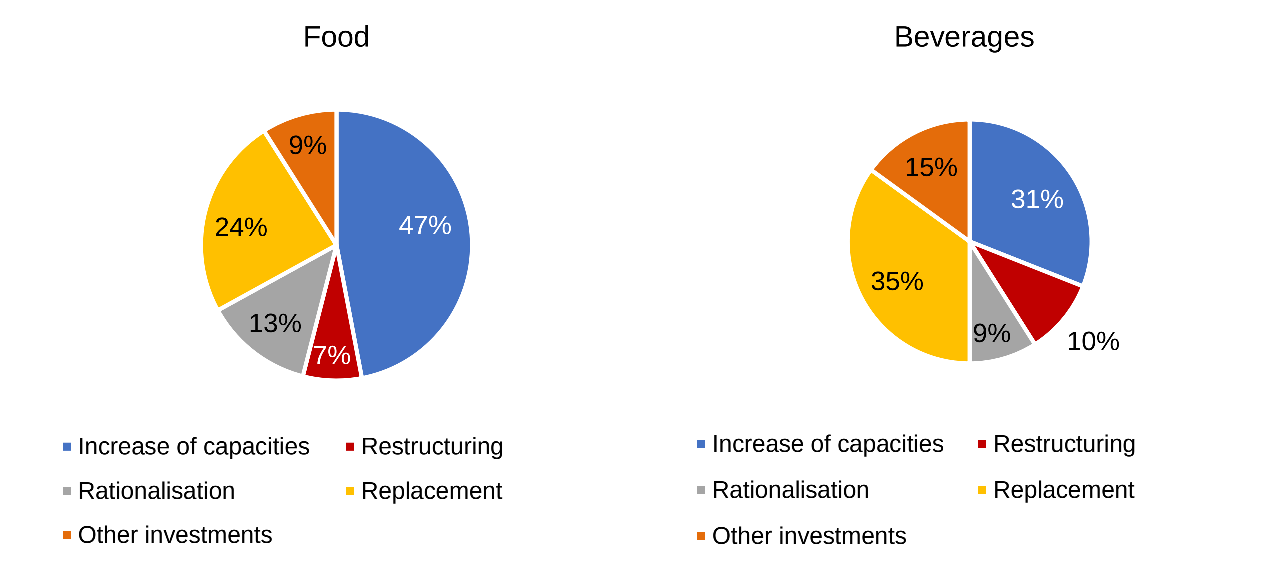


Source: Agri-food survey.

The agri-food sector needs to expand production to remain competitive and serve a growing demand. The trend towards larger production units and the use of modern production technology is linked to the strong competition in the German agri-food sector. The leading retailers have started to become more involved in the primary production and have intensified the vertical integration in the value chain.[117] Thus, they are able to manifest their market position and increase pressure on food and beverage processors by requiring higher quality and at the same time pushing prices down. To counter this situation, agri-food producers try to improve their economies of scale through the expansion of their production capacity. Interviewees highlighted that SMEs in particular find it hard to maintain their position under those circumstances. According to a survey carried out in the manufacturing industry,[118] enterprises in the food sector mostly invested in the increase of their production capacity while in the beverage sector replacements[119] were the main priority (Figure 20). In both sectors, restructuring and rationalisation are further drivers of investment which happen in response to the highly competitive market environment.

117 Ernst&Young, 2018, Konjunkturbarometer Agribusiness in Deutschland 2018.
118 BVE, January 2019, Konjukturbericht. The report presents the results of the ifo-investment survey from autumn 2018.
119 In Germany, a deposit return scheme for bottles (i.e. beer, mineral water or soft drinks are sold in glass or PET bottles) is in place. Beverage manufacturer receive empty bottles, clean them and reuse them. During this process, and because not all bottles are returned, replacements are an important cost item.

Figure 20: Motivation for investments in the German agri-food section in 2018



Source: BVE, January 2019.

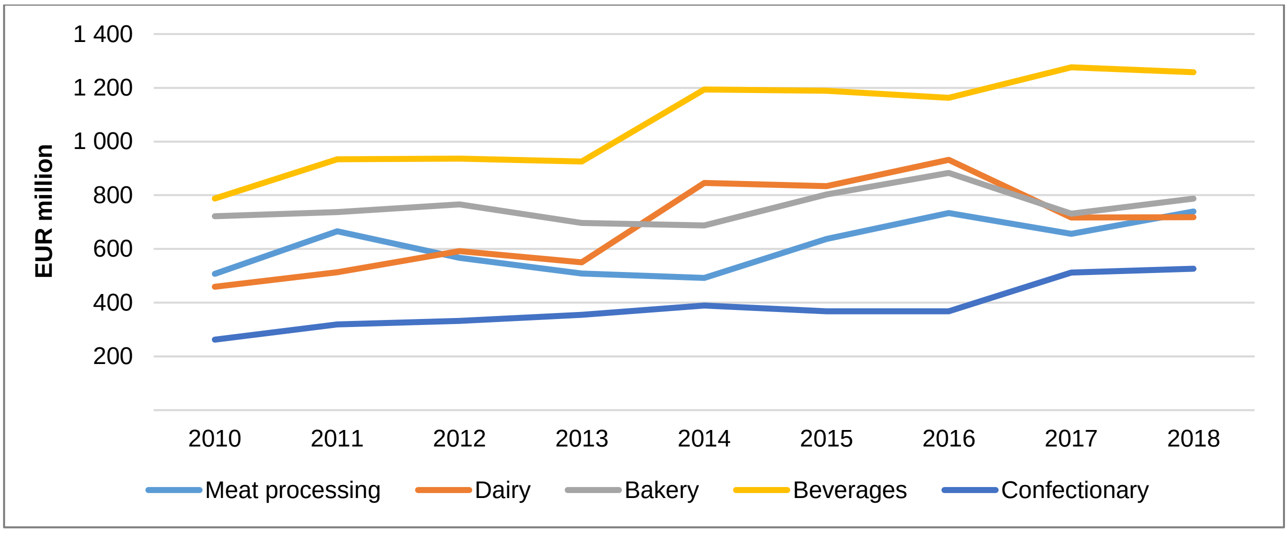
Digitalisation and 'Industry 4.0'[120] concepts are options to increase efficiency. A new trend in the agri-food sector is the application of digitalisation to increase production efficiency. Currently, 84% of the agri-food enterprises perceive digitalisation as a change and 66%[121] of the enterprises already use some form of digitalisation, mostly in logistics and IT. Companies expect to improve efficiency, quality and transparency of the production processes through digitalisation. The high costs of investments and the lack of qualified staff are the main obstacles that prevent enterprises from going ahead with digitalisation.

Changes in society influence consumer trends and drive investments in product innovation. The positive development of the German economy leads to a higher demand for quality food products. Consumers are prepared to pay higher prices, e.g. for organic or sustainably grown products. For instance, **the sale of organic food exceeded EUR 10 billion in 2018 which corresponds to an increase by 5.5% compared to the previous year.**[122] Further trends are related to health and well-being, or ethnic foods. The general debate around animal welfare in the agricultural production goes hand-in-hand with an increasing share of the population abstaining from consumption of animal products. Companies in the agri-food sector need to respond to all these market signals. In particular, start-ups are trying to take advantage of new food trends and target the innovative, higher priced market segment.[123] Start-ups and product innovation require investments in technology but also in marketing and branding to establish themselves in new market segments. Agri-food companies confirmed during interviews that it is difficult to obtain finance for intangible assets like new product development.

Investments are driven by the sub-sectors with the highest turnover and export-orientation. The key sub-sectors of the German agri-food sector are meat processing, dairy production, beverages and bakery which stand out in terms of turnover, employees and number of enterprises. These were also the sub-sectors with the highest investment amounts in 2018. A peculiarity is the confectionary sub-sector which is small measured by the above named parameters, but particularly investment-active (Figure 21).

120 The term 'industry 4.0' originates from a national strategic initiative of the German government which aims to promote digital manufacturing by increasing digitization and the interconnection of products, value chains and business models. (https://ec.europa.eu/growth/tools-databases/dem/monitor/sites/default/files/DTM_Industrie%204.0.pdf).
121 BVE, 2019, bitkom, Ernährung 4.0-status quo, Chancen und Herausforderungen.
122 BÖLW, 2019, Zahlen-Daten-Fakten. Die Bio-Branche 2019.
123 Ernst&Young, 2018, Konjunkturbarometer Agribusiness in Deutschland 2018.

Figure 21: Development of investments in selected German agri-food sub-sectors from 2010-2018, EUR million



Source: Statistisches Bundesamt, 2019.

- The **manufacturing of beverages** is the most investment-active sector with EUR 1.3 billion or 22% of the total investments of the sector. In terms of turnover, the beverage sector ranks third with EUR 22.2 billion. Within this investment-active sector, there are a total of 553 enterprises that employ 62 300 persons.[124]
- The **bakery industry** is maintaining a high level of investments although with a declining trend reaching EUR 790 million in 2018. Around 2 600 enterprises generated a turnover of EUR 20.5 billion. The sector is labour intensive and employs 195 000 persons which corresponds to 32% of the employment in the agri-food sector. The baked goods industry is in the process of consolidating with industrial bakery production becoming the main player.[125]
- The **processing of meat** ranks third in terms of investments at EUR 740 million, despite generating almost a quarter of the agri-food sector's turnover of EUR 42.5 billion. Similar to the bakery industry, meat processing is labour intensive with 123 400 employees working in 1 453 enterprises. The export of meat plays an important role with a share of 19% in the turnover of the sector. Future investments will therefore depend on developments within export markets (i.e. impact of Brexit), the changes in the consumer behaviour towards less consumption of meat and regulations such as the animal welfare label.[126]
- Investments in **dairy production** are declining after having reached a peak in 2016, but with EUR 932 million investments still maintain a high level. Currently, around 50% of the dairy products are exported, mostly within the EU. In 2018, 224 enterprises with 44 000 employees generated a turnover of EUR 28 billion. Investments are likely to be linked to innovations, product and data security, as well as improved product quality especially with regards to consumer trends like genetically modified organism (GMO) free or organic dairy products.[127]
- The **confectionary industry** is small measured by the number of enterprises (163 companies), but they have positioned Germany to be the largest producer and exporter of confectionary in the EU. Most of the companies are small and medium-sized enterprises which are owner-managed and closely linked to their production site[128]. In 2018, enterprises in the sub-sector invested EUR 526 million which is twice the amount they invested in 2010. The main challenges in the confectionary industry are increasing prices for raw materials, health trends and consumers demanding for example fair trade products.[129]

124 Statistisches Bundesamt, 2019, Investitionserhebung im Verarbeitenden Gewerbe.
125 German Trade and Invest, 2019, The Food and Beverage Industry in Germany 2018/19.
126 Ernst&Young, 2019, Konjunkturbarometer Agribusiness in Deutschland.
127 DLG, 2019, DLG-Trend Monitor 2019. Deutsche Molkereiwirtschaft.
128 Maack et al, Zukunft der Süsswarenindustrie, 2008, edition Hans Böckler Stiftung.
129 German Trade and Invest, 2019, The Food and Beverage Industry in Germany 2018/19.

