



Macprudential Commentary

December 2021



NÁRODNÁ
BANKA
SLOVENSKA
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Summary

- The expansionary phase of the financial cycle is gradually gaining momentum. The most notable acceleration is in the credit and property markets. This is associated with increasing potential for imbalances to build up.
- Housing loans have continued to grow, and there has been some moderation of the rate of decline in consumer credit.
- Corporate loan growth has accelerated. Growth in loans for fixed investment has also picked up.
- Firms are increasingly affected by rising input prices and supply chain disruptions.
- Banks remain well capitalised. After falling sharply in 2020, their profits have increased strongly.



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The CCyB rate remains unchanged

With the financial cycle upswing gaining momentum, the potential for imbalances to build up has increased. The economic recovery has been stalled by the pandemic's third wave, an upsurge in energy prices, and disruptions to supplies of certain intermediate inputs. The economic slowdown has not affected the financial market. Relatively strong competition in the credit market is translating into an acceleration of credit growth and, in the case of consumer credit, a further decline in interest rates. Stable growth in housing loans is having an upward impact on property price growth. Partly because of public support measures, loan defaults have not increased significantly during the pandemic crisis and banks have been able to scale back their loan loss provisioning from the elevated levels seen in 2020. Banks are reporting high levels of solvency.

To leave the countercyclical capital buffer (CCyB) rate at its current non-zero level therefore appears to be the right decision. This level is so far covering also potential risks related to the current expansionary developments in the financial sector. At the same time, it allows for a rapid response to any significant increase in credit losses. The reasons for keeping the CCyB rate at 1% are at present preponderant.



Expectations for the CCyB rate in the next quarter

The next period may be expected to see ongoing expansionary trends in the financial market. This is associated with an increasing propensity of households and firms to borrow and the underestimation of existing risk. Conditions will therefore remain conducive to a build-up of imbalances.

The current CCyB rate is, however, providing sufficient leeway to cover existing risks, so Národná banka Slovenska does not envisage any need to increase the rate in the next quarter. If, however, current trends in the credit and housing markets continue, the Bank may consider raising the CCyB rate sometime in 2022.

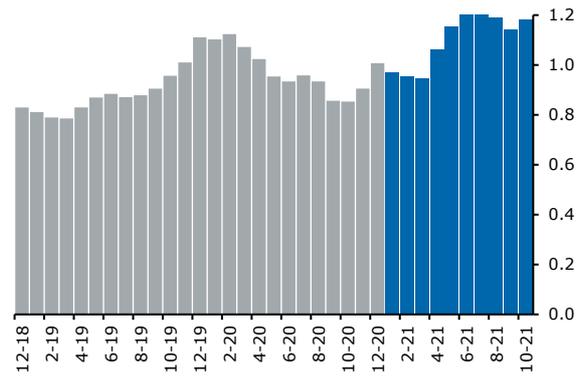
CCyB rate:
1.0%



Household loan growth rates remain robust

Annual growth in loans to households continued to accelerate in early autumn. From a rate of 6% in the beginning of the year, the rate had increased to 8% by the end of the third quarter and rose to 8.2% in October. There is particularly strong demand for housing loans, created by the favourable availability of credit, the recovering economy, and rising housing prices. Compared with other EU countries, Slovakia had the seventh highest rate of loan growth in October. With domestic banks seeking to attract customers mainly by lowering interest rates,¹ Slovakia's housing loan interest rates in October were the second lowest in the euro area. The situation in the consumer credit market appears to be consolidating to some extent, with the gradual easing of the annual rate of decline in such credit.² In particular, the efforts of certain banks to gain customers by reducing interest rates have resulted in interest rates on new consumer credit falling further in the past two months than at any time in previous five years.³ The recent period has also seen an increase in the loan prepayment rate,⁴ which may be a corollary of customers' efforts to improve their lending conditions, but may also relate to their desire to increase their borrowing under new conditions. The non-performing loan ratio continued to decline in the third quarter.⁵ Developments in the household credit market therefore indicate a firming of expansionary trends in that market, typified by an increasing propensity to borrow and decreasing perception of risk.

