

The recent upswing in corporate loan growth in Austria – a first risk assessment

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With Austrian banks having significantly expanded their lending to domestic nonfinancial corporations in 2017 and 2018, we are witnessing the fifth period of significant loan growth since 1982. While the recent rise in loan growth rates was broadly in line with past increases in magnitude, the year-to-year variation was generally much higher. This paper provides stylized facts on the latest increase in loan growth and a first assessment of potential systemic risks for the Austrian banking system. Developments in the real economy in 2017–2018 broadly followed those during past periods of loan growth – only investment grew at a stronger pace. Bank loans were losing importance in the financing mix of nonfinancial corporations and in banks' balance sheets throughout the review period. The most recent upturn started from historically low levels and has been more pronounced in some banking sectors as banks have been adjusting their business models following the financial crisis. A potential deterioration in loan quality would especially hit banks with currently high lending rates that have structurally low margins and weaker risk bearing capacity. From an industry-level perspective, the main borrowers were industries with high value-added growth, high profitability and low insolvency rates, yet with a concentration on real estate activities. Such a concentration on real estate business may pose risks given the ongoing buoyancy of the Austrian real estate market.

JEL classification: G21, G32

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In 2017 and 2018, the growth of Austrian banks' loans to domestic nonfinancial corporations gained strong momentum. It accelerated from 1.4% in the fourth quarter of 2016 to 6.8% in the final quarter of 2018 in nominal terms and from 0.3% to 5.2% in real terms (chart 1). On the one hand, this increase reflects the monetary policy stance of the ECB in recent years. The ECB's monetary policy measures have been aimed at supporting conditions for bank lending and thus loan growth in the euro area and, ultimately, real activity and the convergence of inflation toward the defined medium-term target. On the other hand, these growth figures should help to alleviate fears that the tightening of regulatory requirements for banks in recent years may have been hampering the supply of loans to the real sectors of the economy. As the figures show, loan growth accelerated although macroprudential capital buffers were put in place and even raised in recent years. From a macroprudential point of view, this upturn naturally warrants closer attention. After all, credit growth may be an indicator of future problems in both the financial and real sectors of an economy (e.g. Cecchetti and Kharroubi, 2015; Dell'Arriccia et al., 2012; Jordà et al., 2016) – as has been pointed out with regard to the strong growth of leveraged loans in recent years in the United States as well

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as in Europe.² Moreover, the International Monetary Fund (IMF) concludes in its most recent Global Financial Stability Report that the quantity of corporate debt is already elevated while the quality has been deteriorating (IMF, 2019). This makes banks and nonbank financial institutions with significant exposure in this business susceptible to losses in an adverse scenario.

In this paper, we present stylized facts on whether or to what extent the recent increase in corporate loan growth in Austria appears to be disproportionate. We do so in two ways: In the first section, we question whether the current upswing in lending differs from previous periods of high loan growth. Specifically, we analyze the long-term development of bank lending to nonfinancial corporations in Austria from 1982 to 2018 and relate these figures to variables of economic activity and banking variables. In the second part, we ask whether the loan expansion that occurred in 2017 and 2018 bears risks to financial stability. To this effect, we analyze bank-specific and loan-specific factors and break down loan growth by different industries. The concluding section assesses any potential pockets of vulnerability for the Austrian banking sector stemming from the recent upturn in loan growth.

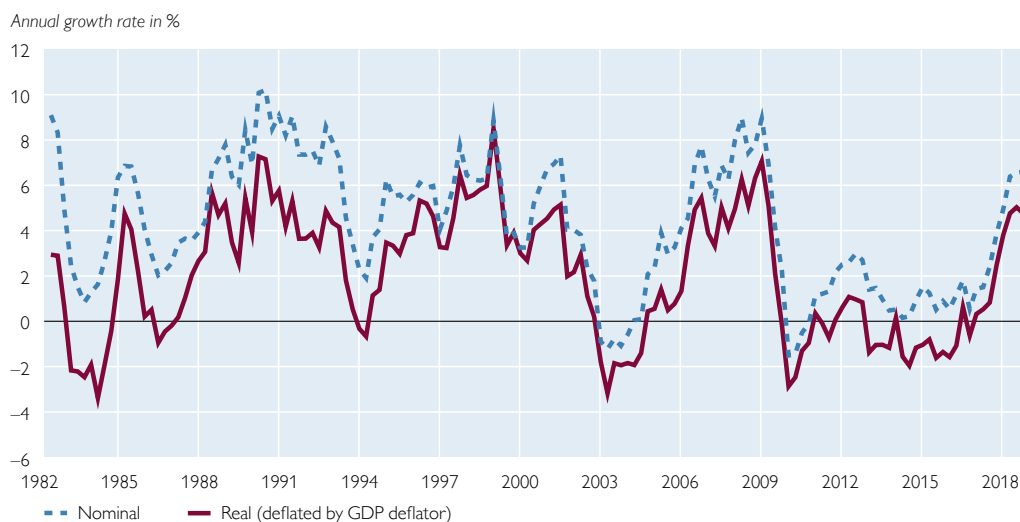
1 Long-term perspective on corporate loan growth in Austria

1.1 Upswings in bank lending to nonfinancial corporations since 1982

With a view to assessing possible implications of the most recent episode of rapid corporate credit growth for the financial stability of the Austrian banking sector, we analyze the characteristics of the recent upswing of loan growth rates to nonfinancial corporations in Austria and the differences to former credit cycles.³

Chart 1

Bank loans to Austrian nonfinancial corporations 1982–2018



Source: OeNB, authors' calculations.

² See for example Association for Financial Markets in Europe (2019). Given the lack of data on leveraged loans for Austria, we do not elaborate on this specific type of loan in this paper.

³ "Austrian" refers to banks with an Austrian bank license and firms registered in Austria. Throughout this paper, we use the term "nonfinancial corporations," as first introduced by the European System of Accounts (ESA) 1995, synonymously with companies, enterprises and firms. While the harmonized definition of "nonfinancial corporations" did not exist before the introduction of ESA, we use the term also for earlier data in order to enhance readability.

We collected a time series on the growth of loans granted by Austrian banks to domestic nonfinancial corporations in the period from 1982 to 2018 based on reporting data as available (chart 1). The choice of the starting date reflects the distinct macroprudential regime shift that occurred in the market for corporate loans in Austria in 1982. Up to 1981, Austrian banks were not allowed to raise their loan growth rates beyond a given limit, the so-called “limes” (Doeme et al., 2016).

In our data series, all growth rates until 1999 are based on changes in the outstanding stock of loans. From 1999, we have used the index of notional stocks as developed by the ECB. In other words, the annual changes since 1999 are based on net transactions, that is new lending and repayments (adjusted for valuation changes, exchange rate effects and reclassifications). Details on the time series and the role of reclassifications, write-offs and foreign currency adjustment are given in the annex.