German agri-food enterprises are mostly concerned about high costs of production and access to qualified labour. The variability of prices for raw materials and the increasing costs for energy and labour observed in the last years in the sector are the reason why 41% of the interviewed enterprises (Figure 22) reported difficulties related to production costs (EU 24 average 35%).

Similarly, 38% of the enterprises were concerned about accessing qualified labour, compared to an EU 24 average of only 28%. There is an overall shortage of qualified labour in the manufacturing industry in Germany and the agri-food sector has to compete with the other sectors for attracting skilled labour. Considering the trend for introducing digitalisation and 'Industry 4.0' in the agri-food sector, it can be expected that the demand for qualified workers will further increase and enterprises will have to invest in measures for attracting and retaining qualified staff[130].

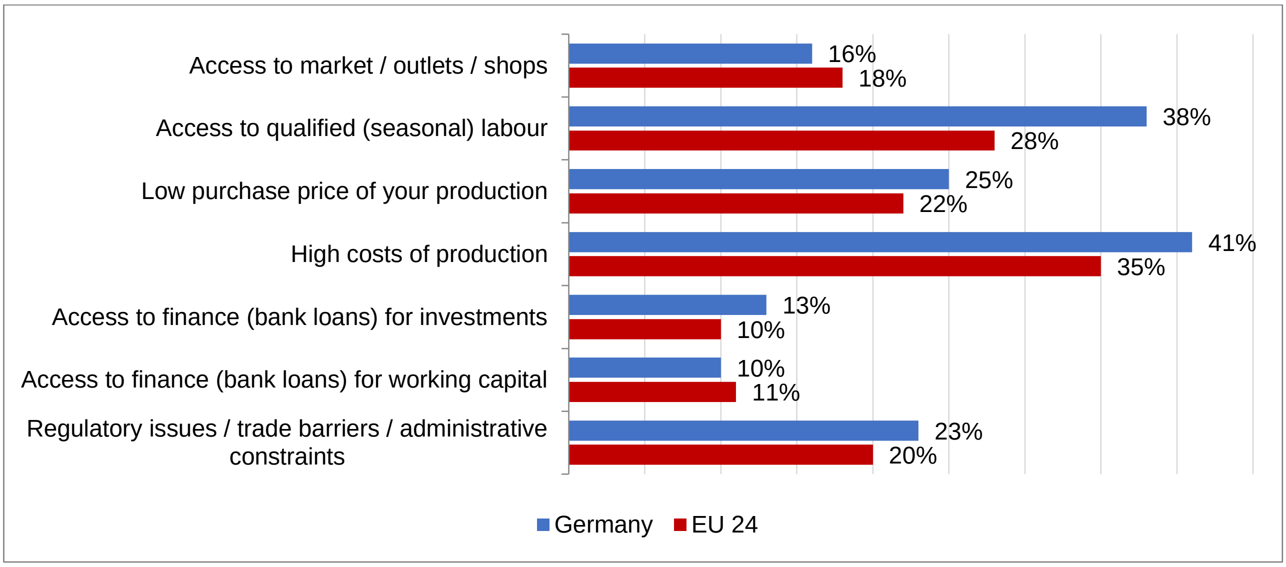
German agri-food companies share the concerns about low purchase prices with their EU peers in the same range (25% compared to 22%). In Germany, the food and beverage retail market is dominated by five enterprises which account for 75% of all retail food sales[131]. Due to the strong competition, agri-food enterprises have only a little margin to price-in as production cost increases and are therefore seeking to increase production efficiency.

Regulatory issues are of a concern for 23% of German companies which is again close to the EU 24 average of 20%. The agri-food sector is among the sectors which have to comply with the highest number of regulations and standards. The Federal government recognised the need to reduce the regulatory and administrative burden of the agri-food sector and is planning a respective law[132]. However, in the meantime the introduction of new standards, like the animal welfare label or the National Reduction and Innovation Strategy, create uncertainty in the food industry[133] about which standards to follow and whether this requires adjustments and investments.

Despite the overall favourable lending environment in Germany, 13% of the interviewed companies felt constrained when accessing finance for investments and 10% in the case of working capital. There are differences within the sub-sectors. In the interview, for example, the confectionary industry reported that only about 3% of the companies faced difficulties to access finance.

130 BVE, January 2019, Konjunkturbericht.
131 BVE, 2019, Jahresbericht Ernährungsindustrie 2019.
132 BVE, January 2019, Konjunkturbericht.
133 Ernst&Young, 2019, Konjunkturbarometer Agribusiness in Deutschland 2019. The reduction strategy will require producers to revise their recipes to comply with the new standards for sugar, salt and fat content in food products (link to Federal Ministry of Agriculture).

Figure 22: Difficulties experienced in 2018 by agri-food companies



Source: Agri-food survey.

Demand for finance is influenced by the tendency to build up equity. Across all sectors, German SMEs showed a tendency to build up equity in the last years. Initially, the main motivation of SMEs was to ensure their creditworthiness by complying with the newly introduced Basel II regulations.[134] **Today SMEs rather seek to ensure independence, resilience and flexibility through a strong equity base.**[135] The average equity ratio in the food production sector was 35.7% and in the beverages sector 37.2% in 2016 (Table 9). There are large differences related to the size of the enterprise. In the food sector micro and small-sized enterprises (sales below EUR 10 million) had lower equity ratios (16.9% and 29.7%), but higher liabilities (78.4% and 64%) than all other enterprises. In both segments, liabilities were mainly of short-term nature pointing to working capital needs. In the beverage sector, short-term and long-term liabilities are more balanced.

Table 9: Balance sheet figures of enterprises in the agri-food sector in percentage of balance sheet total, 2016

Enterprises with sales of:	Food sector			Beverage sector		
	Equity (%)	Liabilities (%)	Short-Term Liabilities (%)	Equity (%)	Liabilities (%)	Short-Term Liabilities (%)
<EUR 2 million	16.9	78.4	41.0	37.0	53.2	21.2
EUR 2 -10 million	29.7	64.0	36.0	24.5	64.0	20.2
EUR 10-50 million	36.2	54.1	38.7	37.4	45.4	23.6
>EUR 50 million	35.7	50.8	38.6	37.6	41.4	28.7
All enterprises	35.7	51.4	38.6	37.2	42.8	27.6

Source: Deutsche Bundesbank, Ratios from financial statements of German enterprises 2015 to 2016, 2019.

The regional RDPs in Germany support agri-food enterprises in carrying out investments. The National Framework foresees sub-measure 4.2 (support of investment in processing, marketing and development of agricultural products), but the specification of the measure and the amount of budget allocated to it depends on the priorities defined in the 13 regional RDPs. Overall, ten out of the thirteen federal states have included sub-measure 4.2 in their agenda for the 2014-2020 programme period.

134 Basel II expanded rules for minimum capital requirements and as a further risk mitigation measure, higher documentation requirements where introduced.

135 Gerstenberger Juliane, 2018, Hohe Eigenkapitalquoten im Mittelstand. KMU schätzen ihre Unabhängigkeit, KfW Research.

By the end of April 2020, Germany had spent 44.8% of its EAFRD budget allocation to Measure 4, including all four sub-measures, which includes support for agri-food processing. As seen from Table 10, the demand for EAFRD and public financing from the sector is stable. Under the approximately 105 calls launched by the regions, 95% of all submitted applications were approved, which shows the excellent capabilities of German processors in providing business plans and information. So far, the budget of EUR 239.2 million offered to the sector has been sufficient to cover the requests of the 439 applications approved for support.

Table 10: Germany:* Public support and implementation of sub-measure 4.2 in the RDPs, 2014-2019

Sub-measures	Amount requested (EUR million)	Available budget (EUR million)	Amount not supported (EUR million)	Number of Applications received	Number of non-supported Applications	Number of Applications approved
4.2 Support for investment in processing, marketing and development of agricultural products **	166.6	239.2	n.a.	462	23	439

Source: Ministry of Agriculture, 2020. Preliminary data.

** Sub-measure 4.2 is not programmed in Brandenburg & Berlin, Saarland and Saxony-Anhalt. In Saxony, calls are not divided according to sub-measure – data only available for M4.1 and M4.2 together, introduced under M4.1 in Table 3.*

*** Data for M 4.2 is the total of 8 regions.*

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.

Market developments affect the investment behaviour of agri-food companies. In Mecklenburg-West Pomerania, the MA observed that the investment propensity of agri-food enterprises dropped significantly in 2018 because of the price fluctuations in the dairy sector since 2015/16 and the drought in 2018. In addition, the agri-food sector became more concentrated through mergers and acquisitions and many companies exceeded the eligibility limits under the RDP support criteria.[136]

The National Framework defines the scope of investment support and eligibility criteria for the EAFRD implementation in the country.[137] According to these conditions, agri-food SMEs can apply for grants of up to 25% for the processing and marketing of agricultural products. The investment support can reach 40% if quality products are exclusively manufactured. Producer associations and cooperatives are eligible for higher grants. There is scope for improving these conditions and attracting even more applicants for support, depending on the regional strategies of the federal governments.[138]

Currently, there is one EAFRD credit fund available in Germany supporting innovative agri-food production. The credit fund was initiated by the Ministry of Agriculture of Mecklenburg-West Pomerania as a pilot project and aims at supporting the market launch of innovative products by SMEs in the agri-food sector. More details on the fund are provided in Section 3.3.1.

SMEs in the agri-food sector can apply for other EU-funded support. Since most of the companies in the agri-food sector are small and medium-sized, they are eligible to apply for support from the COSME loan

136 Ministry of Agriculture and Environment Mecklenburg-Vorpommern, 2019, Jährlicher Durchführungsbericht 2018.
137 Bundesministerium für Ernährung und Landwirtschaft, 2019, Förderung des ländlichen Raumes, https://www.bmel.de/DE/Laendliche-Raeume/03_Foerderung/Europa/_texte/NRR2014-2020.html?nn=5774216. The national framework does not define maximum amounts of support.
138 Obligations are for example that beneficiaries can ensure that during a minimum period of 5 years 40% of their production capacity is used for products for which they received the grant and that this is fixed by supplier or service contracts.

guarantee facility which is implemented through public and private banks. Enterprises seeking finance for R&D can make use of InnovFin products (EIF) which are available in a number of federal states. Besides this, 41 ERDF funds provide finance, equity and mezzanine capital for SMEs. More information is to be found in Section 3.3.1.

