

DANMARKS NATIONALBANK

27 OCTOBER 2020 — NO. 20

Lower borrowing needs in Danish corporations compared to European during COVID-19

- Corporate borrowing from banks and mortgage credit institutions has remained largely unchanged in Denmark during the first wave of the pandemic. In the euro area, corporate borrowing has increased significantly, but there are marked differences across the European countries.
- The lower borrowing is due to lower borrowing needs. Especially two factors explain the lower needs: The downturn in the Danish economy has so far been less severe, and Danish corporations built up reserves to a larger extent prior to the first coronavirus outbreak.
- Exceptional policy measures have supported corporate liquidity in all countries. Some measures, such as the deferral of taxes, have significantly dampened borrowing needs, while other measures, such as loan guarantees, have contributed to increased corporate borrowing.



Extent of the downturn

Close link between downturn and borrowing

[Read more](#)



Corporate resilience

Accumulation of reserves prior to the pandemic reduced borrowing needs

[Read more](#)



Policy measures

Liquidity support has reduced borrowing needs in Denmark

[Read more](#)

Lower borrowing by Danish corporations than by European corporations

The first wave of the coronavirus outbreak resulted in an unprecedented downturn for the world economy in the first half of 2020. Many corporations were hit hard by the behavioural changes and restrictions imposed to reduce the spread of infection. The behavioural changes and restrictions have led to a reduction in corporate revenue and earnings and a resulting increase in liquidity needs. Corporations have been able to obtain liquidity via several channels, for example by drawing on reserves in the form of bank deposits, by utilising state aid schemes and by borrowing.

From the first wave of the pandemic and so far, there has been a big difference in the development in borrowing by non-financial corporations across the European countries, see Chart 1.¹ Whereas corporate borrowing has remained largely unchanged in Denmark, corporations in the euro area as a whole have increased their borrowing sharply over a short period of time. Borrowing in the euro area is driven, in particular, by countries such as France and Spain.

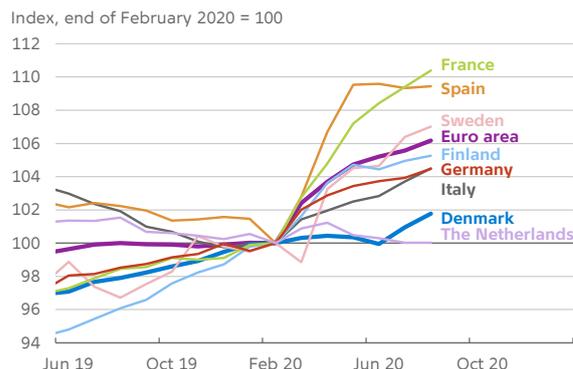
It is important to understand why the Danish development differs from that of certain European countries and to highlight the factors that have played a role in corporate borrowing. Is the relatively lower level of borrowing due to lower borrowing needs among Danish corporations, for example because the state aid schemes have been effective? Or is it due to more problematic conditions such as restricted corporate access to credit? Such questions can be explored by examining the variation in borrowing across the European countries.

Both demand and supply have played a role

The development in corporate borrowing may have been driven both by corporate liquidity needs – i.e.

Corporate borrowing has been comparatively low in Denmark since March relative to other countries in Europe

Chart 1



Note: Borrowing has been defined as lending by domestic monetary financial institutions to non-financial corporations domiciled in the country in question. Lending comprises transactions denominated in all currencies and are calculated as outstanding amounts at the end of the month. The most recent observations are from August 2020.

Source: Macrobond and own calculations.

the demand for loans – and by the banks’ ability and willingness to grant loans – i.e. the loan supply. The bank lending surveys² indicate that the development across countries can be attributed to changes in both loan demand and supply.

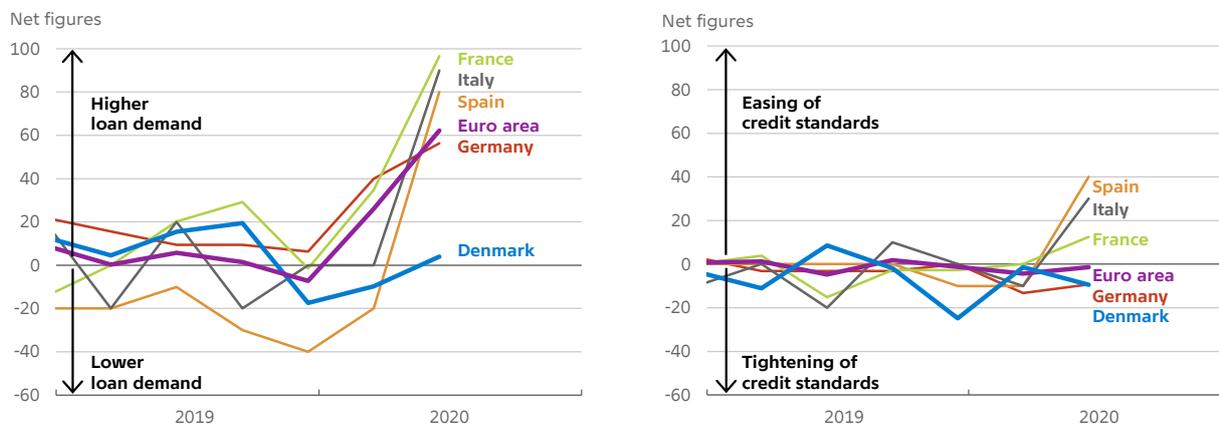
In the euro area, corporate demand for bank loans increased significantly in both the first and second quarters, see Chart 2 (left). Corporations especially demanded loans to cover current expenses and to build up liquidity reserves, while the demand for loans for investments

1 See Danmarks Nationalbank (2020a) for a further description of Danish credit conditions during the coronavirus outbreak.

2 The bank lending surveys are quarterly questionnaires in which credit managers in the largest credit institutions answer questions about the development in credit policy and loan applications. Credit managers assess, for example, the development in their credit standards, i.e. their inclination to offer loans, and the contributory factors to this development. They also assess how customer demand for loans has changed and the reasons for this.

The loan demand has increased more in the euro area than in Denmark, and the credit standards have been eased in the countries with the highest use of state loan guarantees

Chart 2



Note: The net figure shows the weighted proportion of credit institutions that have answered that they have experienced higher loan demand (eased credit standards) less the weighted proportion of credit institutions that have answered that they have experienced lower loan demand (tightened credit standards). A positive net figure is therefore equivalent to the credit institutions overall having experienced an increased loan demand (eased credit standards), while a negative net total is equivalent to the credit institutions having experienced lower loan demand (tightened credit standards). The loan demand is for existing customers for Denmark.

Source: Macrobond.

decreased.³ The loan demand figures support the idea that corporate borrowing demand was related to the coronavirus situation and was driven by both liquidity needs and a wish to boost resilience under conditions with increased uncertainty. The increase in loan demand was most marked in France, Italy and Spain. For France and Spain, the increase coincides with these countries also having had the highest credit growth rates. In Denmark, the loan demand development was very different. Even though the banks expected loan demand to increase in March, it remained largely unchanged. However, the overall figure conceals that some of the major banks saw an increase in loan demand, while the majority of the banks saw a decrease in demand.

The policy measures have contributed to ensuring that the loan supply has been able to meet the increased loan demand. In many countries, the state has guaranteed corporate loans. The state guarantees have reduced the lending risk of the banks, thus contributing to their greater willingness to grant loans. In parallel with the state aid schemes introduced, several countries have made use of the flexibility inherent in the financial regulation, for example via releasing capital buffers. The regulation has thus also supported the continued granting of loans by banks to corporations after the coronavirus outbreak.^{4,5}

Nor do credit standards seem to have been tightened according to the bank lending surveys. On the

3 The declining investment appetite is consistent with the results of a survey conducted by the European Central Bank among small and medium-sized enterprises about their access to financing. The survey shows that the enterprises were reluctant to increase their fixed investments at the outset of the coronavirus outbreak, see ECB (2020b). In Denmark, the corporations also pared down their investment plans in the spring. Danmarks Nationalbank expects corporate investments to decrease by 10.7 per cent in 2020, after which they will gradually increase in the following years, see Danmarks Nationalbank (2020b).