The average compound annual growth rate of domestic corporate bank lending over the whole period was 4.2% in nominal terms and 2.0% when adjusted for inflation, using the GDP deflator. In this section, we focus on the real time series, as varying inflation rates would lead to biased results. As can be seen from chart 1, at least up to now, the recent upturn in loan growth mirrors the magnitude of earlier upswings in lending. Former upswings even showed higher annual compound loan growth rates, both in nominal and real terms – although it is not clear whether the current upturn has already reached its peak.

We identified four distinct upswings in real loan growth before the onset of the crisis in 2008: from Q2 1984 to Q1 1985, from Q3 1986 to Q2 1990, from Q1 1994 to Q2 1998 and from Q2 2003 to Q2 2008. Together, these periods lasted 59 quarters, with the corresponding downturns adding up to 45 quarters (from Q2 1985 to Q2 1986, from Q3 1990 to Q4 1993, from Q3 1998 to Q1 2003 and from Q3 2008 to Q1 2010). The first eight quarters preceding the current episode of rapid loan growth as well as the period of sluggish loan growth in the aftermath of the crisis (Q2 2010 to Q1 2016) have not been attributed to either an upturn or a downturn.⁴ The turning points, i.a. local minima and maxima in the time series, were determined using the Bry and Boschan (1971) algorithm – details of the method are given in the annex.

In terms of duration, the first upswing was much shorter (one year) than the following three ones (between 4.0 and 5.3 years). The most recent upswing has lasted two years so far. In terms of magnitude, as measured by the compound annual growth, the rate of 2.4% during 2017–2018 was well within the range of compound annual growth rates in earlier growth periods (with figures between 1.2% and 4.7%, see table 1, first column of “bank loans to nonfinancial corporations”).

To add the dimension of year-to-year variation, we also look at the change in annual loan growth. After all, the change in the (net) flow can be compared with the notion of a “credit impulse” introduced by Biggs et al. (2009).⁵ In other words, since spending is a flow variable – which is relevant for the next section – any

⁴ As a kind of robustness check, we set the starting date of the most recent upswing in Q2 2015, when a sluggish recovery set in. In that case, at 3.7 years the length of the period would still be below the duration of the majority of past upswings, and the compound annual growth rate at 1.1% well below the average of the past upswings.

⁵ Biggs et al. (2009) argue that GDP growth is driven both by the change in the stock of credit and by the change in the flow of credit, which they call “credit impulse.”

changes in spending should be compared with the change in the (net) flow of lending rather than with the growth rates of the stock of loans. Here, the results are as follows: the annualized rate of change in lending for the 2017–2018 period (2.3 percentage points) is below the annualized change during the first upswing in lending (6.4 percentage points) but well above the average for the other upswings in lending since 1982 (1.6 percentage points). We therefore analyze the characteristics of the current upswing in more detail in section 2.

1.2 Relationship between lending upturns, economic growth and later lending downturns

We ask whether the current rise in corporate bank lending is in line with historical regularities by relating it to developments in the real economy. Overall, loan growth rates are usually higher and more volatile than GDP growth rates.⁶ Nevertheless, real corporate loan growth shows some degree of co-movement with real GDP growth in Austria, particularly with a lag of four quarters.⁷ Considering this lag, GDP growth was on average 2.5% during the first four bank lending upturns and 2.6% during the 2017–2018 upturn (table 1, column 4). Gross fixed capital formation grew more strongly in the past two years (3.6%) than on average during the former lending upswings (3.3%), which is also reflected in a stronger increase in the investment ratio (table 2, column 5 and 6).⁸ The number of insolvencies declined in the most recent credit upturn as well as in two of the four previous lending upturns (table 1, column 7).

Another question is if the periods with the strongest upswings in credit growth were also followed by the “deepest” downturns in loan growth and real variables.

All upswings end in a steep fall in growth rates with a final contraction of real credit (negative real growth rates, see chart 1).⁹ The strongest upturn in credit growth in Austria did not come with the steepest fall in credit growth rates. Moreover, loan contractions must not be overinterpreted, as any contraction will in part be driven by a higher volume of repayments of existing loan contracts compared to the volume of new lending. Adalid and Falagiarda (2018) show that repayments are even higher after periods of strong credit growth.

A comparison with real sector variables shows that the upswing starting with the highest level of corporate bank loans to GDP among all upswings (46% in Q2 2003 according to chart 2) turned into the strongest downturn at least in investment and real GDP – also influenced by the weak financial and real market environment in the aftermath of the 2008 crisis. Dell’Arriccia et al. (2012) for

⁶ A higher standard deviation of real corporate loan growth (2.8) compared to real GDP growth (1.6) is a simple indication of higher volatility. For a similar assessment, see ECB (2011), which focuses on episodes of major downturns, which were of more relevance at the time.

⁷ Jordà et al. (2016) show that advanced economies show high correlations between the real and financial sector. We conducted a maximum correlation analysis (see section A2 in the annex). Correlation (without any indication of causality) is highest (56%), with real loan growth lagging real GDP by four quarters (correlation of 35% with no lead or lag). Results for Germany and the euro area are similar, with real GDP growth lagging real corporate loan growth by three quarters in both cases (ECB, 2009; ECB, 2011; Deutsche Bundesbank, 2011).

⁸ Data on investments of nonfinancial corporations have only been available since 1995, so we use investments of the total economy, which developed similarly (see chart 2). A comparison of investments of nonfinancial corporations in the loan upswing of Q2 2003 to Q2 2008 shows higher investment growth (+3.0%) than in the past two years (+2.4%).

⁹ Nominal loan growth rates only showed a contraction twice (during 2003 and 2009).

Table 1

Changes in real variables in selected upswings and downturns

Selected periods	Duration in quarters	Bank loans to nonfinancial corporations		(1)	(2)	(3)	(4)	(5)
		% ¹	Percentage points ²	GDP	GDP (lag 4)	Gross fixed capital formation (total)	Investment ratio	Number of insolvencies
Reference period				% ¹	% ¹	% ¹	Percentage points ³	% ¹
Q1 2017–Q4 2018	8	2.4	2.3	2.6	2.6	3.6	0.3	-3.0
Upswings								
Q2 1984–Q1 1985	4	4.7	6.7	1.4	2.0	4.1	0.4	6.2
Q3 1986–Q2 1990	16	4.0	1.9	3.6	3.0	4.5	0.1	-2.7
Q1 1994–Q2 1998	18	3.7	1.4	2.7	2.3	2.6	-0.1	-1.9
Q2 2003–Q2 2008	21	1.2	1.3	2.7	2.6	1.9	-0.1	5.5
Average	14.8	3.4	2.8	2.6	2.5	3.3	0.1	1.8
Downturns								
Q2 1985–Q2 1986	5.0	0.5	-4.0	2.5	1.6	4.0	0.2	-7.8
Q3 1990–Q4 1993	14.0	3.1	-1.6	2.2	2.9	3.1	0.2	20.1
Q3 1998–Q1 2003	19.0	3.6	-1.9	2.2	2.8	1.5	-0.4	2.4
Q3 2008–Q1 2010	7.0	3.7	-5.1	-2.1	-1.0	-6.5	-0.6	-4.2
Average	11.3	2.7	-3.2	1.2	1.6	0.5	-0.1	2.6

Source: OeNB.