3.2.2 Analysis of the demand for finance

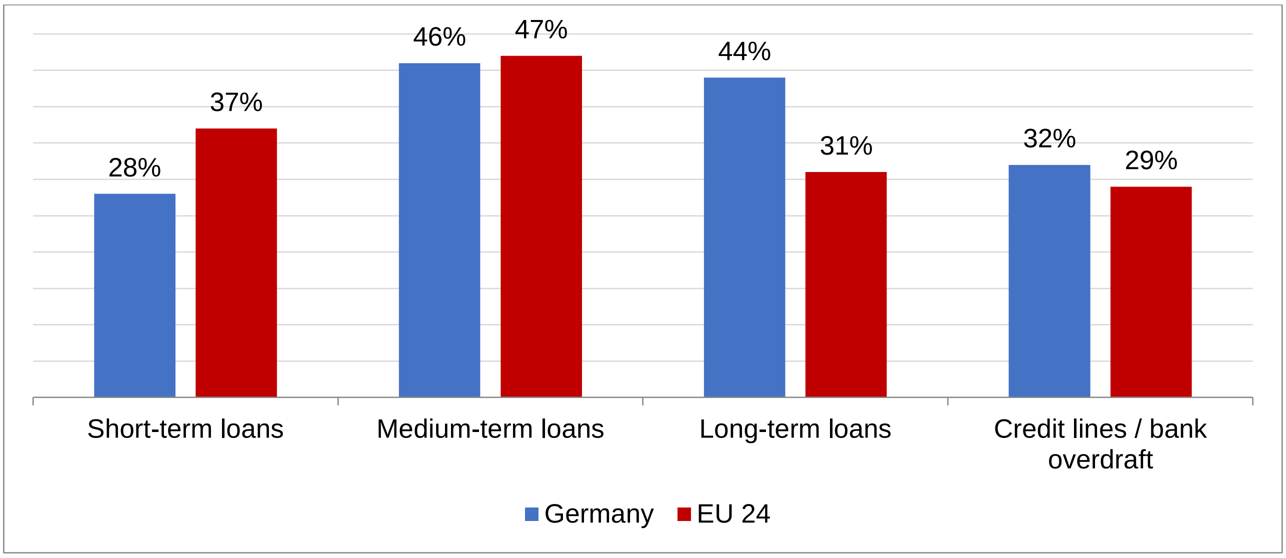
The potential total demand for finance combines both met and unmet demand. The met demand consists of the value of all applications for finance which were accepted by the financial institutions in the relevant year. The unmet demand consists of the assumed value of applications rejected by a financial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

Based on the Agri-food survey, the unmet demand for the agri-food sector in Germany is estimated at EUR 2.5 billion.

German agri-food enterprises demand finance, but less than companies in other sectors and less than the EU 24 average. According to the Agri-food survey results, just slightly more than a third (35%) of the German agri-food companies applied for finance. This is below the EU 24 average of 46%, but still a significant share of enterprises which need external finance for their investments. In comparison to SMEs across all sectors, bank finance is of less importance for agri-food companies. In the SAFE survey, bank loans were relevant for 44% of the SMEs in Germany and credit lines/overdrafts for 52% of the SMEs.

Demand is high for medium and long-term loans. Investments in processing equipment, machines or buildings require a longer horizon in the financing structure. In line with this loan purpose, 46% of the applications were for medium-term and 44% for long-term loans (Figure 23), the latter considerably above the EU 24 averages.

Figure 23: Agri-food enterprises applying for finance in 2018, by financing product



Source: Agri-food survey.

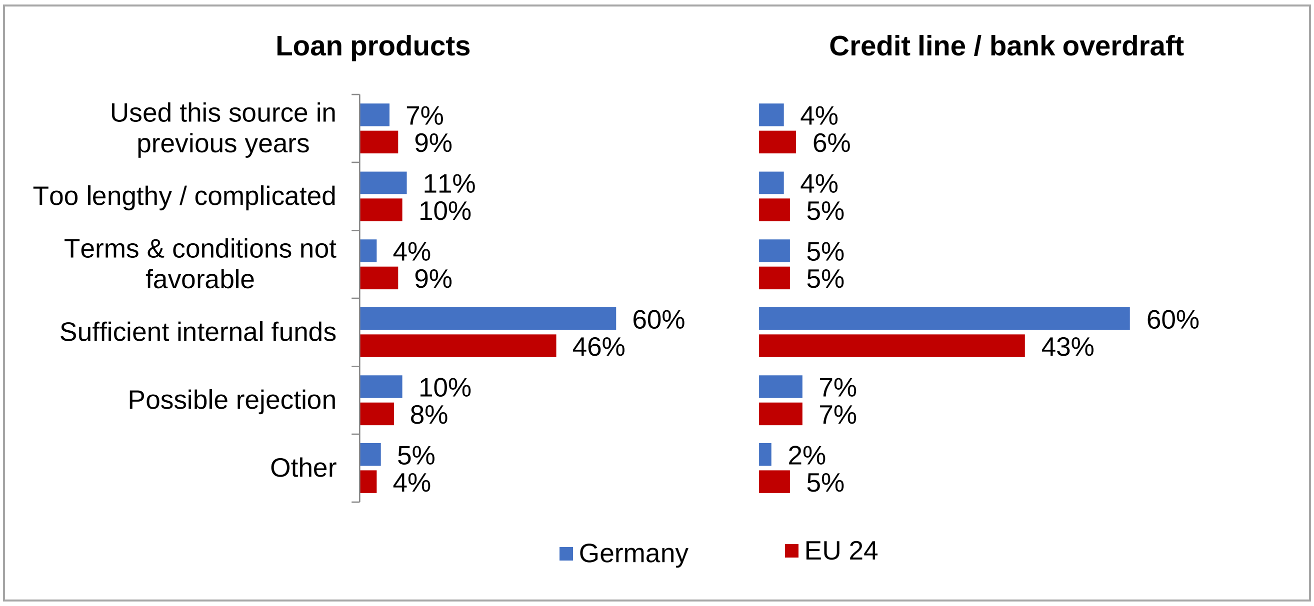
The main reason for German agri-food companies not applying for finance was the existence of sufficient internal funds. In line with the strong equity position, 60% of German agri-food companies that did not apply for finance, responded that the reason was that they considered to have sufficient own funds. The same figure for the EU 24 is significantly lower (46% for bank loans, see Figure 24). It has often been observed that German SMEs prefer to use their own funds for investments, because they want to avoid liabilities and maintain financial independence.[139] KfW, the largest public lender to SMEs in Germany conducts a yearly survey among SMEs. According to their survey results, enterprises in the manufacturing sector financed their investments through own funds (47%), bank loans (28%), grants (20%) and other sources (6%).[140]

More companies fear a possible rejection in Germany than in the EU 24. About 10% of the agri-food companies that did not apply for bank loans were discouraged to submit a loan application due to the fear of being rejected, which is above the EU 24 average of 8%. For credit lines, the results in Germany were equal to those in other EU 24 countries (7%). In comparison to other SMEs, agri-food companies seem to be more easily discouraged.[141]

Lengthy and complicated procedures were further reasons not to apply for a loan for 11% of the agri-food enterprises that did not apply for bank products. During interviews, agri-food sector representatives shared the impression that banks often request too much documentation. In particular, after the introduction of the Basel II Regulation, loan applicants are required to provide more financial and strategic information which implies a significant effort in terms of time and money especially for small-sized enterprises.[142]

German agri-food companies are, however, less price sensitive towards the loans. Only 4% of the food and beverage manufacturers that did not apply, did not do so because the terms and conditions were not favourable. This is less than half of the EU 24 average of 9%. Certainly, enterprises in Germany have been benefitting from overall low interest rates in the banking sector which made them less concerned about prices for loan products. On the other hand, it might also indicate that enterprises in the agri-food sector in Germany value access to finance higher than achieving more favourable terms and conditions.

Figure 24: Reason for not applying for loans by the agri-food sector, 2018



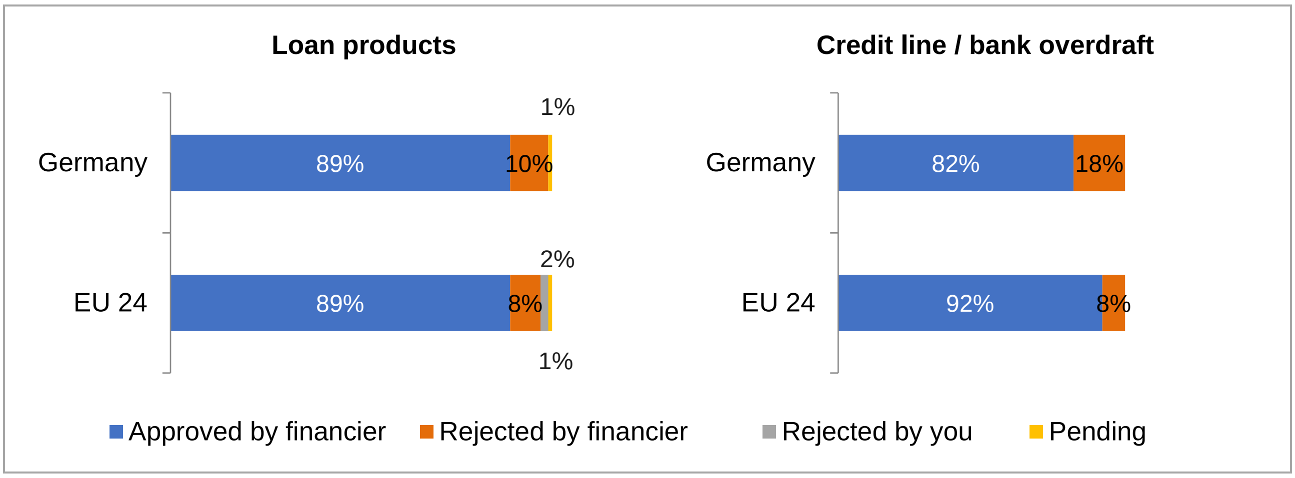
Source: Agri-food survey.

Loan rejection rates in Germany are above the EU 24 average. According to the Agri-food survey, 10% of the applications for loan products and 18% of applications for credit line/bank overdraft were rejected by the bank (Figure 25).