4 See Jensen et al. (2020) for a further description of how financial regulatory measures aim to support bank lending.

5 The ECB finds, for example, that macroprudential measures during the coronavirus crisis have effectively reduced capital requirements in the euro area by 1.5 percentage points, which can, in itself, increase the annual lending growth for banks without a capital buffer by up to 2.2 percentage points over a 12-month period, see Altavilla et al. (2020).

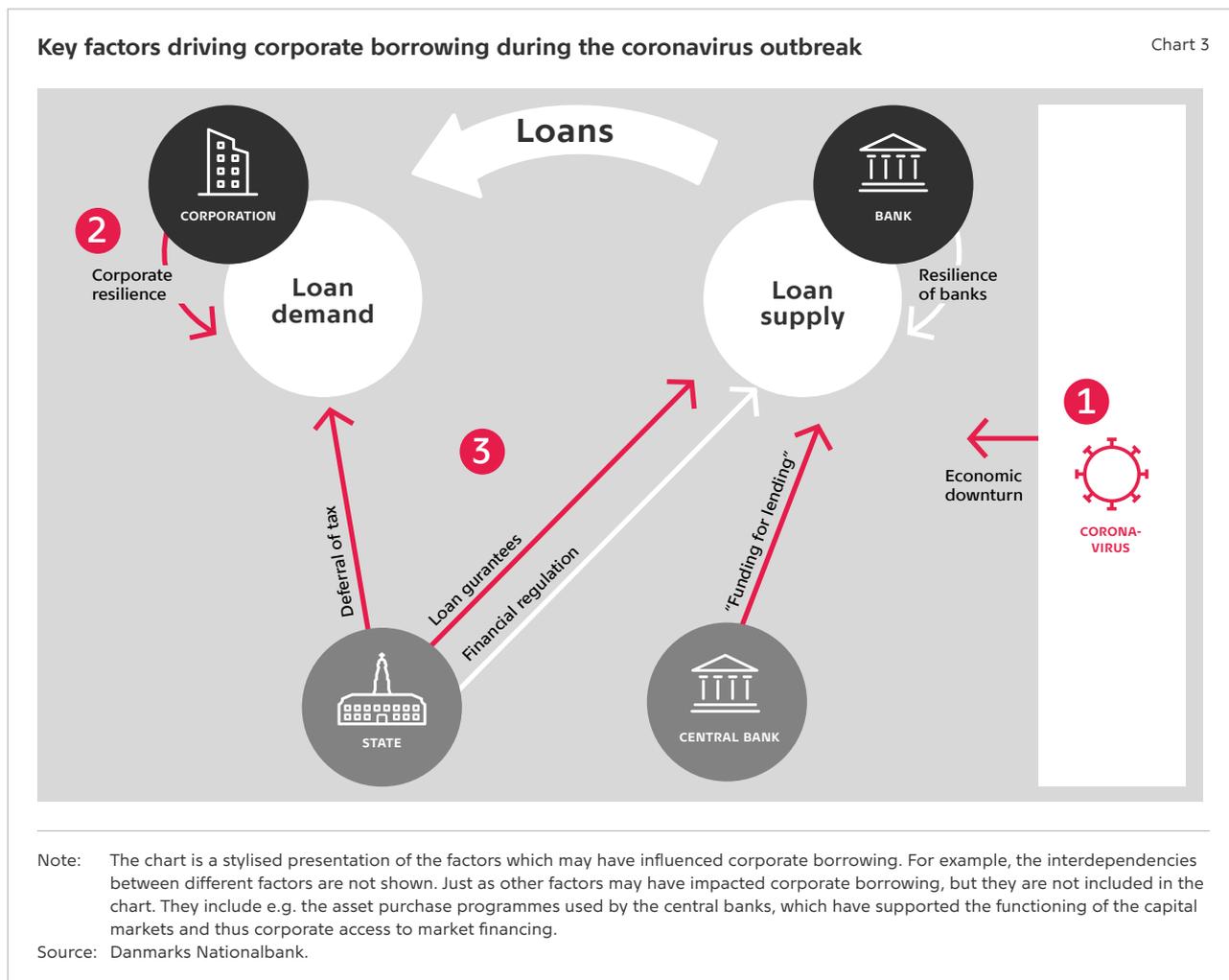
contrary, they were either kept largely unchanged or eased in the first and second quarters, see Chart 2 (right). Credit standards were especially eased in Spain and Italy, which are among the countries that have seen the highest use of state loan guarantees. The European banks stated that the policy measures have contributed to more lenient credit standards, but also that sharpened risk perception and tolerance have contributed to a tightening of credit standards.⁶ The Danish banks' credit standards were largely unchanged.

Especially three factors have a bearing on corporate borrowing

To examine more closely the factors of importance to the development in corporate borrowing across countries, the main explanations are divided into three groups, see Chart 3.

The first group of factors concerns the extent of the economic downturn, i.e. how hard the economies, and thus the corporations, were hit by the pandemic. The second group of factors concerns corporate resilience prior to the coronavirus outbreak. The third group of factors concerns the extent of policy measures aimed at supporting corporate liquidity. The measures include the deferral of taxes, compensation schemes and loan guarantee programmes.

The remainder of the analysis looks at how these three groups of factors may have affected corporate borrowing. By way of introduction, Box 1 describes an econometric model which includes the first two factors, i.e. the extent of the economic downturn and corporate resilience. The model confirms considerable co-variation between these factors



6 See ECB (2020a).

A model shows that the economic downturn and corporate resilience can explain much of the corporate borrowing

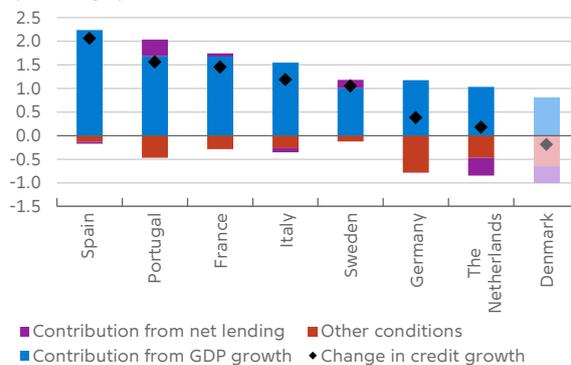
Box 1

The differences in corporate borrowing across countries are mainly explained by the severity of the economic downturn in the individual countries and the reserves accumulated by corporations prior to the coronavirus outbreak. This is shown in a regression model.

The regression model¹ shows, for example, that borrowing has been lower in the Netherlands and Denmark due to a less severe economic downturn, stronger consolidation up to the coronavirus outbreak and other conditions, see Chart A. The development in Denmark and the Netherlands is in contrast to the development in, for example, France and Portugal, which – relative to Denmark – are hit harder economically and in which the corporations dissaved in the period up to the coronavirus outbreak. ‘Other conditions’ reduces corporate borrowing. These conditions include the deferral of tax payments and compensation schemes that may have replaced some of the need for credit.

Chart A: Differences in borrowing vary with the extent of the economic downturn and the level of corporate resilience

Contribution to change in borrowing after coronavirus outbreak, percentage points



Note: “Change in borrowing” reflects the monthly change in credit growth. “Other conditions” represents the constant and the residuals in the model. The model only sheds light on the current development and should not be regarded as a general credit model.