¹ Compound annual growth rate.

² Change in annual growth rate (annualized).

³ Change in ratio.

Note: Investment ratio = gross fixed capital formation in % of GDP; insolvency rate = number of insolvencies in % of total number of enterprises.

example show a strong relationship between the size of leverage and the strength of the subsequent downturn.

Overall, investment growth was stronger in 2017–2018 than during most former lending upswings, and GDP growth was in line with previous developments. This can be interpreted as a reassuring factor, insofar as investment is the main channel from bank loans to GDP (Antoshin et al., 2017). However, a potential concentration of debt-financed investment in real estate-related activities poses risks given the ongoing buoyancy of the Austrian real estate market. The industry structure of loan growth will be discussed in section 2.

1.3 The changing role of bank loans to nonfinancial corporations

Bank loan intensity, defined as the ratio of bank loans to GDP, can be used to identify extraordinary episodes in the relationship between loans and economic activity. Applying the “credit boom” definition of Dell’Arriccia et al. (2012)¹⁰ to corporate bank loans, there were no periods with “truly booming” corporate loan growth in Austria as the change in the ratio to GDP never exceeded 6%. Looking at the long-term development, corporate bank loan intensity has declined by 25%

¹⁰ The literature provides an array of methodologies to identify credit boom episodes, which differ in various ways, such as whether the trend and thresholds should be country-specific or whether information unavailable at the time should be included or not. All in all, the boom episodes identified with different methods are rather robust (see Dell’Arriccia et al., 2012, for further details). In their paper, they classify an episode as a boom if either of the following two conditions is satisfied: (i) the deviation from trend is greater than 1.5 times its standard deviation and the annual growth rate of the credit-to-GDP ratio exceeds 10%; or (ii) the annual growth rate of the credit-to-GDP ratio exceeds 20%. Overall, how to define “normal” levels of credit growth always remains open to interpretation.

Table 2

Changes in real and financial variables in selected upswings and downturns

	(1) Loan intensity	(2) Indebtedness	(3) Importance of bank debt for non- financial corporations	(4) Importance of corporate loans for banks
Selected periods				
Reference period				
Q1 2017–Q4 2018	0.8	–0.7	1.4	0.8
Upswings				
Q2 1984–Q1 1985	1.0	n.a.	n.a.	–1.2
Q3 1986–Q2 1990	0.3	n.a.	n.a.	0.1
Q1 1994–Q2 1998	0.9	–1.9	0.0	0.3
Q2 2003–Q2 2008	–0.3	–1.7	–1.0	–1.1
Average	0.5	–1.8	–0.5	–0.5
Downturns				
Q2 1985–Q2 1986	–1.3	n.a.	n.a.	–0.7
Q3 1990–Q4 1993	0.3	1.6	n.a.	0.2
Q3 1998–Q1 2003	–0.4	–0.2	–2.7	–0.2
Q3 2008–Q1 2010	0.7	–0.0	0.3	0.4
Average	–0.5	0.5	–1.2	–0.4

Source: OeNB.

Note: Loan intensity = nominal loans to nonfinancial corporations in % of GDP; indebtedness = debt financing in % of total liabilities (data available from the first quarter of 1999 onward); importance of bank debt for nonfinancial corporations = share of bank loans in the stock of total debt liabilities (data available from the first quarter of 1995 onward); importance of corporate loans for banks = bank loans in total banking assets.

since its peak in 2001, reaching a historical low of 40% in 2018 (chart 2, upper left panel). The decline implies that the role of banks in external debt financing of the economy is shrinking. During the past two years, corporate bank loan intensity re-increased somewhat, but starting from a historically low level of 38.7% (table 2, column 1).¹¹

This picture corresponds to the changing importance of bank loans in the overall financing structure of non-financial corporations. Since the early 1990s, the importance of bank loans in debt financing of nonfinancial corporations has declined from 40% to 20% (chart 2, lower left panel). Nonfinancial corporations tend to increasingly draw on other sources of external debt financing, such as trade credit or domestic loans between nonfinancial corporations. Former upswings also showed a declining share of bank loans in the financing structure of nonfinancial corporations.

Only in the past two years have nonfinancial corporations turned back to bank loans (table 2, column 3).¹² With nonfinancial firms benefiting from price effects in bank financing given historically low interest rates (see section 2), this does not really come as a surprise. What is important, however, is that the indebtedness levels of nonfinancial corporations have declined in all past lending upswings (somewhat less most recently, see table 2, column 2).

The importance of bank loans for investment has also changed over the observation period (see chart 2, upper right panel). After an up and down movement with a peak at the beginning of the 2008 financial crisis, the share of bank loans in gross fixed capital formation is back at the comparatively low level of the early 1990s (165%).

Overall, the most recent upturn in bank loan intensity and in the share of loans in investment and corporate debt seems to differ from the previous lending upswings as all indicators start from historically low levels. Also, the overall decline in indebtedness and the long-term diversification in external debt financing sources is welcome from a financial stability perspective.