139 KfW Volkswirtschaft, Zimmermann, Volker, 2019, Unternehmensbefragung 2019.
140 KfW, Mittelstandspanel 2019.
141 The SAFE survey showed that 4% of enterprises feared a rejection with regard to bank loans and 2% for credit lines/ overdrafts. Interviewees explained that SMEs do not approach banks for finance because they fear high collateral requirements. In particular for small-sized enterprises it is difficult to provide adequate assets and guarantees and anticipating this issue makes them refrain from applying.
142 Gerstenberger, Juliane, Kreditverhandlungen – warum so viele KMU darauf verzichten, KfW Research, 2018.

When banks approve loan applications, the agri-food companies accept the terms. In Germany, all loan applications of agri-food companies that were approved by the bank, were accepted by the applicant. This finding supports the conclusion that agri-food companies give priority to accessing finance over negotiating terms and conditions.

Figure 25: Results from the loan application in the agri-food sector in 2018



Source: Agri-food survey.

In Germany, the agri-food sector is highly competitive and profit margins are low. In this context, any change in the prices for raw materials and operating expenses can affect the repayment capacity negatively. Especially for small-sized enterprises that might not be able to balance cash flow fluctuations. Liquidity shortages can also arise from the seasonality of the consumption of food and beverages products.[143] All this may lead to banks rejecting loan applications due to risk considerations. This was the reason for loans rejections in 70% of the cases in 2018 (Figure 26).

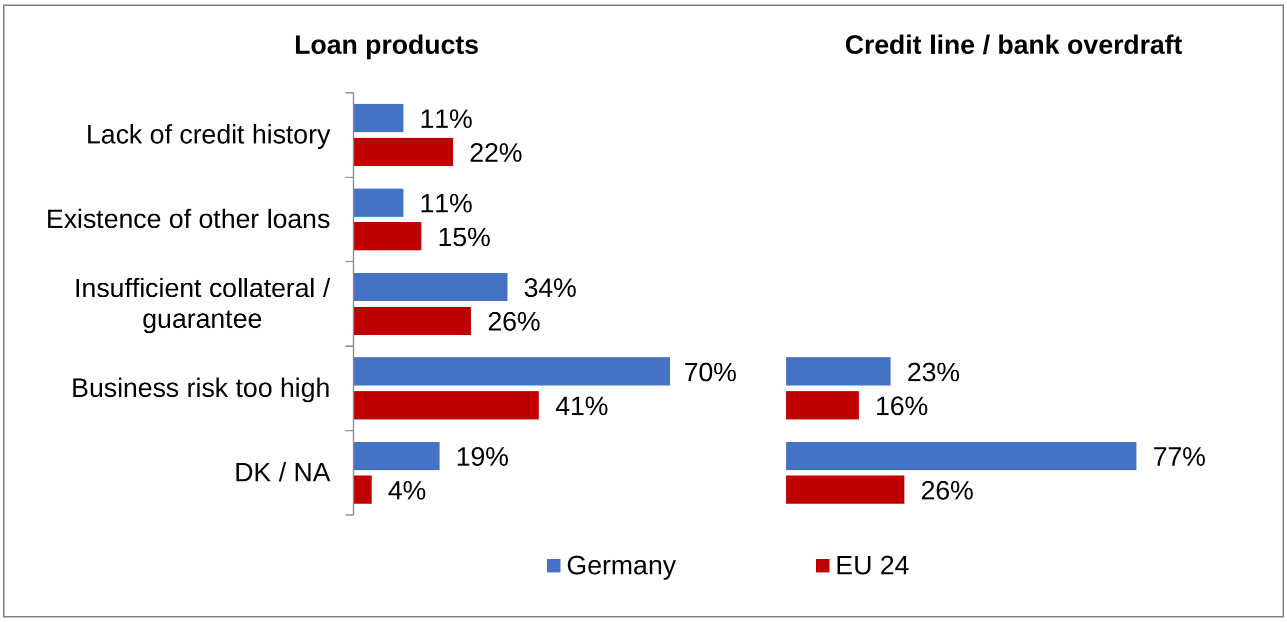
The agri-food sector in Germany is eager to respond to emerging food and beverage trends through **product innovation and business start-ups**. In both cases, banks face the same difficulty with projecting future income. The ex-ante assessment for the EAFRD credit fund in Mecklenburg-West Pomerania[144] detected that often a sound business plan and an overall structure of finance is missing in companies that plan to launch new products in the agri-food sector. In some cases, the innovation concept was not convincing. Lack of credit history and lack of collateral were further reasons for rejection.

Insufficient collateral was the reason why a loan application was turned down in 34% of the cases in Germany (Figure 26). The availability of collateral is a constraint mainly for small-sized enterprises and start-ups which only have a limited availability of assets. There is also a link to existing loans which were reason for rejection for 11% of the applications. In cases where an outstanding debt exists, banks might have claim on all of the collateral available and leaving insufficient collateral to secure a new loan.

143 Ernst&Young, 2019, Konjunkturbarometer Agribusiness in Deutschland 2019.

144 PwC, 2015, Ex-ante Bewertung für ein ELER kofinanziertes Finanzinstrument zur Unterstützung der Markteinführung innovativer Produkte von KMU der Ernährungswirtschaft in Mecklenburg-Vorpommern. Document available on the *fi-compass* website: https://www.fi-compass.eu/sites/default/files/publications/Ex-ante-Bewertung-fur-ein-ELER-kofinanziertes-Finanzinstrument-zur-Unterstutzung-der-Markteinfuhrung-innovativer-Produkte-von-KMU-der.pdf.

Figure 26: Reasons for loan rejections in the agri-food sector, 2018[145]



Source: Agri-food survey.

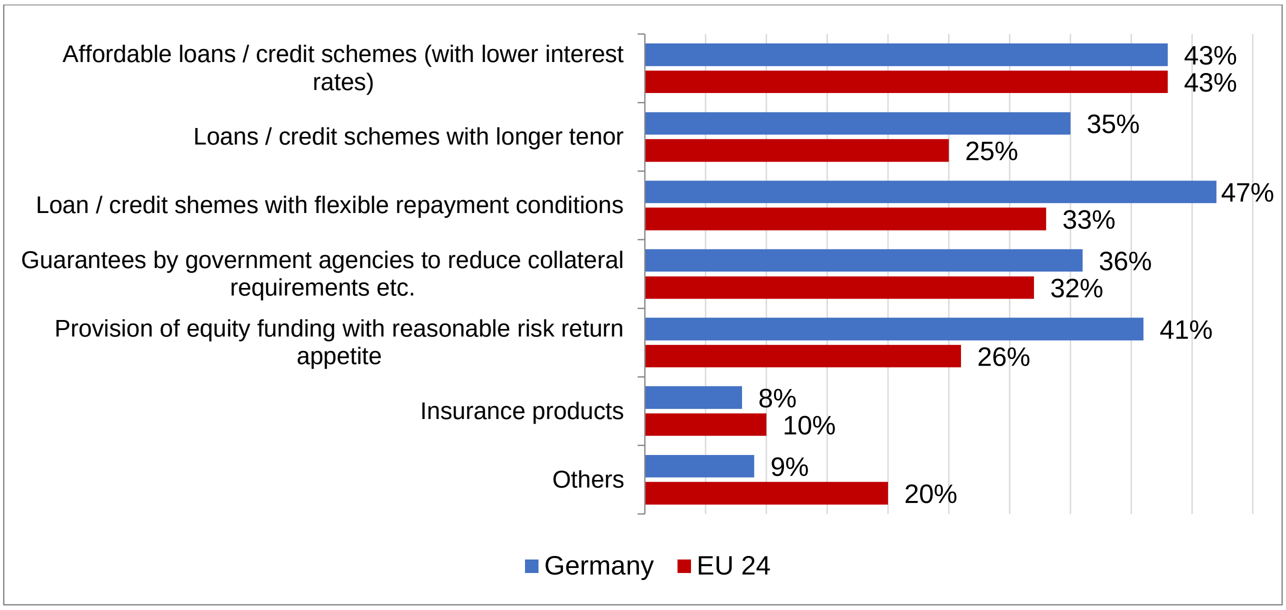
German agri-food enterprises seek more flexible loan conditions as they face more challenges than enterprises from other sectors. In Germany, 47% of the interviewed companies stated that more flexible repayment conditions would be helpful compared to 33% in the EU 24 (Figure 27). With regards to the interest rates, 43% of the respondents in Germany think that they should be more affordable. Further, 35% of the companies would prefer longer loan maturities. Financial institutions that were interviewed did not agree to these findings and stressed that the German banking sector already shows a high flexibility regarding repayment conditions and that interest rates are extraordinarily low. However, and while for the financial institutions it is difficult to make statements for the agri-food sector in particular and they often think in terms of SME lending in general, the responses from the Agri-food survey show that indeed agri-food companies face more challenges than other sectors.

More German entrepreneurs (41%) than their EU 24 peers (26%) think that equity funding would be a solution. The reason for this difference in opinion might be related to the fact that the German agri-food sector attracts a high number of start-up enterprises which intend to serve the growing segment of new food trends. Launching new products is perceived riskier than expanding capacity for the production of existing products and thus requires a stronger risk appetite from the banks. According to interviews with agri-food sector representatives, this fact has been confirmed and they added that banks prefer to lend to diversified enterprises with stable income streams from other product lines for this reason. In such cases, equity funding would be an efficient means to support innovation and value creation in the German agri-food sector.

Furthermore, guarantees from government agencies to reduce collateral requirements were seen beneficial by 36% of the German companies. Again, it must be mentioned that these guarantees exist on national and federal levels[146] and the point here might be rather a lack of awareness and insight into the public support toolkit available.

145 DK/NA: Don't Know / Not Applicable.
146 See Section 3.3.1.2.

Figure 27: Solutions to reduce difficulties in accessing finance



Source: Agri-food survey.

Agri-food companies in Germany have access to a broad range of training and capacity building opportunities. A particularity in Germany is the vocational training system ('dual training') where companies cooperate with publicly funded vocational schools[147] to train their own staff in a number of recognised subjects. It is estimated that around two thirds of the employees in the agri-food sector have completed a vocational training in food technologies, industrial sales management or machine operation.[148]

Besides this, the demand for highly qualified staff is increasing and topics like digitalisation, automatisation or international trade require new skills and knowledge. Because of the overall shortage of qualified staff in Germany, the agri-food sector competes with other industrial sectors and needs to make efforts to increase its attractiveness for qualified workers.