Source: Macrobond and own calculations.

¹ The model is described in further detail in Appendix A.

and the change in corporate borrowing following the coronavirus outbreak. As only few observations are available for the period during the coronavirus outbreak, it is not possible to establish a model containing all the factors described. Therefore, in the remainder of the analysis we look at the correlations between each factor and corporate borrowing across the countries.⁷

Table 1 shows the expected correlations between each of the factors and the change in corporate borrowing.⁸ The table also summarises the correlations reviewed in the remainder of the analysis.

⁷ The groups of countries included in the calculated correlations and charts vary. The reason for the variation is that comparable data is not available for all factors for all European countries. The results do not change significantly – in terms of correlation or coefficient of determination – if the data basis is aligned to include the following 10 countries: Germany, France, Italy, Spain, Portugal, Belgium, the Netherlands, Greece, Denmark and Sweden. See the footnote in Table 1 for an elaboration of which countries are included in each of the calculated correlations.

⁸ The remainder of the analysis focuses on changes in credit growth rather than the actual growth rates. The countries with positive borrowing are thus countries in which lending to corporations has accelerated. When comparing the credit development across countries, it is expedient to use this method, as it takes into account the fact that the countries were and are in different economic situations. Some countries have seen relatively strong growth in corporate lending in recent years, and, to capture the impact of the coronavirus outbreak, we look at whether the growth rate has increased or decreased, and not just whether it is high or low. The change in credit growth is measured as the average monthly credit growth before and after the coronavirus outbreak, i.e. the difference between the period January 2019 to February 2020 and March 2020 to July 2020.

Correlations between selected factors and the change in corporate borrowing

Table 1

Factors	Variable	Expected correlation	Correlation
1. Extent of the economic downturn			
Economic activity: The expectation is that the higher the level of economic activity (i.e. the less severe economic downturn), the lower the corporate borrowing need will be. Economic activity is measured by <i>gross domestic product (GDP) growth</i> .	GDP growth	Negative	-0.57 ¹
Lockdown and restrictions: The expectation is that the more restrictions implemented, the lower the GDP growth and the greater the corporate borrowing needs will be. Restrictions are measured using <i>Oxford University's stringency index</i> .	Stringency index	Positive	+0.24 ²
Behavioural changes: The expectation is that the more unaffected the population has been, the higher the GDP growth and the lower the corporate borrowing needs will be. Behaviour is measured using <i>Google's mobility indicator</i> .	Mobility indicator	Negative	-0.24 ¹
Corporate structure: The expectation is that the more vulnerable the national corporate structure is to the coronavirus outbreak, the lower the GDP growth and the greater the corporate borrowing needs will be. Vulnerability is measured by <i>the share of tourism</i> and <i>the share of small and medium-sized enterprises (SMEs)</i> .	Tourism	Positive	+0.54 ¹
	SMEs	Positive	+0.11 ³
2. Corporate resilience			
Liquidity: The expectation is that the more resilient the corporations were prior to the coronavirus outbreak, the lower their borrowing needs will be. Resilience is measured by the change in net lending (NL) and based on <i>Time with No Activity until Loss (TNAL)</i> .	NL	Negative	-0.42 ¹
	TNAL	Negative	-0.78 ⁴
3. Policy measures			
Measures that inject liquidity directly: The expectation is that the more extensive the schemes used to inject liquidity directly into the corporations, the lower the corporate borrowing needs will be. The schemes are measured by <i>deferral of tax relative to GDP</i> , <i>deferral of tax relative to GDP growth</i> and <i>wage compensation relative to GDP</i> .	Deferral of tax	Negative	+0.06 ⁵
	Deferral of tax/GDP growth	Negative	-0.48 ⁵
	Wage compensation	Negative	N.A. ⁶
Measures that inject liquidity through the banks: The expectation is that the more extensive the schemes used to inject liquidity into the corporations through the banks, the greater the corporate borrowing will be. The schemes are measured by <i>loan guarantees relative to GDP</i> .	Loan guarantees	Positive	+0.85 ⁷
"Funding for lending": The expectation is that the more extensive the central banks' allocation of liquidity to the banks, the greater the banks' loan supply will be and the higher the corporate borrowing will be. Allocations are measured by <i>ECB's TLTRO loans relative to GDP</i> .	TLTRO	Positive	+0.18 ⁸

Note: The table shows the correlation between each individual factor and the change in credit growth.

Source: Macrobond, Bruegel and own calculations.

1. 15 countries: AT, BE, DE, DK, ES, FI, FR, GR, IE, IT, NL, PT, SE, SI and SK.
2. 14 countries: AT, BE, DE, DK, ES, FI, FR, GR, IE, IT, NL, PT, SE and SI.
3. 12 countries: BE, DE, DK, ES, FI, FR, GR, IT, NL, SE, SI and SK.
4. 6 countries: BE, DK, ES, FR, IT and PT.
5. 9 countries: BE, DE, DK, ES, FR, GR, IT, NL and PT.
6. Not enough data to calculate correlation.
7. 10 countries: AT, DE, DK, ES, FI, FR, IT, NL, PT and SE.
8. 13 countries: AT, BE, DE, ES, FI, FR, GR, IE, IT, NL, PT, SI and SK.

The extent of the economic downturn has impacted corporate borrowing

The severity of the impact of the coronavirus outbreak on economic activity, and thus on corporate revenue, earnings and liquidity needs, has varied across countries. Therefore, the extent of the economic downturn is an obvious explanation of why corporations in some countries have needed to borrow more than in other countries.⁹ Across countries, the decrease in gross domestic product (GDP) in the second quarter is also closely correlated with the increase in corporate borrowing since March relative to the previous year, see Chart 4.

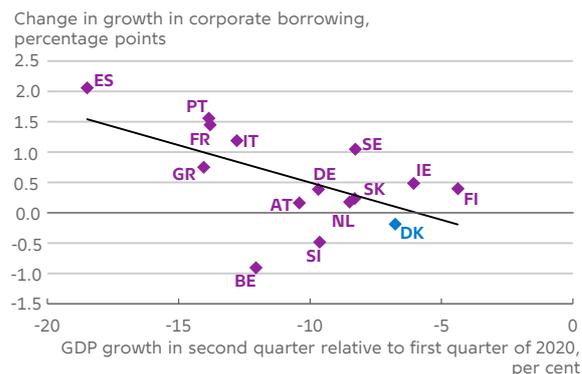
Lockdown and behavioural changes have impacted the economic downturn and corporate borrowing needs

Several factors have impacted the national differences in the economic downturn, among other things the different degrees of lockdowns and restrictions as well as the behavioural changes. Consequently, a certain correlation between these factors and the increase in corporate borrowing is expected. The degree of restrictions implemented can be measured by e.g. Oxford University's stringency index. Only a modest positive correlation appears between the restrictions and the borrowing. Behavioural changes can be measured using Google's mobility indicator. The indicator shows that the Danes' movement patterns in public spaces have been less impacted than in many other countries, see Chart 5. A tenuous negative correlation is found between how much the behaviour of the population has been affected and corporate borrowing.