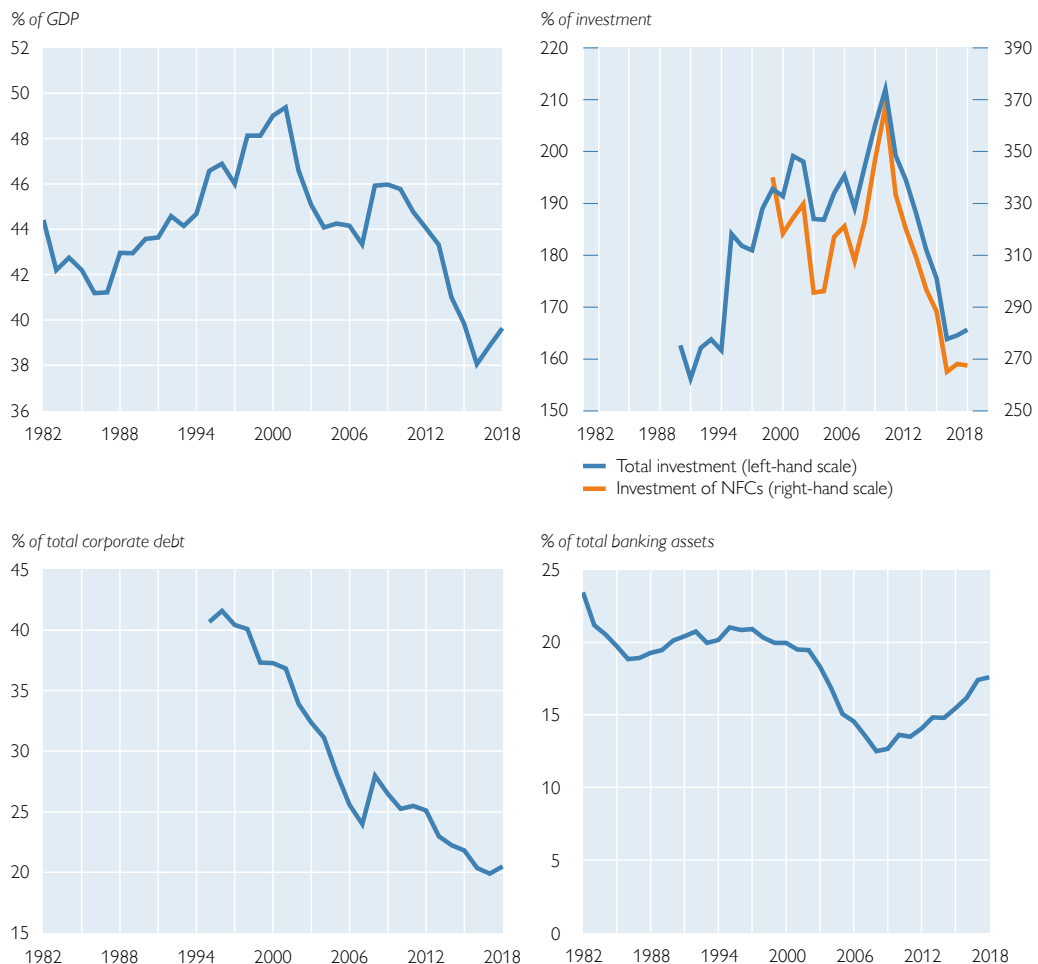
The bottom right panel of chart 2 shows that until the early years of this millennium, domestic corporate loans accounted for one-fifth or more of total

¹¹ Again, selecting the alternative starting date for the latest upswing (Q2 2015), loan intensity was similar (39%) but decreasing on average (–0.2 percentage points per year).

¹² Data for the relevance of bank loans for corporate financing have been available only since 1990. From 1990 to 1994, only annual data are available from financial accounts.

Chart 2

Loans to nonfinancial corporations 1982–2018



Source: OeNB, Eurostat, authors' calculations.

assets¹³ of Austrian banks. In the years prior to the financial crisis in 2008, this share nearly halved as Austrian banks increased interbank activities and their holdings of debt securities, including fixed-income securities. However, the crisis nudged Austrian banks to adjust their business models. They reduced the aforementioned activities, leading to a decrease in total assets, and increased lending. As a result of both developments, the share of corporate loans re-increased to over 17% as of end-2018. On average, 60% of the increase in the share of corporate loans in total banking assets was due to balance sheet reductions.

The buoyant growth in loans to nonfinancial corporations did not drive up the overall indebtedness of the nonfinancial corporation sector. Based on data from the financial accounts, loans from domestic monetary financial institutions (MFIs) contributed almost 40% to the external financing of nonfinancial corporations in 2017–2018 (and nearly two-thirds to debt financing). However, as loans from foreign banks – which had increased markedly in the preceding years – decreased

¹³ Unconsolidated total assets are used as a proxy for domestic assets.

(in particular in 2018), the share of total bank loans actually fell in the period under review (see OeNB, 2019).¹⁴ Thus, to a large extent loans from Austrian MFIs served as a substitute for other forms of finance in the past two years.

2 Loan growth on the rise in 2017–2018

In this section, we focus on the upswing of loan growth in the 2017–2018 period, concentrating on two questions: (1) which bank-specific and loan-specific factors have driven the upturn, and (2) which industries have borrowed most?

2.1 Bank- and loan-specific drivers of corporate loan growth

Based on year-end figures for 2018, table 3 displays selected bank and loan characteristics for the seven banking subsectors which the OeNB uses in banking analysis,¹⁵ comparing growth rates for corporate loans in Austria and loan characteristics for the individual sectors and their contribution to overall growth in 2017–2018. The last column sums up the shares in loan growth of all sectors with above-average ratios for each specific characteristic.

The biggest contribution to loan growth in 2017–2018 came from cooperative banks. Together with savings banks, they account for nearly 80% of the total increase in corporate loan volumes in Austria. Growth rates (in relative terms) were also above average at regional mortgage banks and foreign branches.

Annual growth rates of foreign currency loans to corporations have been negative since 2003 (with only a few exemptions), bringing down the share in total loans to 2.3% in 2018.¹⁶ The growth rates of euro-denominated loans were therefore even higher than the overall growth suggests, as euro loans compensated for the reduction and negative contribution to growth (–4%) of foreign currency loans.

The share of fixed interest rate loans in total outstanding corporate loans increased slightly in the past two years, to 17.6%, due to the low interest rate environment and the expectation of an end of quantitative easing. However, fixed interest loans only contributed one-fifth to the overall loan growth, and the outlook on “lower for longer” in terms of interest rates may make variable interest rate loans more popular again as they offer cheaper loan conditions.

The change in the interest rate environment also had an impact on the original maturity of corporate loans. In general, the share of corporate loans in Austria with an original maturity of more than five years declined somewhat, to 63% in 2017–2018, driven by an increase in loans due on demand and loans without a given maturity. In terms of growth contribution, though, loans with an original maturity of more than five years accounted for more than half of the total increase in the given period. Looking at specific bank sectors, regional mortgage banks and building societies were granting more loans with longer maturities than other sectors.

¹⁴ It is very likely that loans from foreign banks comprise mainly large-scale transactions to larger corporations, and thus are rather volatile, given their relatively low number. Likewise, corporate bond issuance, another financing instrument that is used primarily by larger corporations, also receded in 2017–2018.

¹⁵ These sectors reflect the multitier structure of the Austrian banking sector, based on banks' different business models, legal forms and ownership patterns. For better international comparability, the cooperative banks (i.e. Raiffeisen and Volksbanken) are shown as a single cooperative sector given business model similarity.

¹⁶ We analyze foreign currency loans based on monetary statistics, with a dataset starting in 2003. A comparison with data prior to this date would be difficult due to significant breaks in the reporting framework.