Interviews with banks revealed that especially small-sized companies lack expert knowledge and need capacity building. There is a whole range of training providers reaching out which range from vocational schools (dual training), to trade associations, Chambers of Commerce to the academy of the German Agricultural Society[149], where entrepreneurs can receive training in technical and entrepreneurial topics. In this regard, the matter is most likely to find the appropriate training targeted to the particular situation of each company and to make use of it.

147 Federal Ministry of Education and research, 2019, The German Vocational Training System, https://www.bmbf.de/en/the-german-vocational-training-system-2129.html.
148 Arbeitgebervereiningung Nahrung und Genuss e.V.
149 Deutsche Landwirtschaftsgesellschaft (DLG).

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 Germany 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 to present 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 German agri-food sector

- In addition to the finance providers for the agriculture sector, the German agri-food sector benefits from access to additional financial intermediaries which target SMEs in general, such as KfW, the largest public lender in Germany.
- On the federal state level, development agencies, public guarantee banks and public equity funds provide access to finance to SMEs, including the agri-food sector.
- The Rentenbank is the only finance provider with a dedicated promotional loan for agri-businesses including the agri-food sector.
- In Germany, one EAFRD credit fund was established in 2016 to support the market launch of innovative agri-food products in one federal state.
- The total outstanding loan volume to the agri-food sector (including tobacco) was EUR 16.7 billion as of the end of 2018.
- The majority of the outstanding loans (66%) are long-term loans, followed by short-term loans which represent 23% of the total loan portfolio to the sector.
- Although the credit market for enterprises seems to be well functioning, some constraints may derive from the fact that: (i) banks are cautious to lend to riskier projects like launching new products or investing in new technologies, and (ii) very small-sized enterprises have to withstand strong competition in the sector, which increases their risk profile and banks' appetite to provide finance for their projects.

3.3.1 Description of finance environment and funding availability

3.3.1.1 Finance providers

The agri-food sector benefits from a dense network of banks in Germany. Similar to the agriculture sector, manufacturers of food and beverages enjoy the possibility to access finance from more than 2 000 banks all over Germany. Banks consider lending to the agri-food sector similar to other secondary sectors of the economy with regard to credit analysis and client structure. Therefore, more banks are addressing the demand of the agri-food sector compared to agriculture, and the potential borrowers have a wider choice. In addition, the agri-food sector is not limited to specific public lending programmes like the agriculture sector. Among the commercial banks, DKB is the one that explicitly targets the agricultural and agri-food sector in its corporate clients operations.

Several special financial institutions and public development agencies serve the sector. There are less specific public lending programmes for the food and beverage industry than the agriculture sector, but the sector can participate in a broad range of SME lending schemes on state and federal levels.[150] Besides the straightforward SME lending, enterprises can apply for promotional loans for specific purposes.

150 See the ex-ante assessment of the EAFRD fund in Mecklenburg-West Pomerania for a good summary of the promotional programmes for the agri-food sector in this federal state on all administrative levels (link).

- On the national level, **Rentenbank** offers promotional loans for the agriculture sector (section 2.3.1.1) and for agribusinesses which includes the agri-food sector.
- **Kreditanstalt für Wiederaufbau (KfW)**, the largest public lender has a dedicated programme line for SME support with several features like: loans for expansion, energy efficiency or going global. Furthermore, KfW offers mezzanine capital and equity for innovation and start-ups. KfW loans are disbursed through the banking sector, just as it was in the case of Rentenbank.
- Each **federal state** has its own development agency, a guarantee bank and an equity fund, which provide support to SMEs.

3.3.1.2 Financial Products

The German banking sector offers a range of financial products, such as loans, credit lines, leasing and insurance, and also includes the channelling of funds from public programs. Given that there are negative interest rates for the various German government bonds, the interest rates on these financial products are very low (2-3% for medium and long-term commercial loans for average credit ratings) and banks are eager to find satisfactory investment opportunities, including all types of credit to the food sector.

The agri-food sector has access to promotional loans. Rentenbank offers promotional loans to agri-businesses which comprise also the agri-food sector (Table 11). Loan conditions are similar to the promotional loans for the agriculture sector. Rentenbank finances up to 100% of the eligible cost and a maximum amount of EUR 10 million. All loan products are available as an annuity or instalment loans with loan tenors ranging from 4 to 30 years. Currently, Rentenbank does not offer interest rate subsidies due to the overall low interest rate level. Instead, they offer a grant in the form of a percentage of the approved loan amount, which is paid out once the loan is disbursed through the applicant´s bank.

Companies can apply for ‘top’ conditions if their loan purpose is related to environmental and consumer protection. Preferential loans are only available for SMEs.

Table 11: Rentenbank loan products for agri-businesses

Loan product	Product criteria
Wachstum und Wettbewerb (Growth and competitiveness)	• Buildings, equipment, machinery • Vehicles • Real estate • Not eligible: working capital, company take over
Umwelt- und Verbraucherschutz (Environmental and consumer protection)	• Energy efficiency, reduction of emissions • Processing and marketing of organic products • Measures to ensure consumer protection • Tourism linked to farm business • Not eligible: working capital, company take over
Betriebsmittel (Working capital)	• Working capital • Company take over

Source: Rentenbank, 2019.

The SME lending schemes of KfW have similar conditions with interest rates between 1.03% and 7.43%, depending on the rating class with loan maturities of up to 10 years.[151]

151 KfW, 2019, https://www.kfw-formularsammlung.de/KonditionenanzeigerINet/KonditionenAnzeiger.

Table 12: KfW loan products for SMEs

Loan product	Product criteria
ERP Start-up Loan 'StartGeld'[152] **Start-ups, self-employed professionals and small enterprises which have been active in the market for less than five years and require a limited start-up capital**	• For the establishment or takeover of an enterprise, for the acquisition of an interest in an enterprise, consolidation of a young enterprise in the first five years; • Loan with a term of 5 or 10 years. Up to EUR 100 000 in total for capital expenditure and working capital, the share of working capital is limited to EUR 30 000; • KfW bears 80% of the risk; • Interest subsidy and fixed interest for the entire term, grace period possible.
ERP Start-up Loan 'Universal' Start-ups, company successors, self-employed professionals and SMEs which have been active in the market for less than five years and have funding requirements of up to EUR 25 million.	• For the establishment or takeover of an enterprise, investments outside Germany, acquisition of a stake in an enterprise, consolidation of start-up in the first five years; • Interest subsidy and fixed interest for the entire term, grace period possible.
KfW Entrepreneur Loan Self-employed professionals, enterprises and leasing companies	• For capital expenditure and working capital in and outside Germany. • KfW loan with a term of up to 20 years and a maximum sum of EUR 25 million; • 100% financing; • For joint ventures and equity investments outside Germany within the EU, the capital expenditure outside Germany will also be financed in the same proportion as the owner's share; • Interest rates fixed for up to 20 years or for the entire term of the loan, particularly favourable interest rate for SMEs, grace period possible.
ERP Digitalisierungs- und Innovationskredit **For established self-employed professionals and enterprises**	• For the financing of innovation measures in the enterprise; • Up to 100% of the investment costs eligible for financing, not more than EUR 25 million per project; • Grant as a supplement to the loan; • 10-year fixed interest rates, grace period.

Source: KfW, 2019[153].

Besides the loan products, KfW also offers two types of equity and one mezzanine product (see further down in this section). Companies that want to invest in energy efficiency or renewable energies can apply for dedicated promotional loans for this purpose.

Credit guarantees are provided through the federal state guarantee banks. As for the preferential loans, public guarantees are retailed through the banking network. It is not possible to provide a general picture of the terms and conditions for guarantees because each federal state defines its own priorities. For example, the Guarantee bank of the Federal State of Saxony offers guarantees to start-ups and existing businesses of up to 80% (max. EUR 2 million) and maturities between 8 and 23 years depending on the loan product. For

152 On one hand the ERP Start-Up Loan StartGeld benefits from a guarantee issued under the European Community's Competitiveness and Innovation Framework Programme and on the other hand the Loan is supported by the European Fund for strategic Investments.
153 KfW, 2019, www.kfw.de/kfw.de-2.html

the service, a commission of up to 1.5% of the loan amount is charge.[154] In contrast, in Baden-Wurttemberg, guarantees are available up to 50% of the loan amount and equal up to EUR 1.25 million.[155]

Agri-food enterprises can apply for equity support from public and private entities. On the state level, KfW offers equity capital products, including for example, the ERP participation programme.[156] This programme provides on the federal state level, dedicated guarantee funds that provide equity support to SMEs. For example, in Thuringia, the guarantee fund (Mittelständische Beteiligungsgesellschaft) offers capital of up to EUR 1.25 million for SME in all sectors except agriculture.[157] There are also mezzanine products available. From the private sector, private subsidiaries of banks and savings banks for equity capital exists.[158]

Currently, there is one regional EAFRD financial instrument, a credit fund, available in Germany supporting innovative agri-food production[159]. The credit fund was initiated by the Ministry of Agriculture of Mecklenburg-West Pomerania as a pilot project and aims to support the market launch of innovative products by SMEs in the agri-food sector. The fund is managed by the Guarantee bank of the Federal State (Bürgschaftsbank Mecklenburg-Vorpommern) and it targets start-up enterprises and existing SMEs.[160] Loans are disbursed for working capital and investment purposes. Loan amounts vary from EUR 80 000 to EUR 1 million whereby working capital loans have a maturity of up to 8 years and investment loans up to 20 years. Due to the overall low lending rates, interest rates are not subsidized, but depend on the rating.[161] Initially, the fund was endowed with EUR 10 million based on an ex-ante assessment,[162] which identified a market failure for SMEs seeking finance from the banking sector for launching innovative products. In the meantime, due to the very low interest rate levels in the market and because of the regional government's intervention through the fund, banks have become ready to assume higher risks in their lending operations and have matched the Fund's conditions. In response to this situation, the Managing Authority decided to enlarge the target group of the fund to also include farmers and SMEs in rural areas, without limitation to a specific sector (RDP sub-measures 4.1 and 6.4.c). At the same time, the planned funds for sub-measure 4.2.b were reduced from EUR 10 million to EUR 1.5 million.[163]

German SMEs benefit from a range of other EU-financed financial instruments, which, contrary to the EAFRD financial instruments, operate nationally.[164] The COSME loan guarantee fund provides portfolio and counter-guarantees to public and private financial intermediaries in Germany at a maximum guarantee rate of 50%. Besides this, SMEs focused on innovation can apply for support from the InnovFin loan guarantee facility. These instruments are available to all economic sectors, including agri-food. However, specific data on the support provided to agri-food enterprises is not available.