Chart 1 Mortgage refinancing has increased in recent months (percentages)



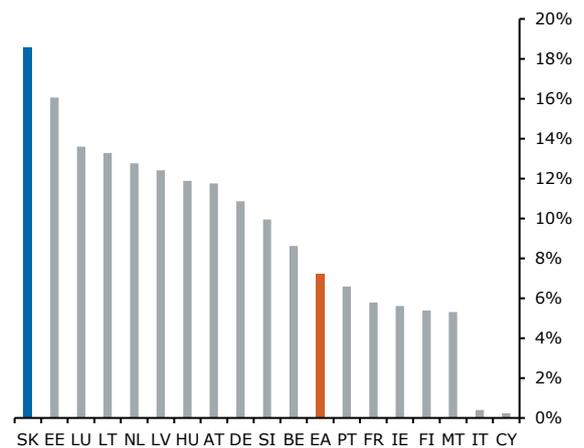
Source: NBS.
Note: Ratio of prepaid housing loans to total housing loans (percentage).



Property price growth remains strong

Prices of houses and flats maintained their double-digit annual growth rate in the third quarter of 2021.⁶ The broad availability of credit and the economic recovery coupled with accelerating prices, particularly in the property market, are stoking demand for real estate. Even by European standards, prices of houses and flats in Slovakia are rising quickly. Their growth rate in the first half of 2021 outpaced property price growth in the euro area by 10 percentage points. Growth in prices of flats was increasing in all Slovak regions and across flats of all sizes. This was also the case in Bratislava, where price growth accelerated after moderating somewhat during the pandemic's second wave.⁷ Meanwhile, the supply of flats remains relatively fixed, with the number advertised for sale not showing any significant change in the third quarter. The situation is similar in the new-build market, where the undersupply of new flats became even more pronounced in the third quarter. Prices of new-build flats also increased.⁸ The flat rental market is also recovering, after experiencing a moderate decline during the first and second pandemic waves.

Chart 2 Property prices are rising faster in Slovakia than in any other euro area country (percentages)



Source: ECB.
Note: Residential property transaction prices; annual growth rate as at the second quarter of 2021.



The corporate credit market has also improved

Although the pandemic crisis has still not ended, firms found themselves confronting new risks in the third quarter of 2021. The pandemic's third wave was gradually gaining momentum and bringing a further bout of uncertainty. The pandemic's evolution in coming months will bring further restrictions, particularly in those sectors already hardest hit by the crisis. In addition to the unfavourable epidemiological situation, firms have also become exposed to new risks: sharply rising prices of energy and intermediate inputs, and supply chain disruptions. Supply disruptions are having a significant impact on foreign trade and consequently on firms' revenues. According to survey data,⁹ as many as 15% of small and medium-sized enterprises (SMEs) see rising input prices as their most serious current problem. Compared with its past

¹ As at October 2021 the average interest rate on new housing loans was just under 1%.

² The annual rate of decrease fell from 9.6% early in the year to 6.3% in October, and the month-on-month decreases have also moderated gradually, down to 0.2% in October 2021.

³ The average interest rate on consumer credit was 7.1% in October 2021, 1.1 percentage points lower than its level in June 2021. This was the largest such decrease since December 2016.

⁴ The ratio of prepaid loans to the outstanding amount of loans increased from 0.9% in 2019, to 1.0% in 2020, and to 1.1% for the first ten months of 2021.

⁵ For housing loans, the NPL ratio was 0.1 percentage points lower in October than in June, at 0.9%; for consumer credit, it was 0.2 percentage points lower, at 7.7%.

⁶ Annual growth in the average price of a flat in Slovakia accelerated from 13.5% in the second quarter of 2021, to 15% in the third quarter. The growth rate for the average price of houses accelerated by 2.1 percentage, to 24.1%.

⁷ Price growth in the capital city nevertheless lagged behind that in other regions in both absolute and relative terms.