Table 3

Loan growth and loan- and bank-specific factors by type of bank

	Total	Joint stock banks	Savings banks	Regional mortgage banks	Cooperative banks	Building societies	Special purpose banks	Foreign branches	Contribution of loan characteristic to loan growth in % ²	Sum of growth contribution with above-average characteristic ³
Loan growth										
Average annual growth rate, 2017–2018 ¹	7.0	2.1	10.7	7.7	9.5	–4.8	–9.1	15.5		
Share in loan growth, 2017–2018 ¹	100.0	8.9	31.3	11.1	48.6	–1.1	–1.0	2.2		
Loan-specific factors (as from end-2018)										
Share of foreign currency loans	2.3	2.9	2.2	1.6	2.0	0.0	0.0	9.8	–4.0	11.1
Share of fixed interest rate loans (in outstanding corporate loans)	17.6	16.8	14.2	23.4	18.2	11.4	6.8	44.3	20.5	61.9
Share of loans with an original maturity of more than 5 years	62.9	58.3	65.6	72.6	63.2	99.8	2.7	15.9	53.6	89.9
Bank-specific factors (as from end-2018)										
Market share of total assets	100.0	25.9	19.8	6.3	35.8	2.6	7.0	2.7		
Market share of corporate loans in Austria	100.0	27.6	21.8	10.2	37.5	1.3	0.5	1.1		
Share of corporate loans in (unconsolidated) total assets	17.8	19.0	19.5	28.9	18.7	9.0	1.4	7.5		99.9
NPL ratio of corporate loans	2.9	3.1	2.5	1.7	3.5	0.0	0.9	0.2		57.5
Net interest margin (total interest)	1.0	1.2	1.0	1.0	1.0	1.1	0.1	1.4		52.4
CET1 ratio (consolidated data)	15.4	16.9	13.5	14.9	15.4	12.7	23.6	n.a.		56.5

Source: OeNB, authors' calculations.

¹ Not adjusted for valuation changes, exchange rate effects and reclassifications.

² Share of loans with the respective characteristic in total loan increase.

³ Sum of sector shares (with above-average ratios for the respective factor) to total loan increase.

Turning to bank-specific factors, we see that cooperative banks and joint stock banks top the list of market shares in corporate lending. When corporate loans are measured as a share of total assets, we find regional mortgage banks to have a disproportionately high share compared to their overall market share, making this banking sector highly exposed to developments in this business segment.

Austrian banks managed to reduce their portfolios of nonperforming corporate loans (NPL) by almost EUR 3 billion in 2017–2018. The reduction was particularly strong at regional mortgage banks (55% of total decline), which at the same time experienced above-average growth rates (as mentioned above). The same is true for cooperative banks, which combine strong loan growth with a significant NPL reduction (20% of total decline). However, 57% of the increase in corporate loans came from banks (sectors) with above-average NPL ratios. As a result, these banks experience a further increase in their credit risk exposure.

The average interest margin of Austrian banks is around 100 basis points,¹⁷ and none of the sectors of the banking industry deviates much from this level except for foreign branches, whose margins are well above this level. This can be one reason why foreign branches showed very strong growth rates in recent years. In general, approximately half of the loan growth came from banks with above-average margins.

¹⁷ Net interest margin is defined as total net interest income in percent of total assets as net interest income from corporate loans only is not available.

At the same time, this means that banks with below-average margins have been as active in lending as other banks with a view to bolstering their net interest income.

Finally, capitalization is an important factor concerning the ability of banks to grant new loans. In 2017–2018, the consolidated CET1 ratio of Austrian banks increased by 53 basis points to 15.4%. Almost half of the increase in corporate loans in the past two years came from cooperative banks, whose capitalization matches the banking sector average. One-third of the increase came from savings banks, which have a below-average CET1 ratio. Regional mortgage banks also show below-average CET1 ratios and strong loan growth. These results imply that capital ratios (that are still well above the regulatory minimum) do not hinder lending, especially in an environment of economic growth, improving loan quality and low (but stable) interest margins. Moreover, the introduction of macroprudential capital buffers obviously did not hinder banks' ability to provide Austrian companies with necessary financing.

2.2 The industry structure of loan growth

In this section, we look at the risk characteristics of the borrowers to whom the (net) flow of loans to the corporate sector can be traced back in the 2017–2018 period and ask how large a share of the increase in loan growth is attributable to borrowers with higher risk potential. To this end, we use the markedly enhanced data that have become available as a result of the new reporting data model implemented by the OeNB for the collection of bank data.¹⁸ Amongst others, these data allow to detail the loans by Austrian MFIs to nonfinancial corporations by industry. We link the rise in loan growth at industry level to a number of risk characteristics of the individual industries. As the index for notional stocks is not available for individual industries, we look at the nominal change in outstanding volumes. Column 1 of table 4 displays the compound annual growth rate of bank loans for 19 different industries based on the NACE classification, column 2 the contribution of the individual industries to the growth of loans to nonfinancial corporations, and column 3 the share in the outstanding stock of loans as of end-2018.

In a next step, we relate the loan growth by industry to risk-related economic and financial variables. For each of these variables, the most recent reading as well as the respective reference period is given for each industry in columns 4 to 11 of table 4. Based on this, we calculate for each of these variables the share of those industries in the growth of loans to nonfinancial corporations for which the respective indicator is above the average of the whole sector.

A striking feature of the industry composition of the loan growth in 2017–2018 was that it was broadly driven by real estate-related activities, which accounted for half (50.1%) of the total loan expansion. This share was well above the average loan growth of the whole corporate sector and well above the real estate industry's share in value-added growth (12.3 %) as evident from column 5 in table 4. However, imputed rents of owner-occupied housing account for around 55% of the value added of real estate activities as shown in the national accounts.

¹⁸ See Kienecker et al. (2018) for an overview of the new reporting model. As the new data model allows the collection of more granular data, the analytical possibilities have grown substantially. In the case of loans, newly available attributes include factors such as loan purpose, industry and country of borrower and (remaining as well as original) maturity.

As a result, the 50.1% contribution to corporate loan growth made by companies actually active in the real estate business compares with a contribution of these companies of 5.6% to value-added growth.

In most other industries, the share of growth of loans to the corporate sector was in fact below that in the expansion of gross value added. One reason for the relative importance of bank loans is the business model of the individual industries.