3.3.2 Analysis of the supply of finance

Annual lending figures are only available from Rentenbank and only for the aggregated agri-business sector.[165] Since agri-food is by far the most important component of this sector, these figures provide a good

154 BBS-sachsen, 2019, http://www.bbs-sachsen.de/uploads/media/2020-01-01_Programmblatt_01.pdf.
155 Bürgschaftsbank, 2019, https://www.buergschaftsbank.de/buergschaftsbank/fuer-unternehmen/programme/detailansicht/item/6-gruendungsfinanzierung.
156 KfW, 2019, https://www.kfw.de/inlandsfoerderung/Unternehmen/Erweitern-Festigen/.
157 MBG-Thüringen, 2019, https://www.mbg-thueringen.de/produkte/unsere-beteiligungen/mbg-classic-neu.
158 See for example the ex-ante assessment for financial instruments under EFRE in Saxony for an overview in Saxony (link).
159 *fi-compass,* 2018, Food and agricultural loan fund 2014-2020 - Mecklenburg-Vorpommern, Germany, Case study https://www.fi-compass.eu/publication/case-studies/case-study-food-and-agricultural-loan-fund-2014-2020.
160 MSME with up to 249 employees and an annual turnover of maximum EUR 50 million.
161 Bürgschaftsbank, 2019, https://www.buergschaftsbank-mv.de/darlehen/erla_darlehen/.
162 Ex-ante Bewertung für ein ELER-kofinanziertes Finanzinstrument zur Unterstützung der Markteinführung innovativer Produkte von KMU in der Ernährungswirtschaft in Mecklenburg-Vorpommern.
163 Jährlicher Durchführungsbericht 2018 and interview with the MA.
164 Other EU funds are the ESF micro-loan fund and the 41 EFRD funds for enhancing SME competitiveness on federal state level which are managed by the state development agencies and are not limited to specific sectors. They focus on SME in general, but it is unclear to which extent agri-food companies are covered.
165 KfW was not in the position to provide portfolio figures broken down by economic sectors.

idea on the development of loan disbursements. In 2018, loans worth EUR 1.17 billion were disbursed which constitutes an increase by 11.3% compared to the previous year (Table 13). [166]

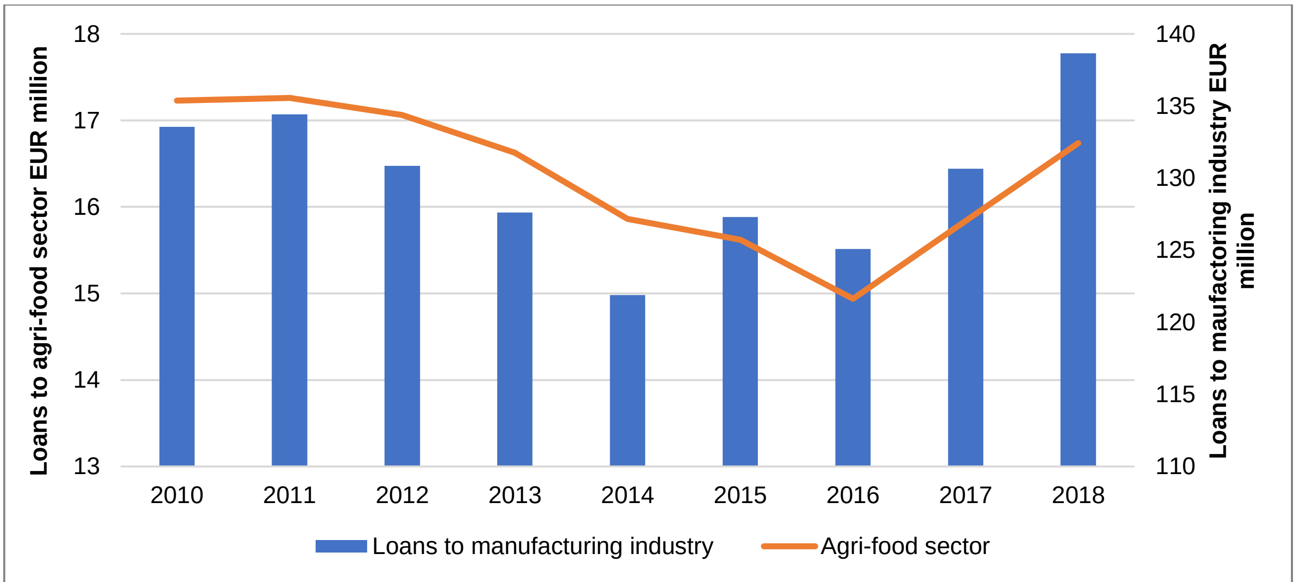
Table 13: Rentenbank new loans to agri-businesses in EUR million, 2016-2018

	2016	2017	2018
Machinery	444.8	519.9	618.7
Buildings	249.6	282.6	343.0
Working capital	164.5	212.0	173.0
Total Agri-business	**954**	**1 054**	**1 173**

Source: Landwirtschaftliche Rentenbank, Annual Reports 2017 and 2018.

The outstanding loan volume to the agri-food sector amounted to EUR 16.7 billion as of the end of 2018 (Figure 28)**.** According to the statistics of the Bundesbank, the outstanding loan volume to the agri-food sector has developed in a similar pattern as the loans to the manufacturing industry in general. After a strong decline, the loan volume has been growing again since 2016.

Figure 28: Development of the outstanding loans to the agri-food sector and the manufacturing industry in Germany[167], 2010-2018



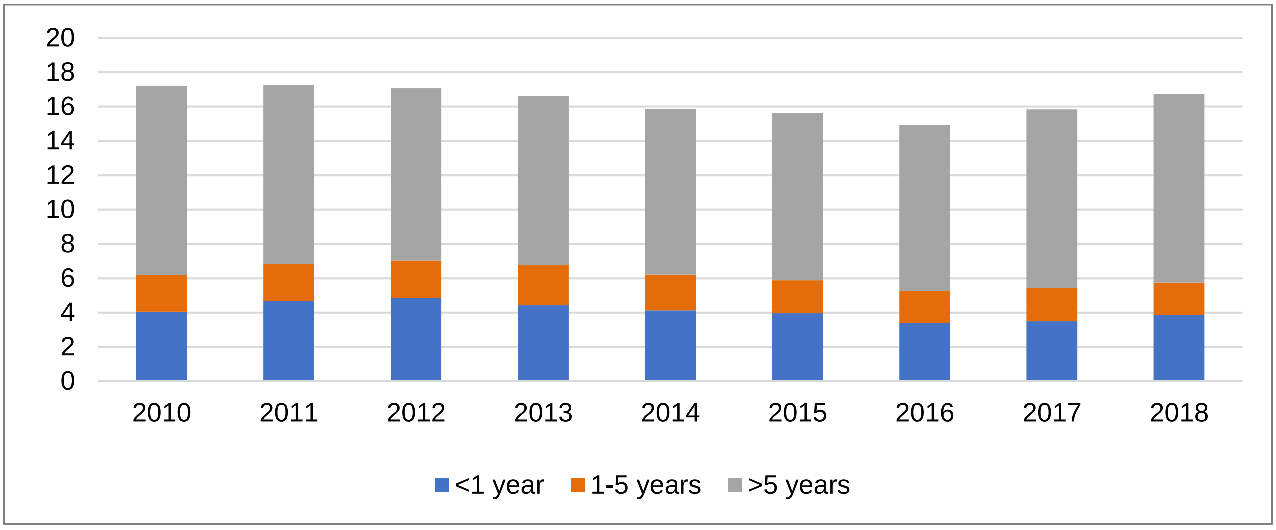
Source: Deutsche Bundesbank, Zeitreihen, 2019.

Long-term loans are the most popular products. Two thirds of the outstanding loan portfolio to the agri-food sector are made up of long-term loans with a maturity above five years, followed by short-term loans with 23% (Figure 29). In comparison to the agriculture sector, where the share of long-term loans was 85%, this pattern indicates a more diversified demand for financial products. The higher share of short-term loans is related to higher working capital needs.

166 The KfW SME survey provides interesting information about lending patterns for German SME across all sectors. According to this, the number of SME loan clients remained stable. In 2018, 573 000 SMEs received loans from a financial institution. The average loan amount for investment loans was EUR 130 000. This constitutes an increase compared to the average loan amount of EUR 97 000 during the last ten years. However, in the overall perspective, loans to SMEs are of a limited amount: 82% of all investment loans was below EUR 100 000 and around half of all loans were below EUR 20 000 (KfW, 2019, Mittelstandspanel).

167 Includes also tobacco.

Figure 29: Development of the outstanding loans to the agri-food sector in Germany by maturity, %



Source: Deutsche Bundesbank, 2019.

There are no specific loan conditions or different loan maturities for the agri-food sector offered by the German banks. Banks treat the agri-food sector as other sectors of the manufacturing industry and therefore do not offer specific loan products for agri-food companies. The interest rate and collateral requirements depend on the rating result of the company. Due to the stable economic situation, in the manufacturing industry, 33.5% of the enterprises reported an improved rating result and thus a better position in credit negotiations.[168]

Banks are risk averse when dealing with the agri-food sector. Banks are cautious to lend to riskier projects like launching new products or investing in new technologies. In addition, many agri-food companies are very small and have to withstand strong competition in the sector. This increases the risk profile of agri-food companies. Furthermore, the agri-food sector in Germany is very diverse and the manufacturing of food and beverages depends on a number of parameters, like for example prices for raw material which need to be understood. Banks therefore find it difficult to appraise agri-food clients.

168 KfW Volkswirtschaft, Zimmermann, Volker, 2019, Unternehmensbefragung 2019.

3.4 Financing gap in the agri-food sector

This section presents an assessment of the financing gap in the German agri-food sector, broken down by firm-size and financial product.

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

- The financing gap is estimated to be EUR 2 billion.
- The gap mainly concerns small-sized enterprises and start-ups.
- The gap is the largest for long-term loans.
- The key constraints for access to finance are the lack of collateral, the lack of appropriate business plans and banks being risk averse towards the agri-food sector.
- Public support in the form of preferential loans, guarantees and equity are available on national and regional (federal state) levels. The public toolkit contains a range of financial and non-financial support for beneficiaries, yet not all enterprises are aware of all the opportunities.