Concerns about the pandemic have impacted consumer behaviour, and thus corporate revenue, but it has, of course, also affected corporate behaviour. For example, uncertainty and concerns about the future may have resulted in corporations accumulating liquidity reserves and increasing their loan demand by more than the level required to meet their actual needs to cover their current expenses. In Denmark,

Largest increase in borrowing in countries with most severe economic downturn

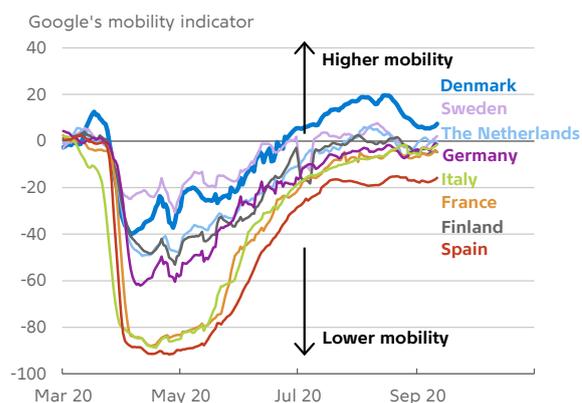
Chart 4



Note: Change in borrowing before and after the coronavirus outbreak and quarterly change in GDP.
 Source: Macrobond and own calculations.

Denmark has been less severely affected by behavioural changes due to the coronavirus outbreak

Chart 5



Note: Movement trends in the category retail and recreation. Percentage change from pre-coronavirus outbreak. 7-day moving average. The latest data point is 9 October 2020.
 Source: Macrobond and own calculations.

⁹ The correlation between economic development and bank lending during the coronavirus outbreak is expected to differ significantly from previous recessions, which were characterised by procyclical bank lending. See, for example, Grinderslev et al. (2017).

for example, especially large corporations have extended their credit facilities with the banks without actually drawing on them. The picture is the same in a number of other European countries.

Reactions to the economic downturn also resulted in increasing deposits

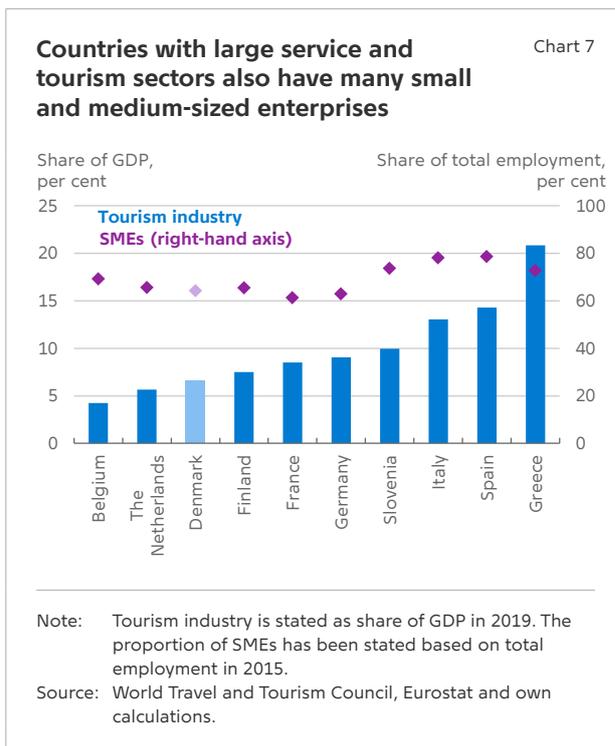
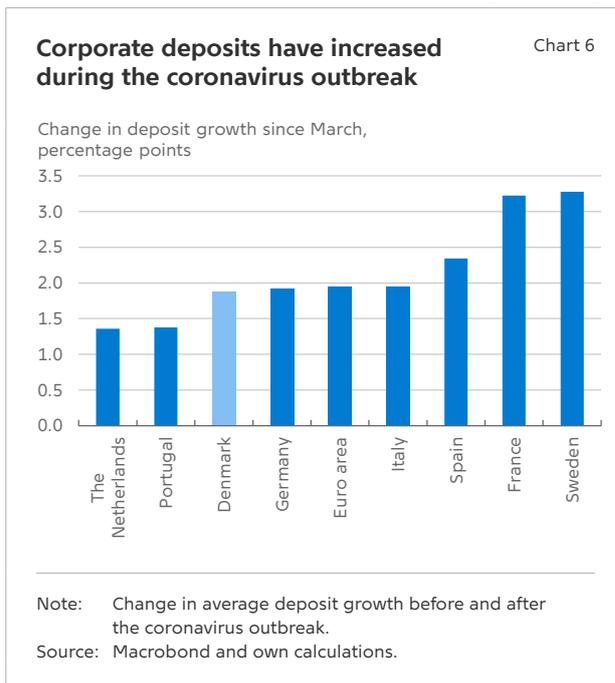
Corporate deposits with banks have also risen sharply since the coronavirus outbreak. The increase may reflect a combination of policy measures that have supported corporate liquidity, a reduction in corporate investments and increased borrowing from credit institutions. The growth in Danish corporations' deposits has generally been at the same rate as for corporations in the euro area, see Chart 6. Deposits have increased despite the fact that Danish corporations have not increased their borrowing to the same extent as European corporations. So far, total deposits can be seen as an indication of ample liquidity, but say nothing about the distribution of the liquidity. In Denmark, the vast majority of industries have increased their deposits – including some of the most vulnerable industries such as hotels and restaurants. The increased deposits may be a reflection that policy liquidity measures have helped build up a buffer.

The corporate structure has impacted the economic downturn and corporate borrowing needs

The corporate structure in the individual countries has had a bearing on both the extent of the economic downturn and corporate borrowing needs.

The coronavirus outbreak has especially impacted industries which are characterised by a high level of social interaction and which are dependent on travel activity. Since March, the increase in borrowing in the euro area has been broadly distributed across industries. However, some of the most vulnerable industries increased their borrowing the most. This includes the hotel and restaurant industry.

Small and medium-sized enterprises (SMEs) are often more dependent on bank loans than large corporations. Therefore, countries with a higher proportion of SMEs may have seen a greater increase in borrowing during the coronavirus outbreak. The vulnerable industries, such as tourism, and the proportion of SMEs account for a large share of total employment precisely in countries such as Greece, Spain and Italy, see Chart 7. The two factors combined may have boosted borrowing further.



Accumulation of resilience has had a bearing on corporate borrowing

Corporations' accumulation of capital in the period leading up to the coronavirus outbreak has had a bearing on their borrowing needs. The poorer the starting point, the greater the borrowing needs – other things being equal. Therefore, the variation in corporate resilience also explains why borrowing needs have varied across countries.

Accumulation of capital prior to the coronavirus outbreak has reduced corporate borrowing in Denmark

Corporate resilience to crises can be increased through consolidation. Many corporations in many European countries underwent such consolidation in the wake of the financial crisis in 2008. In Denmark, especially corporations with high debt ratios have reduced their debt since the financial crisis. Therefore, Danish corporations were generally well-consolidated^{10,11} before the coronavirus outbreak compared to corporations in other countries. The consolidation is reflected in, for example, a positive and increasing savings surplus, measured in terms of net lending, see Chart 8.

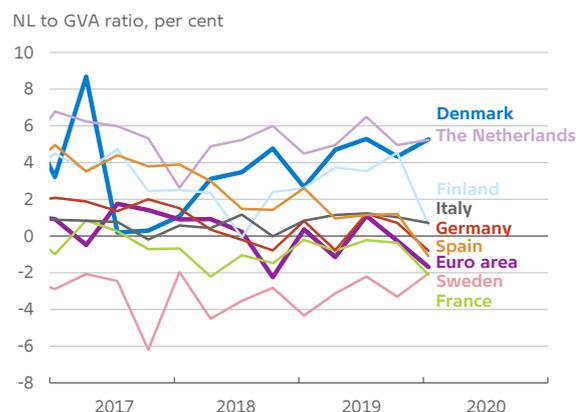
Net lending in the period leading up to the coronavirus outbreak is linked across countries with a subsequent lower increase in borrowing, see Chart 9.