Table 4

Loan growth and economic indicators by industry

	Loans to nonfinancial corporations			Gross value added			Financing structure		Profitability		Risk indicators	
	Compound annual growth rate ¹ , 2017–2018	Contribution to growth, 2017–2018	Share in outstanding volume, 2018	Compound annual growth rate, 2017–2018	Contribution to growth, 2017–2018	Labor productivity, 2017	Total equity, 2017	Amounts owed to credit institutions, 2017	Gross operating profit, 2017		Insolvencies, 2018	Nonperforming loans, 2018
	% p.a.	Percentage points	%	% p.a.	Percentage points	Per hour worked	% of balance sheet total	% of net turnover	% of total net debt	% of enterprises	% of outstanding loans	
Agriculture	-1.1	-0.1	0.6	7.0	2.1	9.2	37.8	33.0	10.7	21.8	0.05	3.9
Mining	6.7	0.3	0.3	8.2	0.6	91.3	43.1	20.0	16.3	38.1	0.05	1.7
Manufacturing	5.8	10.4	11.1	3.6	15.9	57.0	39.7	12.3	9.6	29.3	0.19	5.5
Energy	-4.5	-1.9	2.2	10.0	4.6	106.1	41.7	9.4	10.8	17.4	0.04	2.5
Utilities	-4.0	-1.0	1.4	3.2	0.8	69.6	39.1	21.1	11.5	22.7	0.17	0.6
Construction	2.3	6.0	15.5	5.8	8.6	27.3	27.8	14.0	8.0	7.5	0.51	2.9
Trade	2.4	3.6	8.8	3.6	10.1	32.0	39.1	13.8	5.2	27.5	0.27	5.4
Transportation	1.1	0.6	3.2	3.0	4.1	36.7	39.7	20.7	12.4	32.9	0.64	2.8
Accommodation	2.9	2.6	5.4	6.4	8.0	22.9	24.1	49.6	16.1	17.5	0.53	5.7
Information	-9.6	-1.5	0.8	3.2	2.7	47.6	44.5	5.8	16.3	58.3	0.14	7.5
Financial activities	12.9	10.1	5.4	2.1	2.0	71.6	.	.	.	.	0.12	2.2
Real estate	10.4	50.1	32.2	5.3	12.3	235.8	30.5	33.9	48.3	7.6	0.09	1.3
Professional activities	20.4	22.8	8.4	4.7	6.0	28.9	54.9	10.6	16.9	7.6	0.14	2.2
Administration	17.2	5.4	2.3	6.3	6.5	30.8	31.9	11.3	12.2	35.4	0.42	1.9
Public administration	-38.7	-6.0	0.4	3.1	3.7	30.0	.	.	.	.	0.00	0.0
Education	-2.9	-0.0	0.1	2.8	3.5	33.7	33.3	9.0	0.0	51.0	0.12	6.8
Health and social work	-7.7	-1.0	0.7	4.1	6.8	24.7	42.9	12.9	4.3	13.9	0.13	1.1
Arts and entertainment	7.8	0.8	0.7	3.0	0.9	31.1	38.7	17.9	16.6	37.9	0.16	2.2
Other services	-11.0	-1.3	0.6	2.2	0.8	20.1	38.2	15.6	14.2	30.7	0.16	7.3
All industries	6.3	100.0	100.0	4.2	100.0	37.5	38.1	19.4	10.9	14.2	0.24	2.9

Share of industries with above-average values² in

Growth of loans to NFCs				85.3		66.5	33.2	54.7	78.9	12.0	18.3	13.7
Growth of loans to NFCs without real estate	4.5			70.6		32.9	69.6	5.5	52.1	26.3	36.7	27.5
Outstanding volumes of loans to NFCs				66.9		53.3	40.5	45.7	55.2	37.8	35.2	27.4

Source: OeNB, Eurostat, BACH database, Kreditschutzverband von 1870, authors' calculations.

¹ Not adjusted for valuation changes, exchange rate effects and reclassifications.

² In % of those industries for which data are available.

Note: For loans to nonfinancial corporations, see section A1. Gross value added at current prices (Eurostat). Labor productivity: gross value added per hour worked (Eurostat). Total equity (BACH database) comprises capital, reserves, earnings and other equity instruments as well as revaluations, adjustments on financial investments and other comprehensive income. Amounts owed to credit institutions (BACH database) comprise debt liabilities vis-à-vis all credit institutions (including financial leasing). Gross operating profit: net turnover + variation in stocks of finished goods and work in progress + capitalized production + operating subsidies and supplementary operating income – cost of goods sold, materials and consumables – external supplies and services – staff costs – operating taxes and other operating charges, in % of net turnover (BACH database item R31), in % of total net debt (BACH database item R27). Insolvencies: Kreditschutzverband von 1870 (KSV). Number of insolvencies (opened and rejected) in % of the number of enterprises in that quarter as reported by KSV. For nonperforming loans, see section 2.1.

An industry will use more loans when high fixed costs are incurred in the early stage of the production process while the corresponding cash flows accrue at its end. That would suggest an above-average loan intensity for producing companies. Yet, loans to the manufacturing industry accounted for 10.4% of bank lending to the corporate sector while manufacturing accounted for 15.9% of value-added growth (see columns 2 and 5 of table 4, respectively). In general, loans to the tertiary sector grew at a faster pace and contributed more to loan growth than loans to the secondary sector, even when leaving aside real estate activities.¹⁹

Column 4 reports the compound annual growth rates of the (nominal) gross value added in 2017–2018. In this period, 85% of the growth of loans to nonfinancial corporations is attributable to industries whose value-added growth was above the whole corporate sector’s average. The same picture emerges when adjusting growth of value added by the hours worked in the respective industries (see column 6 of table 4; data are available for 2017 only). Two-thirds (66.5%) of the corporate loan growth can be traced back to industries whose labor productivity was above the sector’s average.²⁰ Thus, apart from the economic aspect that bank finance obviously supported economic growth in 2017 and 2018, from a stability perspective it is relevant that favorable economic conditions foster firms’ repayment capacity. This, however, also implies that the repayment capacity of nonfinancial corporations may deteriorate once economic conditions weaken. Yet, loan growth cannot be assumed to be fully aligned with economic developments. The points in time when a loan is taken out and value added is created may differ (and time intervals may vary), depending on the type of activity of the company, its liquidity situation or the (loan-financed) investment project. Furthermore, there are some statistical uncertainties.²¹

As differences in loan growth might reflect different funding and liquidity modalities, such as varying access to – or use of – other forms of financing, we relate the loan growth in the past two years to the financial structure of the individual industries, based on data from the BACH database.²² In 2017–2018, as can be seen in column 7, about one-third (38%) of the loan growth in the period under review is attributable to companies that had an above-average share of total equity in the balance sheet. While this might reflect different financing needs (as firms that are able to finance their activities in the form of bank loans have less need to resort to equity), from a stability perspective a low equity ratio can be an

¹⁹ The tertiary sector saw an annual compound growth rate of 8.1% in 2017–2018, so that 86.3% of the (net) new corporate loans went to this sector (against a contribution of GDP growth of 67.4%). In contrast, growth of loans to the secondary sector averaged 2.7% in the past two years.

²⁰ The high value of the labor productivity for real estate activities can be attributed at least partly to the imputed rents of owner-occupied housing.