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 farms X percentage of firms that are both financially viable and have unmet demand X average loan volume

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

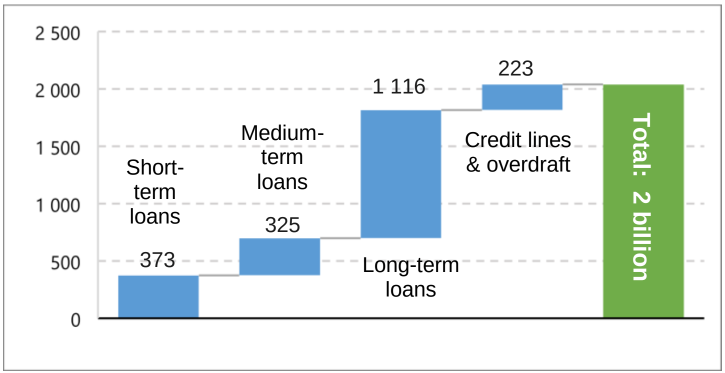
The financing gap arises from unmet financing demand from economically viable firms[169]. The unmet demand for finance includes

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

For the purpose of this study, ‘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.

169 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 30: Financing gap by product in the agri-food sector, 2018, EUR million



Source: Agri-food survey.

The financing gap for the German agri-food sector is estimated at EUR 2 billion (Figure 30). The unmet demand for finance is concentrated in the segment of small-sized enterprises (less than 50 employees) representing 54% of the value of the gap. With regards to the loan products, 55% of the gap relates to long-term loans (>5 years, see Table 14).

Table 14: Financing gap by firm in the agri-food sector, EUR million, 2018

	Total	Short-term Loan	Medium-term Loans	Long-term Loans	Credit lines/bank overdraft
Small-sized firms	**1 109.4**	184.8	180.1	622.4	122.2
Medium-sized firms	**664.7**	151.5	101.5	344.2	67.5
Large-sized firms	**264.3**	36.8	43.8	149.9	33.8
Total	**2 038.4**	**373.0**	**325.4**	**1 116.5**	**223.5**

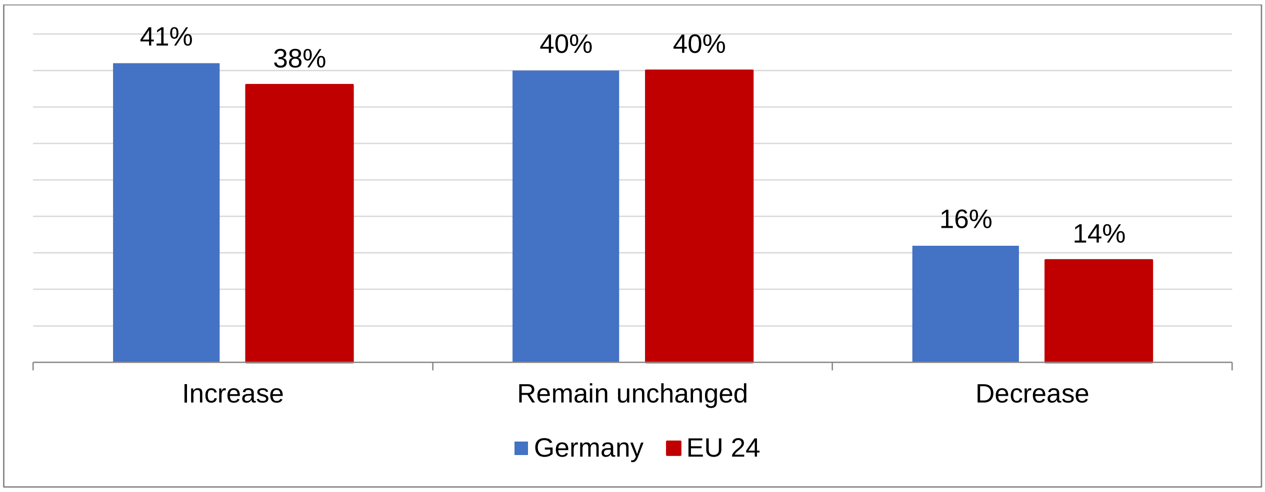
Source: Agri-food survey.

The main drivers of the gap are lack of collateral and limited knowledge in business management. Lack of collateral is an important obstacle in accessing finance for small-sized companies and start-ups. The latter also face difficulties because they lack credit history. An additional obstacle is the limited knowledge in business management, planning of investments and marketing the products. In addition, some enterprises seem to lack awareness of the full range of financial and non-financial support already available, whereby they do not take advantage of the tool kit that exists to facilitate access to finance.

On the supply side, the main constraint is the risk averse attitude of banks towards the agri-food sector. Banks are cautious to lend to agri-food companies because strong competition is driving down profit margins, thereby narrowing the repayment capacity of enterprises in the sector. Further, the sector is complex and requires a good understanding of all involved parameters, especially in the case of endeavours like start-ups or developing and launching innovative products. This may prevent some banks from investing in the sector.

It is likely that the financing gap will persist over the coming years. The general outlook for the agri-food industry is positive despite the obstacles that were discussed in this report. According to the Agri-food survey, German agri-food enterprises are optimistic about future market developments and 40% expect an increase in their financial needs over the next 2-3 years (Figure 31). This is in line with the answers that were collected in a survey by the Association of the German Food Industry whereby 55% of the food manufacturers and 66% of the beverage producers plan to increase their investments in 2019.

Figure 31: Agri-food companies' expectations on future financing needs (next 2-3 years), 2018



Source: Agri-food survey.

The future size of the gap also depends on the developments in the banking sector where the evolution of the low interest rate levels is the determining factor. Developments in export markets, such as Brexit, will influence the demand for finance as well.

Agri-food manufacturers have access to a range of **public support schemes on the federal state, national and EU levels**. While there is only one regional EAFRD financial instrument in place which explicitly focuses on the agri-food sector, food and beverage manufacturers can benefit from most of the SME support schemes. The downside is that public support is always linked to particular timeframes which might not coincide with the investment plan of the enterprise and might require more administrative effort. In addition, as discussed above, the uptake of the instruments may be limited by the fact that some agri-food enterprises are not aware of the initiatives available to support them.

3.5 Conclusions

The production of food and beverages is one of the key sectors of the manufacturing industry in Germany. The sector's output has been increasing steadily and contributed 1.6% to total GVA in 2017. Still most of the agri-food companies are small, but the structural change is leading to larger production units and a higher market concentration. Export of food and beverage items plays an important role in sustaining the growth of the sector.

The agri-food sector is investment-active. Since 2010 investments increased by 44%. Companies invested in machinery and equity, buildings as well as R&D.

Investments are often financed out of own funds although the number of commercial, cooperative and savings banks that are serving the agri-food sector is larger than for the agriculture sector. Agri-food SMEs can access preferential loans from Rentenbank and Kreditanstalt für Wiederaufbau (KfW) on the national level. On the federal level, public development agencies, guarantee banks and equity funds provide programmes for SMEs of all sectors.

Not all federal states have included investment support for agri-food businesses in their regional RDPs, but those that did saw a stable and well-developed inflow of business proposals that were supported. Agricultural and rural development policy is the task of the federal states in Germany, which can set their own priorities within the National Framework that was agreed for the EAFRD.

In one federal state, a **specific EAFRD financial instrument** for the agri-food sector is in place. Its introduction forced the local banks to match the risk and its loan conditions in order to keep their clientele and to be competitive within this segment. As a result the managing authority expanded the scope of support under the Fund, including for agri-food. Other EU-funded financial instruments are available for SMEs from all economic sectors, but their importance for agri-food is yet to be proven.

A financing gap of EUR 2 billion has been estimated. Access to long-term loans makes up the biggest part of the gap. Small-sized companies have the most difficulties in accessing finance.

The main constraints that were identified stem from the lack of collateral, insufficient business management and planning skills and a reserved attitude towards external finance among entrepreneurs. On the supply side, the risk averse attitude of banks towards the agri-food sector was found to be the main limiting factor.

In order to improve the access of finance for the German agri-food enterprises, the following recommendations could be considered:

- Dedicated support to the agri-food sector is only available to a limited degree and as a result food and beverage producers have to make use of general SME lending support schemes. Therefore, new financial instruments that specifically target agri-food businesses might provide benefits to the sector. However, the demand may not be large enough to justify such an EAFRD supported instrument in every region due to the regional diversity of Germany.
- The fact that there will be a single CAP Strategic Plan in the 2021-2027 programming period may facilitate the introduction of a CAP/EAFRD financial instrument applicable to all federal states. This may well only target start-ups or small-sized agri-food companies that lack assets for collateral. Investments in innovation might constitute an additional target.
- CAP/EAFRD counter-guarantees could also be considered as an upgrade of the available COSME financing, which may benefit mostly the federal states' guarantee funds. It can also support the grant execution of the RDPs.

ANNEX

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A.2. Stakeholders interviewed

Type of Organisation	Name of Institution
Government	State Ministry for Agriculture and Environment Mecklenburg-Vorpommern
Government	State Ministry for Agriculture and Environment Saxony
Government	State Ministry for Agriculture and Environment Thuringia
Bank	Akf Bank
Bank	Deutsche Kredit Bank
Bank	DKB
Bank	Kreditanstalt für Wiederaufbau
Bank	Rentenbank
Bank	Sächsische Aufbaubank
Bank	Salzlandsparkasse
Bank	Sparkasse Mittelsachsen
Bank	WiBank
Insurance	FidesSecur
Association	Bundesvereinigung der Deutschen Ernährungsindustrie (Association of German Food Manufacturer)
Association	DLG (German Agricultural Society)
Association	German Farmer Association
Association	Saxon Association of FarmersState Farmer Association Thuringia
Association	State Farmer Association Saxony
Association	State Farmer Association Thuringia
Association	Verband der Süsswarenindustrie (Confectionary Industry Association)
Farmer	Agrarproduktion Struppen e.G.
Farmer	An der Dresdner Heide GmbH & Co.KG
Farmer	LPH Bergen-Bluno
Farmer	- Young farmers from Lower Saxony and Bavaria - Young farmer from Hamburg
Agri-food processor	Ananastasya Fingerfoods
Agri-food processor	Kohrener Landmolkerei
Agri-food processor	Leipziger Spirituosen
Agri-food processor	Quendt Food Innovation
Agri-machinery cooperation	Arbeitsgemeinschaft der Maschinen- und Betriebshilferinge Sachsen e.V.

A.3. Methodology

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 European Commission 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**:

1. $\boldsymbol{Rejected}$ **credit applications** include applications that are rejected by banks (or other credit organisations) and offered from banks but turned down by the farmers/firms.
2. **The share of** $\boldsymbol{Viable}$ **firms is measured by** the share of total firms that have a non-negative turnover growth[170] 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).
3. **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

$\boldsymbol{Rejection\ Rate^{Viable}}$ **:** 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 and $j = Short - term\ , Medium - term, Long - term\ Loans, Credit\ lines.$

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

$$Discouraged\ Rate_j^{Viable} = \frac{Number\ of Discouraged\ Viable\ Firms}{Total\ survey\ population_j}$$

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

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

$$Unmet\ demand\ Rate_j^{Viable} = Rejection\ Rate_j + Discouraged\ Rate_j$$

Step 2: Number of farms rejected or discouraged

$\boldsymbol{N.of\ Farms\ in\ unmet\ demand_{ij}^{Viable}}$: 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.