Resilience to periods of revenue loss has reduced borrowing

The corporations' borrowing needs also depend on how quickly they experience financial problems when their revenue is reduced drastically or disappears completely. Data from 2017-18 shows that Danish small and medium-sized enterprises can, on average, withstand about 100 days of no revenue before results turn negative for the current financial year. This is longer than for SMEs in the countries with the highest increase in corporate borrowing,

Danish corporations have had a savings surplus in recent years

Chart 8

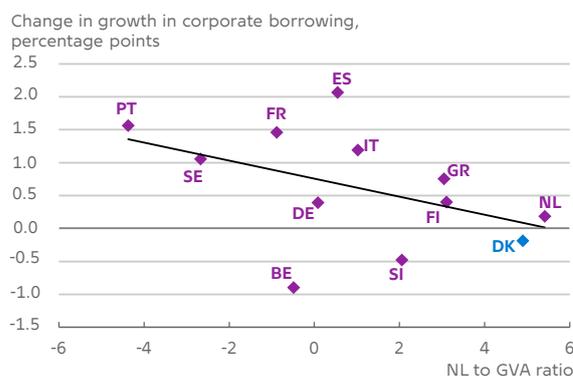


Note: Savings surplus in the form of non-financial corporations' net lending (NL) as a share of their gross value added (GVA).

Source: Macrobond and own calculations.

Negative correlation between savings surplus and change in borrowing

Chart 9



Note: Change in borrowing before and after the coronavirus outbreak and average net lending (NL) for non-financial corporations as a share of gross value added (GVA) in the period second quarter 2019 to second quarter 2020.

Source: Macrobond and own calculations.

10 See Kuchler (2019).

11 In Denmark, the level of bankruptcies and liquidations since the coronavirus outbreak has been roughly equivalent to the average for the 2015-19 period. The situation is the same in many other European countries. This may be linked to the extensive public measures having provided a cushion under the corporate sector.

see Chart 10.¹² The reason why Danish corporations appear more resilient than, for example, Spanish and French corporations is that the Danish corporations included in the data have lower fixed costs relative to their contribution margin¹³. This will have tended to reduce their liquidity need during the lockdown, however, with variations among Danish corporations. Some corporations have thus had a greater need for liquidity than others.¹⁴

Overall, indications are that increased resilience to periods with revenue loss and a higher savings surplus have contributed to more subdued credit demand in Danish corporations.

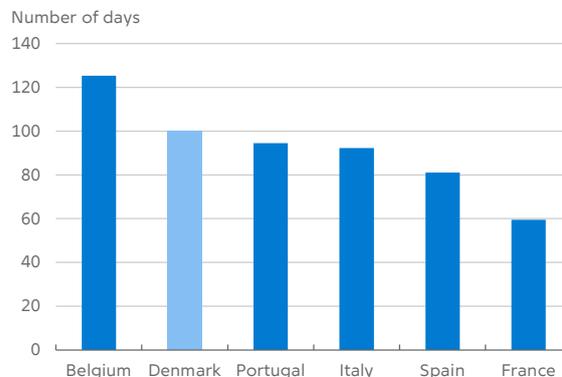
Extensive policy measures have had a bearing on corporate borrowing

Several countries have implemented exceptionally extensive fiscal policy measures aimed at supporting corporations' access to liquidity during the coronavirus crisis, see Chart 11. Some of these measures, for example the deferral of tax payments, work independently of the banks and generally reduce corporate demand for loans. Therefore, more extensive use of this type of public support will tend to lead to lower borrowing. Conversely, other liquidity support measures work precisely through the banking sector and support lending growth, for example state guarantee programmes. Both the extent and composition of public liquidity support measures may thus have had a bearing on borrowing across countries. In addition, the timing of when the measures entered into force may have affected the demand for bank loans, for example because the need for liquidity was acute and unforeseen.

Public liquidity measures have reduced corporate borrowing needs in Denmark

In Denmark, measures aimed at reducing borrowing needs have constituted a relatively large share

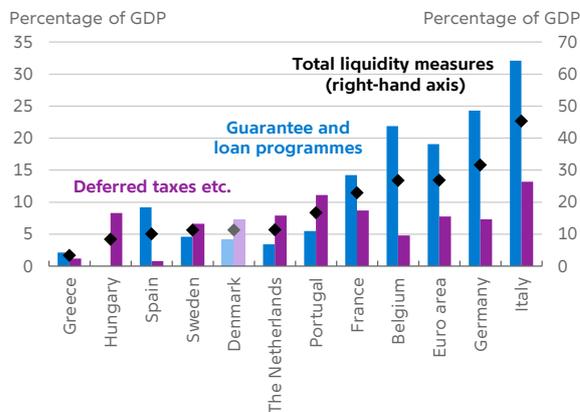
Danish SMEs are potentially more resilient to periods with no revenue Chart 10



Note: Number of days for non-financial SMEs with no activity until the result turns negative in the current financial year. See Appendix B for a detailed description of the calculation and the data used for the analysis.

Source: Own calculations based on Statistics Denmark's register data and the company accounts database BACH.

Exceptionally extensive measures to support liquidity Chart 11



Note: The chart shows the announced limits for the measures and not the actual use. Data on deferred taxes etc. also covers the deferral of payments related to corporate debt servicing, where the state temporarily covers the costs. The euro area has been calculated as a GDP-weighted average of the eight individual euro area member states.

Source: Bruegel, OECD and own calculations.

¹² Denmark's position in relation to the other countries is resilient in comparison with countries with lower data coverage, see The Bank for the Accounts of Companies Harmonized (BACH) database (2020).

¹³ The contribution margin is the share of revenue remaining after variable costs.

¹⁴ See Renkin (2020).

of the overall liquidity measures. For example, tax payments equating to just over 7 per cent of GDP¹⁵ have been deferred. This is a relatively high figure when taking into account the fact that the economic downturn has been less severe in Denmark than in the euro area, see Chart 12. Denmark resembles the Netherlands in several areas, including the extent of the economic downturn, the extent to which taxes have been deferred and the change in credit growth.

Some of the euro area member states with the highest proportion of deferred tax payments, such as France, are also among the countries with the strongest lending growth. This correlation is a sign that in several countries the deferral of tax payments has not been enough to meet the liquidity requirements. Conversely, the level of deferred tax payments has been low in Spain, which has seen high credit growth.

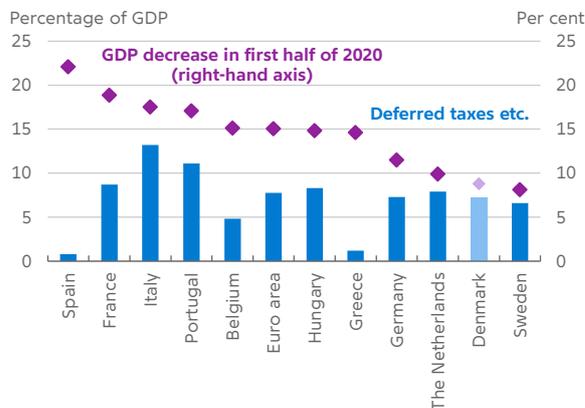
Wage compensation schemes have been used in parallel with the deferral of tax payments both in Denmark and abroad. The schemes have, of course, dampened the liquidity needs of some corporations by covering some of their costs. Therefore, differences in the scopes of wage compensation schemes could, in principle, to some extent explain the low Danish credit growth compared to the growth in the euro area. However, this does not appear to be the case, as the use of wage compensation schemes and short-time working has been lower in Denmark than in the euro area, see Chart 13.