²¹ About 16% of total bank loan expansion in 2017–2018 was attributed to the division “activities of head offices.” Such “headquarters” often borrow for a group of companies and then distribute loans within a group. A number of stock-listed companies are also included here. In addition, MFI statistics also include loans to companies in financial and insurance services. These loans are not money market or interbank loans as this industry also includes companies that perform activities for other industries, such as property management companies or holding companies that are not involved in corporate governance. In total, this industry contributed 10% to the growth of loans to nonfinancial corporations. This implies that up to one-quarter of the credit expansion cannot be allocated to the “actual” borrowing industries.

²² The BACH database does not provide data on financial services and public administration. At the time of writing, BACH data were available only up to 2017. However, as the balance sheet structure of the corporate sector has changed only very slowly in recent years, it seems justifiable to use these data for current analysis.

indication of possible risks.²³ Conversely, loans tended to go to industries with a higher historical propensity to take out bank loans, as 55% of the loan growth is attributable to industries with an above-average share of bank loans in the balance sheet (see column 8). This implies that the share of those borrowers who bear more interest-rate risk in the loan portfolio of the Austrian banks rose in the past two years (which is exacerbated by the very high share of variable-rate loans in Austria).

A main factor for the ability of a company to meet its debt obligations is its profitability. We took two profitability indicators from the BACH database, which relate to gross operating profit to turnover and to outstanding debt. Gross operating profit is total income (without financial income) minus operating expenses. Column 9 relates gross operating profit to net turnover, indicating the percentage of a company's earnings remaining after operating expenses are deducted. In the 2017–2018 period, 79% of the loan growth took place in industries with above-average profitability. However, when looking at gross operating profit over total outstanding (net) debt as a measure for debt payment capability (see column 10), a different picture emerges.²⁴ Only 12% of the loan growth is attributable to industries with an above-average income-to-debt ratio. All else being equal, firms with a higher income-to-debt ratio are more likely to be able to make interest and debt-related payments from their income. This difference is mainly due to real estate activities (and to a lesser extent to professional activities). But even without real estate activities, the share of loans to industries in the “above-average segment” is markedly lower when relating income to debt compared to that when relating it to turnover.

Finally, we look at two indicators directly related to credit risk. Both indicate that industries with above-average risk ratios accounted for only a comparatively small part of the loan growth. The first indicator is the insolvency ratio (given in column 11), obtained by dividing the number of insolvencies that occurred in 2018 by the total number of companies in the same year (using data from KSV 1870).²⁵ Only 18.3% of the loan growth is attributable to industries with an above-average insolvency ratio. NPL ratios²⁶ (see column 12) yield a very similar picture: industries with an above-average NPL ratio accounted for only 13.7% of the loan growth.

Overall, in the past two years, banks lent primarily to industries with high value-added growth, high profitability and low insolvency rates. However, as discussed above, loan growth was strongly concentrated on real estate business (but even before 2017, as the high share in outstanding loan volumes implies). Real estate activities exhibited stronger value-added growth and higher profitability than the corporate sector as a whole as well as below-average insolvencies and nonperforming loans. Yet, this performance was based largely on the buoyancy of the Austrian residential real estate market and is therefore prone to reversal once the tide turns. Moreover, its financial structure showed a stronger dependence on bank loans as well as other forms of debt, as its equity ratio was one of the lowest of all industries. Thus, despite the highest profit margin of all industries, its debt

²³ For a recent overview of the equity ratio of Austrian nonfinancial corporations see Beer and Waschiczek (2019).

²⁴ Another possibility would be to look at the interest coverage ratio. But in the current environment of low (and still declining) interest rates this indicator is less apt to gauge interest rate risks or debt service difficulties.

²⁵ A more meaningful indicator for risk considerations would be the amount of insolvency liabilities, related e.g. to total liabilities of nonfinancial corporations. However, while the Kreditschutzverband von 1870 reports a breakdown of insolvency liabilities by different industries, these data are not structured according to the NACE classification.

²⁶ See section 2.1.

payment capability was one of the lowest. Given the strong impact of real estate activities on the year-to-year variation of loan growth in the past two years, we repeated the calculations without this industry. As to financial structure, when leaving out real estate activities, loans went largely to industries with an above-average equity ratio but with a low share of loans in total liabilities. The share of industries with an above-average debt payment capability more than doubles but still remains low. The same holds for the direct risk indicators – the insolvency and NPL ratios – which both do not change fundamentally but also are twice the overall share.²⁷

3 Summary and conclusions

The aim of this paper was to analyze the recent episode of strong increase in corporate loan growth in Austria with respect to potential systemic vulnerabilities. We did so in two ways: (1) along the time dimension, relating corporate loans to real and financial factors in a longer-term perspective, and (2) looking at bank- and loan-specific factors of the recent loan expansion by industry.

To sum up, we have identified the following risks and vulnerabilities – but also mitigating factors – for the Austrian banking sector that stem from the recent upswing in corporate loan growth:

- Whereas corporate loan growth in 2017–2018 was well in the range of former lending upswings in terms of magnitude, the year-to-year variation of growth was higher than in most past upswings. In the real economy, growth patterns were broadly in line with historical regularities. Investment growth was even stronger than during previous upswings in lending, but the most recent upturn in the investment ratio started from a historically low level.
- Overall, the indebtedness levels of nonfinancial corporations have decreased since the early 1990s. In this process, bank loans came to play a smaller role in the financing mix of nonfinancial corporations and in banks' asset structure.
- In the past two years, the growth of bank lending to nonfinancial corporations in Austria was primarily driven by lending to industries with high value-added growth, high profitability and low insolvency rates. Since corporate indebtedness levels did not rise as fast, banks' credit risks did not rise as much as the strong increase in loan growth would suggest. However, the interrelation between economic conditions and the ability of firms to take out and repay loans may also imply systemic risks once the repayment capacity of nonfinancial corporations deteriorates when economic conditions weaken. A potential deterioration in loan quality would therefore hit above all banks with currently high lending rates that have structurally low margins and weaker risk bearing capacity (measured via capitalization).
- As bank loans have recently become a substitute for other forms of debt financing of nonfinancial corporations, there has been a slight shift of risks to the domestic banking sector. These risks are increasingly real estate-related, particularly for banks heavily involved in this business segment.²⁸ While real estate lending has

²⁷ When using the shares of outstanding loans (instead of growth rates) of industries in which the respective indicator is above the average of the nonfinancial sector as a whole, the results do not change much.

²⁸ In addition to the strong concentration of the growth of loans to nonfinancial corporations on real estate activities, the growth of loans to households was driven primarily by housing loans (see the section "Recent developments" in this issue of the Financial Stability Report).

been fostered by the buoyancy of the Austrian real estate market, the banking sector has become more sensitive to possible shocks in this market.²⁹

- The repayment capacity of indebted nonfinancial corporations is being supported by the current low interest level, implying an interest rate risk for both borrowers and lenders in the medium to long run.
- The favorable economic conditions supporting the lending upturn in 2017–2018 were conducive to the improvement of loan quality indicators, enabling banks to reduce provisioning and bolster their profitability. However, changes in economic conditions may cause credit quality to worsen again. In this case, provisioning needs for banks could quickly rise, putting pressure on already low margins.
- Weak capitalization (in an international comparison) of Austrian banks and the introduction of macroprudential capital buffers has not burdened banks' lending activities in recent years. Much of the credit growth even came from banks with below-average capitalization. Deteriorating credit quality would therefore especially hit banks with lower risk-absorbing capacity.