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

For TGI, 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 above the 66th percentile, between the 33th and 66th percentile, or below the 33th 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.

$$N.of\ Farms\ rejected_{ij}^{Viable} = Eurostat\ Farm\ population_i * Rejection\ Rate_j^{Viable}$$

$$N.of\ Farms\ discouraged_{ij}^{Viable} = Eurostat\ Farm\ population_i * Discouraged\ Rate_j{}^{Viable}$$

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

for $i = Small, Medium, Large$
and $j = Short - term\ , Medium - term, Long - term\ Loans, Credit\ lines.$

<u>Step 3: Standard Loan Application Size</u>

$\boldsymbol{Application\ Size_{ij}}$: 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 index. This value might be further adjusted based on the results of the analysis.

<u>Step 4: Financial gap across farm size and product type</u>

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.

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

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. Therefore, regionalised figures and calculations could be applied with a limited dimension and for only few countries. Information from interviews may complement such regionalised descriptions.

For Germany, Table 15 and Table 16 report the elements used in the calculation of the financing gap for the agricultural and agri-food sector, respectively.

Table 15: Elements used for calculating the financing gap for the agriculture sector in Germany, 2017

		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	0.38%	1.01%	0.12%	0.12%
	Share of respondents that have not applied because of possible rejection	0.43%	0.43%	0.43%	0.43%
	Total (sum of rejected and discouraged)	0.81%	1.44%	0.55%	0.55%
Upper bound: farms with a non-negative turnover growth	Share of respondents rejected by creditor or farmer	0.38%	1.27%	0.24%	0.12%
	Share of respondents that have not applied because of possible rejection	2.17%	2.43%	2.17%	1.19%
	Total (sum of rejected an discouraged)	2.55%	3.70%	2.41%	1.31%
Total unmet demand: all farms	Share of respondents rejected by creditor or farmer	0.89%	1.79%	0.50%	0.38%
	Share of respondents that have not applied because of possible rejection	2.17%	2.43%	2.17%	1.19%
	Total (sum of rejected an discouraged)	3.06%	4.21%	2.67%	1.57%
Farms with constrained access to finance, **lower bound**	Small-sized farms	952	1 699	649	649
	Medium-sized farms	925	1 652	631	631
	Large-sized farms	297	530	203	203
Farms with constrained access to finance, **upper bound**	Small-sized farms	2 998	4 350	2 837	1 539
	Medium-sized farms	2 914	4 229	2 758	1 496
	Large-sized farms	935	1 357	885	480
Standard loan application size (EUR)	Small-sized farms	18 063	43 816	120 840	16 307
	Medium-sized farms	22 886	41 646	131 213	18 089
	Large-sized farms	67 498	105 981	236 262	96 338

Source: fi-compass survey.

Table 16: Elements used for calculating the financing gap for the agri-food sector in Germany, 2018

		Short-term Loans	Medium-term Loans	Long-term Loans	Credit lines/bank overdraft
Firms with a non-negative turnover growth	Share of respondents rejected by creditor or enterprise	0.44%	0.55%	0.99%	0.55%
	Share of respondents that have not applied because of possible rejection	8.83%	6.05%	7.05%	4.88%
	Total (sum of rejected an discouraged)	9.27%	6.60%	8.04%	5.43%
Total unmet demand: all firms	Share of respondents rejected by creditor or enterprise	1.11%	0.99%	0.99%	0.99%
	Share of respondents that have not applied because of possible rejection	10.30%	7.52%	8.52%	6.35%
	Total (sum of rejected an discouraged)	11.42%	8.51%	9.51%	7.35%
Firms with constrained access to finance	Small-sized firms	2 184	1 555	1 895	1 279
	Medium-sized firms	225	160	195	132
	Large-sized firms	56	40	48	33
Standard loan application size (EUR)	Small-sized firms	84 597	115 811	328 478	95 519
	Medium-sized firms	672 093	632 875	1 760 541	511 365
	Large-sized firms	662 748	1 108 444	3 111 572	1 040 000

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 agricultural 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 agricultural enterprise, 8% are member owners, 8% are owner's relatives, 7% administrative managers, 3% other employees, and 1% human resource managers. Table 17 reports the number of respondents by Member State.

Table 17: *fi-compass survey* sample size per 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

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.

For additional information, please refer to https://www.fi-compass.eu/publication/brochures/survey-financial-needs-and-access-finance-eu-agricultural-enterprises.

A.5. TG II: Agri-food survey

To mirror the *fi-compass* survey on the needs of EU agricultural 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 questionnaire for each Member State. The minimum sample size obtained varied per country mirroring the differences in the size of the sector. Table 18 reports the sample size per country.

Table 18: Agri-food survey sample size per Member State

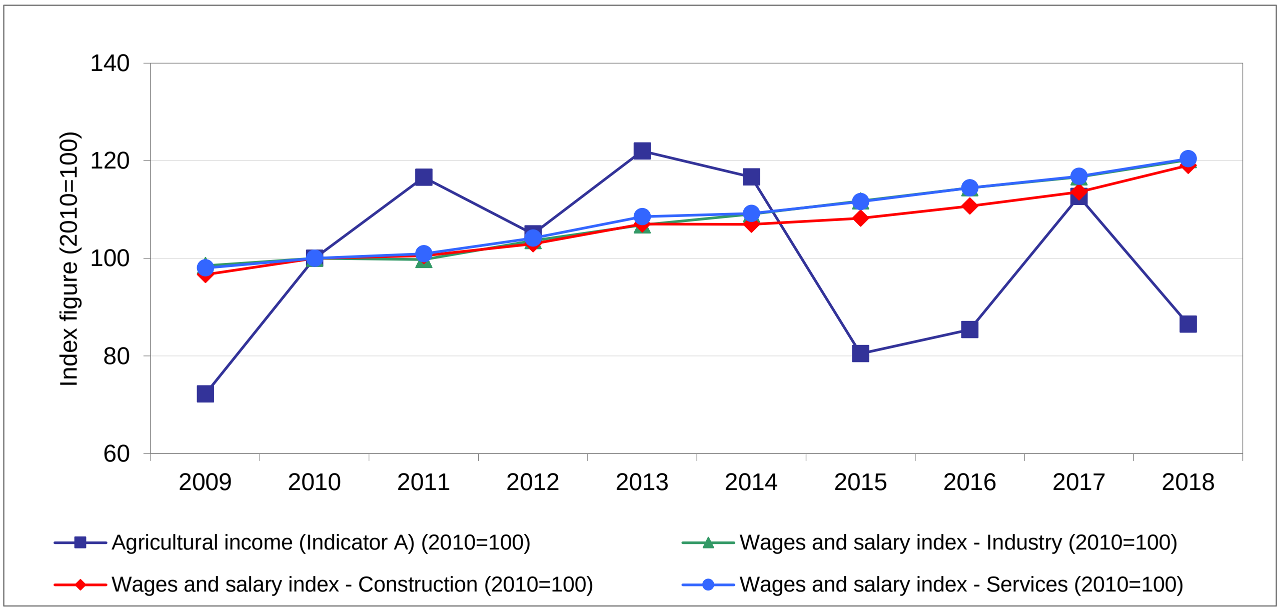
Country	No. of Respondents	Country	No. of Respondents
Belgium	100	**Latvia**	50
Bulgaria	100	**Lithuania**	50
Czech republic	66	**Hungary**	46
Denmark	50	**The Netherlands**	80
Germany	186	**Austria**	50
Estonia	50	**Poland**	130
Ireland	50	**Portugal**	100
Greece	70	**Romania**	150
Spain	197	**Slovenia**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

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.

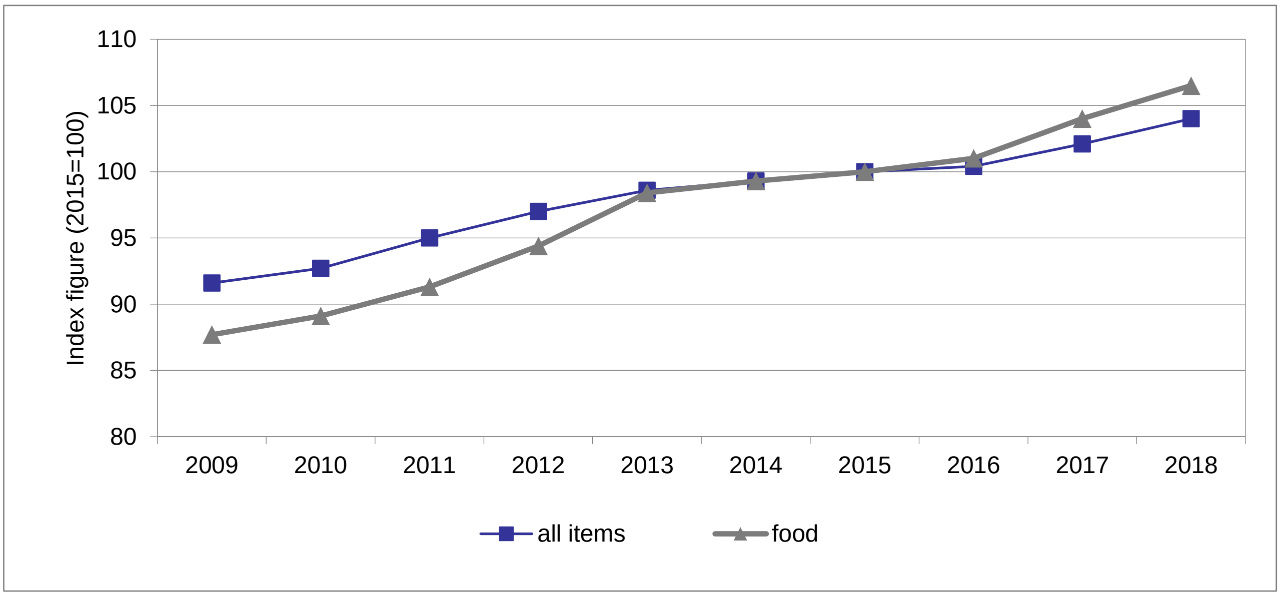
A.6. Data from the agriculture statistical factsheets

Figure 32: Evolution of agricultural income compared to wages and salaries in other sectors of the economy



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

Figure 33: Evolution of harmonized indices of consumer prices



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

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