State loan guarantees have supported corporate access to loans in the euro area

During the coronavirus crisis, several countries have supported corporations' access to liquidity by means of loan guarantees.¹⁶ Across the countries, there is a very strong positive correlation between the use of state-guaranteed loans and the change in borrowing

High share of deferred taxes in Denmark relative to the economic downturn

Chart 12

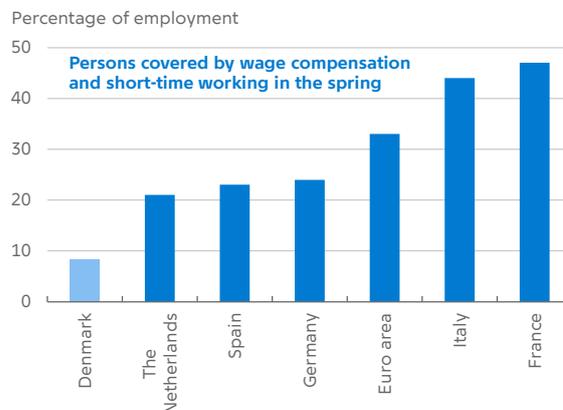


Note: See comments on Chart 11. The Y axis shows negative GDP growth rates.

Source: Bruegel, OECD, Macrobond and own calculations.

Wage compensation and short-time working are more widespread in the euro area than in Denmark

Chart 13



Note: The chart shows persons receiving wage compensation in April for Denmark, while, for the euro area member states, it shows persons engaged in short-time working in May. Data for the euro area is a GDP-weighted average of the five euro area member states.

Source: ECB, Finansministeriet (Ministry of Finance) and own calculations.

15 Estimates by the Ministry of Taxation from March 2020. The numbers do not take possible voluntary deposits from the tax account into account.

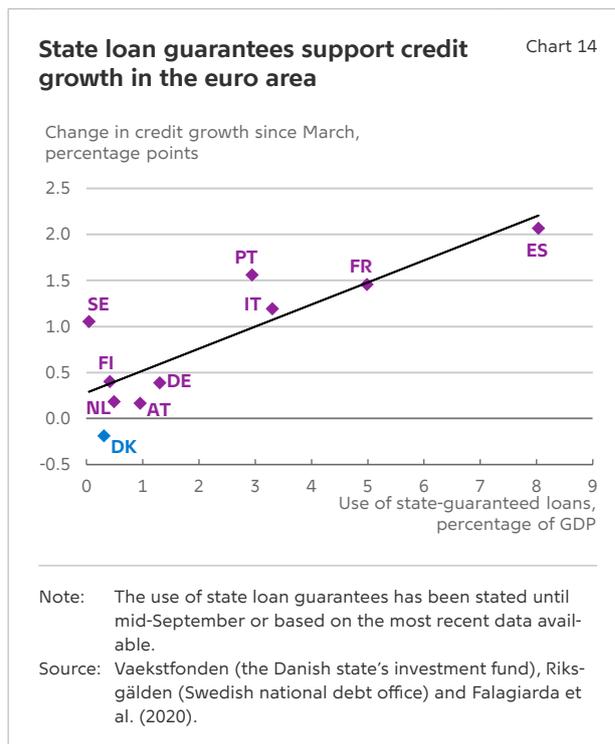
16 The state-guaranteed loan programmes are subject to the European Commission's rules on state subsidies. One effect of this is that the guarantees typically cover between 70 to 90 per cent of the loan amount. The guarantees are an incentive for the banks to perform an appropriate credit rating. In addition, the guaranteed loan amount is often limited to 25 per cent of revenue in 2019 or 200 per cent of payroll costs.

after the coronavirus outbreak, see Chart 14.¹⁷ In the euro area, state-guaranteed loans have especially been used to support those parts of the economy that have been hardest hit by the coronavirus crisis, including SMEs in trade, transport and tourism.¹⁸ Overall, this indicates that, in several countries, state loan guarantees have been crucial to the banks' ability to meet the increased loan demand.

Considerable differences are seen in the use of state-guaranteed loans across countries due to varying loan demand and loan terms, among other factors. For some countries, there is a marked difference between the announced maximum limit for the loan programmes and the actual use. For example, Spanish corporate borrowing accounted for about 70 per cent of the total maximum loan limit, whereas the figure was only just over 5 per cent for Germany.

In Spain, the extensive use of state-guaranteed loans reflects a heavy economic downturn and fewer alternative public liquidity support measures, such as the deferral of taxes. In France, state-guaranteed loans accounted for approximately 70 per cent of all new loans from April to July¹⁹, and the borrowing was supported by attractive pricing of the loans, among other factors. The average French rate on new loans fell from 1.3 per cent before the coronavirus outbreak to 0.9 per cent in May, while it was unchanged in both the euro area as a whole and in Denmark. In Italy, the volume of state-guaranteed loans has been lower than in the other major euro area member states that have been hard hit by the coronavirus outbreak. One reason for this is that the loan programme was initiated later than in the other countries and has primarily been used after mid-May.

One reason for the relatively low use of state-guaranteed loans in Germany may be lower borrowing needs due to a less severe economic downturn. In addition, the loan terms may also have played a role, including less attractive pricing and accompanying restrictions on payments of dividends as well as salaries and wages.



In Denmark, the volume of state-guaranteed loans has been limited, one reason being lower borrowing needs.²⁰

Monetary policy measures have supported corporate access to loans in the euro area

During the coronavirus crisis, coordinated fiscal and monetary policy measures have had a mutually reinforcing effect on corporate access to liquidity. In addition to state-guaranteed loan programmes, several central banks have, among other measures, introduced extraordinary loan facilities to support lending activities.

In the euro area, measures by the ECB have included cutting interest rates on its targeted longer-term refinancing operations (TLTRO-III) to between -0.5 and -1 per cent until June 2021. The TLTRO-III allocations are a so-called "funding for lending" programme under which the amounts that the banks may borrow depend on the volume of their own lending to,

17 See also Lagarde (2020).

18 See Falagiarda et al. (2020).

19 See Falagiarda et al. (2020).

20 For a more detailed comparison of state loan programmes in Denmark, Sweden and Germany, see Jensen et al. (2020).

for example, corporations. The incentive to relend the amount is enhanced by the price of the loans decreasing as the banks' lending increases. The allocation of loans via the ECB's targeted longer-term refinancing operations increased significantly in June to EUR 1,300 billion (11 per cent of GDP), which has contributed to supporting lending growth in the euro area, see Box 2.

In Sweden, Riksbanken has implemented a similar measure. Since March, Riksbanken has granted the banks loans amounting to SEK 165 billion²¹ (3.3 per cent of GDP) in return for increased lending to, in particular, SMEs.

Bank lending may also have been affected by general liquidity-supporting loan facilities which were not directly targeted at increased lending. In Denmark, one of the measures introduced by Danmarks Nationalbank was an extraordinary lending facility in March aimed at temporarily increasing the monetary policy counterparties' access to liquidity at favourable terms and longer financing. The loans have a maturity of one week and three months, respectively.

21 Data per 31 August 2020. See Sveriges Riksbank ([link](#)).

The ECB's loan programmes have supported growth in the banks' lending to European corporations

Box 2

TLTRO-III is the ECB's third programme for targeted longer-term refinancing operations, which was introduced in 2014 and which forms a key part of the ECB's unconventional monetary policy toolbox. The allocation of liquidity to financial institutions, including banks, in the euro area is directly linked to a condition that the financial institutions must increase their lending to non-financial corporations and households (excluding housing purposes). The loan programme thus gives banks access to financing at an interest rate¹ that decreases in step with increases in their lending to corporations and households. Programmes of this type are particularly relevant for European economies, in which bank financing plays a crucial role.

The TLTRO facility has especially been used by countries that have been hit hard economically by the coronavirus outbreak. These include France and Spain, for which the change in the use of TLTRO programmes since the coronavirus outbreak and until July amounted to just under 11 per cent of GDP. These are also some of the countries with the highest change in corporate credit growth as a result

of the coronavirus outbreak, see Chart A. The use of TLTRO programmes may indicate that they have played a role in the ability to meet the demand for credit in these countries. In addition, the TLTRO facility has resulted in lower lending rates, and the more favourable loan terms may have further stimulated the demand for loans.