Yet, our assessment has to be seen as a starting point for future work. While we were able to break down loan developments as well as economic and financial indicators at the industry level, which is rather coarse and somewhat blurred due to statistical reasons, other firm characteristics such as firm size, regional characteristics or individual firms' financial positions derived from individual balance sheets, could not be taken into account. These blanks might be filled when more granular data become available, for instance after the implementation of the analytical credit datasets (central credit register: AnaCredit). Future analysis should also look at the role of pricing and interest rate risks in corporate financing and bank lending patterns on a solo-level basis. Moreover, given the strong and increasing concentration of the loan portfolio of Austrian banks on real estate risks, the real estate industry warrants closer examination – both with respect to its economic performance and in terms of its financing structure.

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²⁹ See for example Schneider (2019), who posits that the outlook for the real estate industry might be characterized by an oversupply in the housing market beyond 2020, which could represent a risk factor for real estate-related industries.

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Annexes

A1 Description of time series for loans to nonfinancial corporations

Data on loans to nonfinancial corporations in this paper have been compiled from OeNB statistics, which are in turn based on the data reported to the OeNB by all Austrian banks. As the scope of the reporting requirements changed over time, there are a number of breaks in this time series. The time series starts in June 1981. From this month onward, the OeNB’s “monthly credit statistics” included data on direct lending (“Direktkredite”) by Austrian banks. As of December 1995, banks were required to report claims on nonbanks at monthly intervals. From the fourth quarter 1997 onward, the time series shows the development of loans granted from MFIs headquartered in Austria, according to the requirements of the ECB’s balance sheet items (BSI) statistics. The ECB’s reporting requirements led to adjustments in the definition of loans as well as in the definitions of the counterpart sector (which was adjusted to ESA requirements) and the reporting population (monetary financial institutions instead of banks). The ensuing time series breaks in 1995 and 1997 have been extrapolated with the growth rates of the annual growth rates of the first three quarters of the previous year. It has to be pointed out that these extrapolations did not affect the determination of turning points in loan growth.

Until 1999, growth rates are calculated as changes in the volume of outstanding loans. From 1999, they are based on the index of notional stocks developed by the ECB. This index adjusts changes in outstanding volumes for changes that are not related to transactions, such as valuation changes (write-downs), exchange rate

effects, loan transfers or reclassifications and therefore is based solely on the contributions of net transactions to loan growth. It is obtained (starting from a base period) by dividing transactions by the outstanding amounts at the beginning of the period to which they refer.³⁰ This means reclassifications do not affect growth rates. However, outstanding volumes are not affected by this method and therefore reflect data breaks due to reclassifications (major reclassifications took place in 2005 and 2007). Moreover, as of June 2005, the nominal value (including value adjustments) of loans is being reported. In 2014, the conversion to ESA 2010 entailed further changes.

The time series on loans to nonfinancial corporations exclude loans to freelance professionals and self-employed persons, as is required by BSI statistics. For the years before 2004, when the OeNB adapted reporting accordingly, loans to freelance professionals and self-employed persons have been deducted.

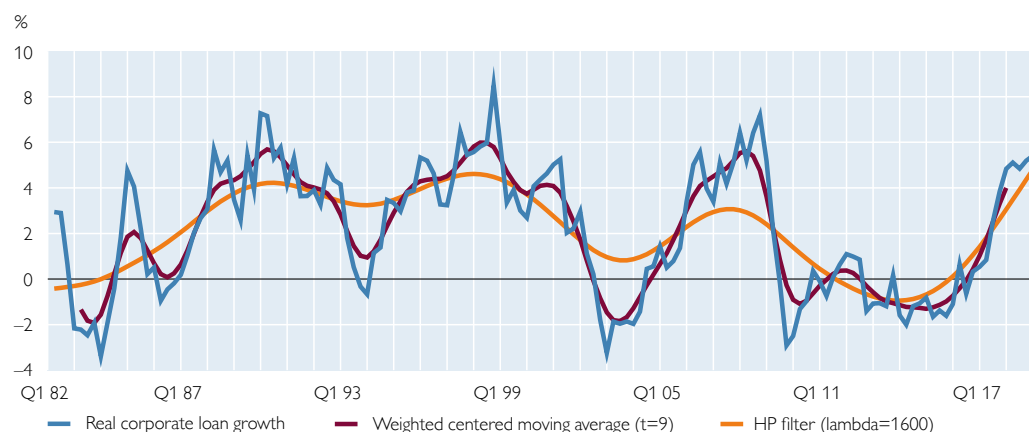
The time series is neither seasonally nor working-day adjusted. Real data are defined as nominal data adjusted for inflation using the GDP deflator.

A2 Determination of turning points and leads/lags of loan growth

Turning points refer to local minima and maxima in the growth cycle. Due to this definition, an upswing can start with negative growth rates. For the identification of the turning points, we detrended the time series by calculating several moving averages (MA) for different lengths of time (simple MA, centered MA (symmetric) and weighted centered MA (symmetric)). We also applied the Hodrick-Prescott filter (HP filter) for comparison. Among the moving averages, the weighted centered MA with $t=9$ ³¹ allowed a clear identification of turning points without losing too much information on the variation of the data – given the available length of the time series (chart 3). Applying the HP filter ($\lambda=1600$)³² broadly supported our results. As growth rates at the end of the time series only turned positive at end-2016, we

Chart 3

Weighted centered moving average and HP filter 1982–2018



Source: OeNB, authors' calculations.

³⁰ For a detailed explanation of the concept of the index of notional stocks, see ECB (2012).

³¹ Observations near the center receive higher weights than observations at the two ends of the sample period.

³² Ravn and Uhlig (2002) recommend the application of $\lambda=1600$ for quarterly data.

decided to focus on the past two years. As a kind of robustness check we set the starting date of the most recent upswing in Q2 2015, when a more sluggish recovery set in. The final selection of local turning points was guided by the Bry-Boschan procedure (see Bry and Boschan, 1971; and OECD, 2019, for an application).

To determine the strength of the link between bank lending to corporations and economic developments, we conduct a correlation analysis applying different leads and lags. The corresponding variables (e.g. GDP and investment) were shifted back and forth by a maximum of eight quarters. The highest correlation between real credit growth and real GDP growth was observed with a lag of four. This means that a loan growth to corporations lags real GDP growth by one year.