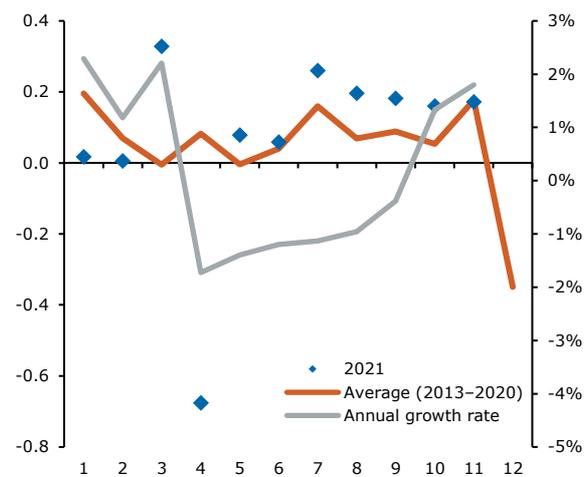
⁸ Asking prices for new-build flats increased, year on year, by 16% in the third quarter, and selling prices increased by 11.5%.

⁹ From the [Survey on the Access to Finance of Enterprises \(SAFE\)](#). Further details are provided in the 'Supplemental charts'.

level, that share has risen by a half and now exceeds the share of SMEs that see the COVID-19 pandemic as the main issue (12%). The most serious long-term problem continues to be labour shortages (Chart E in the ‘Supplemental charts’).

The annual rate of corporate revenue growth has been gradually decelerating,¹⁰ with industry experiencing the worst trend. The situation remains considerably heterogeneous across economic sectors. In several sectors, revenues remain below pre-pandemic levels, primarily, however, not because of lockdowns, but because of input and component supply problems. The sectors affected include some not previously hard hit by the pandemic crisis. Revenues have fallen most sharply in industry (by almost 13%). Although industrial firms have weathered the pandemic crisis relatively well, they have been worst affected by shortages, and rising prices, of intermediate inputs. Car manufacturing has seen the largest drop in revenues, and several other manufacturing industries have also suffered revenue losses.¹¹ On the other hand, the corporate sector’s overall revenues have been supported by trade. Evidence of increasing uncertainty can also be found in the Economic Sentiment Indicator (ESI).¹² In October’s ESI survey, industry recorded the sharpest drop in sentiment. Among the other surveyed sectors (construction, services, consumers, and retail trade), all except retail trade also experienced a drop in sentiment.

Chart 3 Corporate lending is indicating an upturn (month-on-month growth in NFC loans in absolute and relative terms; EUR billions, percentages)

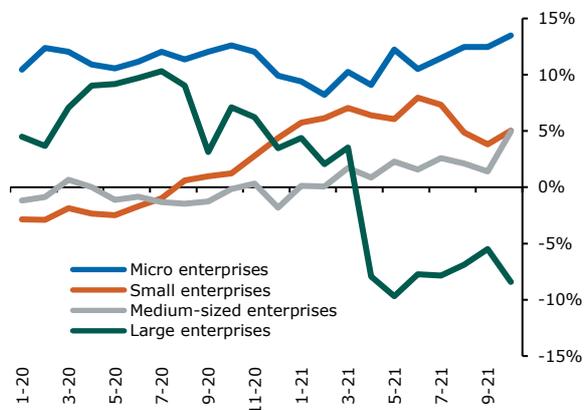


Sources: NBS, and Register of Bank Loans and Guarantees. Note: The numbers on the horizontal axis denote the months of the year.

After being negative for months, the annual rate of change in loans to non-financial corporations turned positive in October 2021. There are, moreover, several trends indicating an upturn in the corporate credit market. The annual growth rate of NFC loans in October was 1.1%, and lending increased in most corporate loan categories. The only notable decline was in loans with an original maturity of up to one year, predominantly in the portfolio of such loans to certain large enterprises. Signs of improvement can also be seen in the month-on-month increases in NFC loans,¹³ as well as in a survey of SMEs. Firms say banks are showing a greater willingness to lend, which reflects the increasingly favourable outlook for firms’ financial situation (Chart C in the ‘Supplemental charts’).