The banks in the euro area have expressed the view that TLTRO-III has contributed significantly to an increase in lending to non-financial corporations, see Chart B. A new study conducted by the ECB thus finds that the credit growth for enterprises would be approximately 3 percentage points lower in the 2020-22 period without the ECB's TLTRO programmes.² These findings are in line with other studies³ of the effects of previous TLTRO programmes, which show that the programmes have been highly supportive of lending activities, especially for more vulnerable European economies⁴. The overall results of the studies of the effects of the TLTRO programmes thus help explain country-specific differences in credit growth during the coronavirus crisis.

Chart A:
 Positive correlation between change in credit growth and use of TLTRO-III

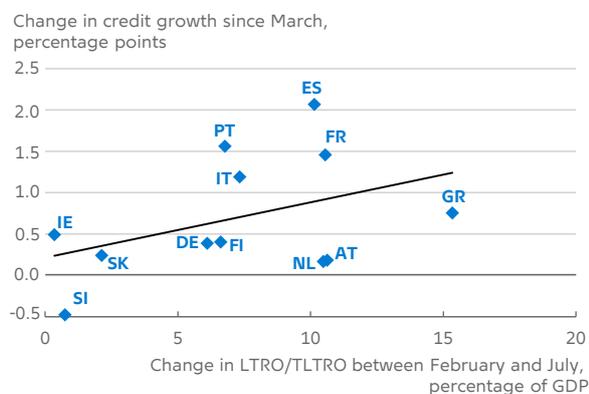
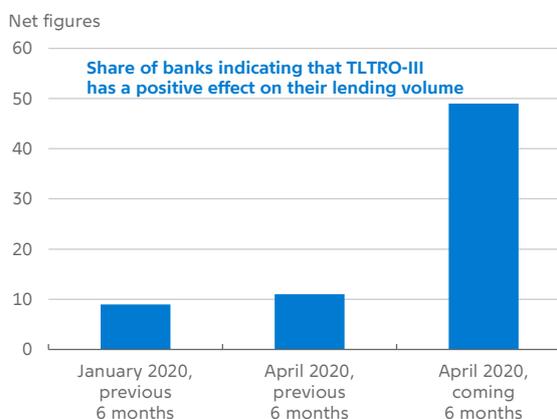


Chart B:
 Banks in the euro area find that TLTRO-III increases their lending



Note: Chart A: Change in LTRO/TLTRO has been measured as share of GDP in 2019. LTRO is part of the ordinary open market operations that the ECB uses to allocate liquidity.

Source: ECB, Macrobond and own calculations.

1. The interest rate on TLTRO-III loans is below the interest rate on the ECB's deposit facility (-0.5 per cent) with a lower limit of -1 per cent.
 2. See Altavilla et al.(2020).
 3. See ECB (2017).
 4. According to the ECB (2017), vulnerable economies are defined as being Ireland, Greece, Spain, Italy, Cyprus, Portugal and Slovenia.

Literature

Altavilla, Carlo, Francesca Barbiero, Miguel Boucinha & Lorenzo Burlon (2020), The great lockdown: pandemic response policies and bank lending conditions, *ECB Working Paper Series*, no. 2465, September.

The Bank for the Accounts of Companies Harmonized (BACH) database (2020), Methodological notes on the economic impact of covid-19 on European firms, *Outlook*, no. 8, October.

Danmarks Nationalbank (2020a), Stable financial markets support economy in recession, *Danmarks Nationalbank Analysis*, no. 17, September.

Danmarks Nationalbank (2020b), Prospects of moderate recession the coming year, *Danmarks Nationalbank Analysis*, no. 18, September.

ECB (2020a), *The euro area bank lending survey, second quarter*, July.

ECB (2020b), *Survey on the access to finance of enterprises in the euro area, October to March 2020*, May.

ECB (2017), The targeted longer-term refinancing operations: an overview of the take-up and their impact on bank intermediation, *ECB Economic Bulletin*, Box 5, Issue 3, March.

Falagiarda, Matteo, Algirdas Prapiestis & Elena Rancoita (2020), Public loan guarantees and bank lending in the COVID-19 period, *ECB Economic Bulletin*, Issue 6, September.

Grinderslev, Oliver Juhler, Paul Lassenius Kramp, Anders Farver Kronborg & Jesper Pedersen (2017), Financial cycles: What are they and what do they look like in Denmark?, *Danmarks Nationalbank Working Paper*, no. 115, June.

Jensen, Rasmus Mose, Nicolai Risager Christensen, Niels Bartholdy, Helle Eis Christensen & Thomas Pihl Gade (2020), Internationale økonomisk-politiske tiltag under Covid-19-krisen (Global economic policy measures during the covid-19 crisis), *Danmarks Nationalbank Economic Memo*, no. 4, June.

Kuchler, Andreas (2019), Leverage, investment, and recovery from a financial crisis: The role of debt overhang, *Studies in Economics and Finance*, 37 (1), pp. 143-159.

Lagarde, Christine (2020), Europe's response to the crisis, *The ECB Blog*, July.

Renkin, Tobias (2020), Liquidity Reserves of Danish Firms: implications during the COVID-19 epidemic, *Danmarks Nationalbank Economic Memo*, no. 2, June.

Appendix A: Model for the correlation between the extent of the economic downturn, the resilience of corporations and their borrowing

The decomposition of the changed borrowing in Box 1 in the main text has been calculated based on a multiple regression model in which the variation across 12 European countries is used to identify explanatory factors. The model explains the change in average monthly credit growth before and after the coronavirus outbreak (January 2019 to February 2020 and March 2020 to July 2020).

The model shows that there is a correlation between corporate borrowing and two of the demand factors. The two factors measure the extent of the economic downturn and the degree of consolidation up to the coronavirus crisis, respectively. The factors are of significant importance although the model is based on only 12 observations. Other factors, such as the deferral of tax payments, cannot be included at the time of writing due to insufficient data coverage.

Despite the few explanatory variables, the model is able to explain approximately 80 per cent of the variation in the changed borrowing after the coronavirus outbreak, Table A.1 and Chart A.1. Belgium is the only outlier with a residual over two standard deviations, and it has been handled econometrically with a dummy variable. The unexplained variation must be seen in the light of the Belgian lending figures having been affected by volatile borrowing by multinationals located in Belgium.

Regression results for the model

Table A.1

	Change in credit growth
Constant	-0.44
GDP growth	-0.12**
NL to GDP ratio	-0.05**
N	12
Adjusted R^2	0.80
Normality of error terms (p -value)	0.43
Functional form (p -value)	0.11
Heteroscedasticity (p -value)	0.54

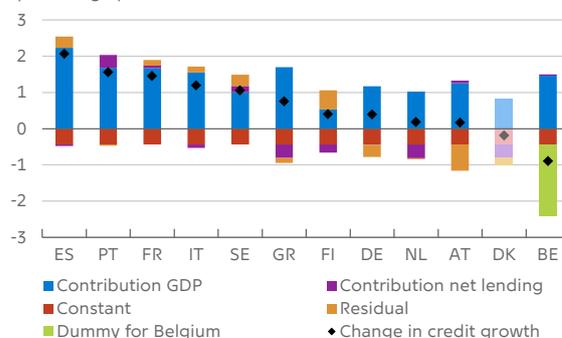
Note: ** reflects significance at a significance level of 5 per cent. The model includes a dummy variable for Belgium. Test sizes have been calculated based on robust standard errors and have been fixed relative to the t -distribution to take the sample size into account.

Source: Own estimates based on data from Macrobond, ECB and Bruegel.

Decomposition of change in credit growth across countries

Chart A.1

Change in credit growth after coronavirus outbreak, percentage points



Source: Own estimates based on data from Macrobond, ECB and Bruegel.

Appendix B: Stylised calculations of corporate resilience to periods with no revenue

A resilience indicator

In the analysis, Chart 10 shows stylised calculations of how many days with no revenue corporations can withstand before earnings for the year turn negative. The calculated number of days is thus an indicator of corporate resilience. The calculations are based on the best available data and a harmonised methodology. They are nevertheless subject to great uncertainty and must therefore be interpreted cautiously.

Assumptions used in the calculations

The calculations are based on a uniform and complete lockdown for each country. This means no revenue and no variable costs during the lockdown period. A corporation which generates positive earnings in normal times will see earnings turning negative during the lockdown period. The negative earnings correspond to the size of the fixed costs, for example payroll costs, see stylised numerical example in Chart B.1 (left).

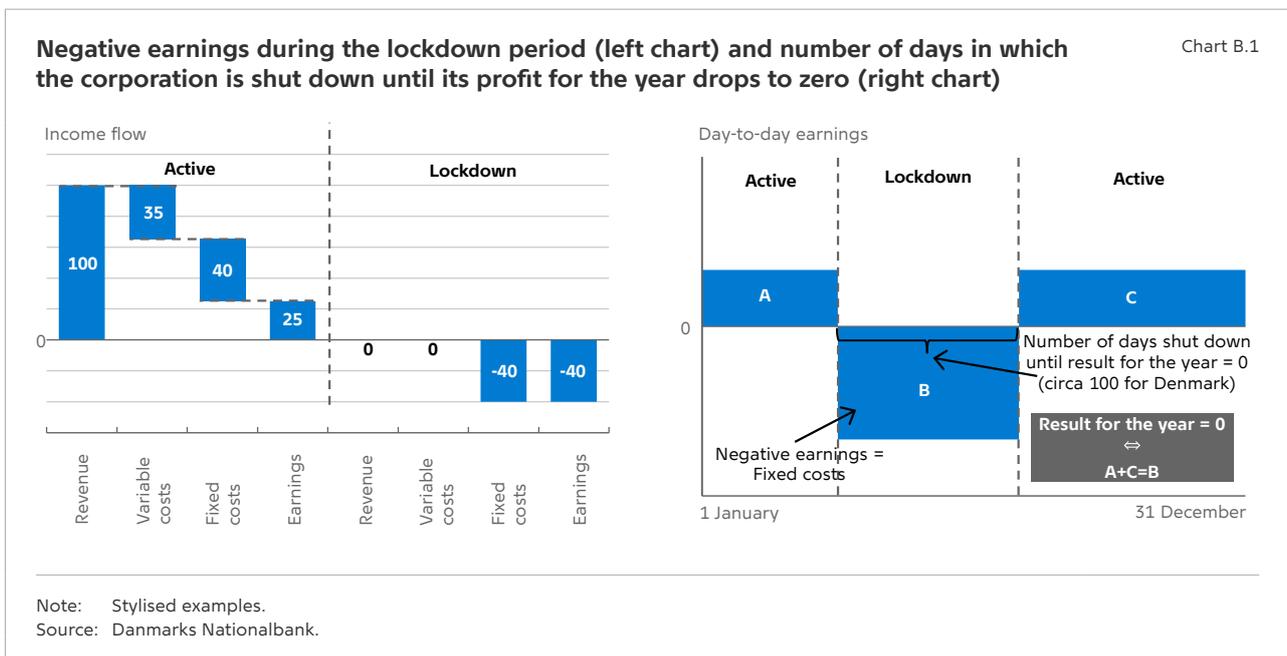
Two assumptions have been made: firstly that the corporation's income flow is distributed evenly over the calendar year, and secondly that the corporation operates either under full lockdown or full activity.

Based on these assumptions, the size of fixed costs relative to earnings in periods with full activity has a bearing on how long the corporation can be shut down during a lockdown without the result for the year turning negative, see Chart B.1 (right). In the illustrative example, the corporation may remain shut down for up to 100 days before the result for the year turns negative (corresponding to area A+C=B).

Different foreign and Danish data sources

For the foreign corporations, the calculations are based on The Bank for the Accounts of Companies Harmonized (BACH) database. The database is one of the best publicly available sources of aggregated accounting statistics containing data for the European countries. However, the BACH data is not uniform at country level, one reason being that accounting and reporting practices vary from country to country. The calculations and results in Chart 10 therefore only include countries with the highest data quality for SMEs.

The calculations for Denmark are based on register data from Statistics Denmark. This data is of a better quality than the BACH data. To increase the data



quality further, Danish corporations with slightly negative revenue and negative assets are excluded.

In BACH data, the calculation is based on a weighted average, with large corporations having greater weight. In data for Denmark, the calculation has been made for the individual corporation, but a weighted average has been prepared to make data comparable with the BACH figures. The weighting is based on the corporation's balance sheet total. Another alternative could be to weight the revenue, but it is assessed that the balance sheet provides the best data quality, as the corporation must report the balance sheet total in accordance with the Danish Financial Statements Act (Årsregnskabsloven), whereas SMEs are not obliged to report revenue.

Same definition of variables across countries

The calculation variables have been defined as identically as possible across countries. Country characteristics could warrant letting the variables vary, but this has not been done because the basis

is too uncertain. For example, the flexible Danish labour market, where corporations can easily dismiss and appoint employees, may mean that some of the Danish payroll costs are more variable than those of other countries. A higher proportion of variable costs would reduce the vulnerability of Danish corporations. However, the flexibility of the Danish labour market is regarded as too uncertain an element to be included in the calculation, as not all payroll costs can be broken down by periods of notice with sufficient accuracy. The main variables in the calculation are:

- **Sales (revenue):**
Revenue and other operating income
- **Variable costs:**
Goods purchased and other production costs
- **Fixed costs:**
Payroll costs, rental expenses, interest expenses on debt, external costs etc.

PUBLICATIONS



NEWS

News offers a quick and accessible insight into an Analysis, an Economic Memo, a Working Paper or a Report from Danmarks Nationalbank. News is published continuously.



ANALYSIS

Analysis from Danmarks Nationalbank focuses on economic and financial matter. Some of the analyses are published with a regular frequency e.g. *Outlook for the Danish economy and Financial stability*. Other analyses are published continuously.



REPORT

Report comprises recurring reports and reviews of the functioning of Danmarks Nationalbank. For instance Report includes the *Annual report* and the annual publication *Danish government borrowing and debt*.



ECONOMIC MEMO

Economic Memo is a cross between Analysis and Working Paper and it often shows the ongoing study of the authors. The publication series is primarily targeted at professionals. Economic Memo is published continuously.



WORKING PAPER

Working Paper presents research projects by economists in Danmarks Nationalbank and their associates. The series is primarily targeted at professionals and people with an interest for academia. Working Paper is published continuously.

The analysis consists of a Danish and an English version. In case of doubt regarding the correctness of the translation the Danish version is considered to be binding.

DANMARKS NATIONALBANK
LANGELINIE ALLÉ 47
DK-2100 COPENHAGEN Ø
WWW.NATIONALBANKEN.DK

This edition closed for
contributions on 19 October 2020



**DANMARKS
NATIONALBANK**

Rasmus Mose Jensen
Senior Economist
rmj@nationalbanken.dk

Carina Moselund Jensen
Senior Economist
cmj@nationalbanken.dk

Nastasija Loncar
Economist
nlo@nationalbanken.dk

Alexander Meldgaard Otte
Economist
almo@nationalbanken.dk

ECONOMICS
AND MONETARY POLICY

CONTACT

Ole Mikkelsen
Communications
and Press Officer

omi@nationalbanken.dk
+45 3363 6027

SECRETARIAT
AND COMMUNICATIONS