After being subdued for a long time, the uptake of loans for fixed investment has started to pick up appreciably. Fixed investment loans with a maturity of more than five years accounted for the major part of October’s growth in total NFC loans, while medium-term loans for fixed investment maintained the same growth rate. The annual growth rate of total fixed investment loans jumped from 0.1% in September to 4.7% in October, while the growth rate of total loans to private sector NFCs did not change from the one month to the other.¹⁴ According to a survey, however, investment activity among SMEs has not yet returned to its pre-crisis level. On the other hand, firms have started showing increasing innovation in respect of the product ranges (Chart D in the ‘Supplemental charts’). According to their survey responses, the availability of both traditional loans and credit lines has increased, though the need for traditional loans has not (Charts A and B in the ‘Supplemental charts’).

Chart 4 Lending to large enterprises continues to fall (annual percentage changes)



Source: Register of Bank Loans and Guarantees.

Looking at the breakdown of corporate loans by firm size, lending to large enterprises has continued to decline, while lending in all other segments of the portfolio has accelerated. The annual rate of decline in loans to large enterprises increased notably in October,¹⁵ with the change largely accounted for by short-term loans. By contrast, lending to micro enterprises continued to accelerate,¹⁶ driven by borrowing across the whole range of loan maturities. There was also increasing growth in loans to SMEs.¹⁷

¹⁰ The annual growth rate of total sectoral revenues fell from 4.1% in July to 1.1% in September.

¹¹ Manufacturing of computers, electrical equipment, pharmaceutical products, wood and products of wood, and wearing apparel.

¹² The ESI edged down from 100 points in September to 97 points in October.

¹³ The month-on-month increases since July have been above the average level for previous years.

¹⁴ Annual growth of loans to private NFCs was 2.6% in October.

¹⁵ To -8.4%, from -5.5% in September.

¹⁶ From 12.5% in September to 13.5% in October.

¹⁷ From 1.4% in September to 4.9% in October. Lending to small enterprises alone increased from 3.8% to 5%.

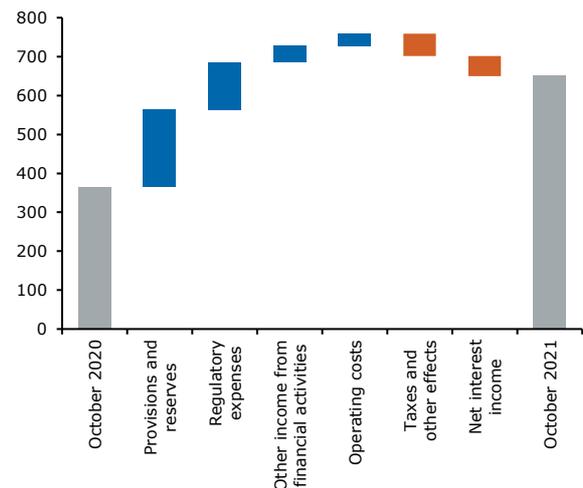


In terms of profitability, banks have had a favourable year

The domestic banking sector's aggregate profit for the first ten months of 2021 was 1.8 times higher than its profit for the same period in 2020. Banks achieved this favourable result even though their interest income was declining. The sector's net after-tax profit as at the end of October 2021 was €651 million. The profit growth was largely accounted for by loan loss provisioning, which has been far lower in 2021 than in 2020, when it was ramped up as a precautionary measure.¹⁸ Provisioning has been scaled back mainly in respect of loans to households and to a lesser extent in respect of loans to NFCs.

Other one-off factors have also contributed to banks' higher profits; nevertheless, banks remain under pressure from interest margin compression. Banks' financial performance has also benefited from the abolition of the bank levy. Since, however, the impact of this change is diminishing from month to month,¹⁹ the subsequent period is not expected to see similar increases in the banking sector's profitability. On the contrary, banks are facing the pressure of interest margin compression, which during the period under review saw their interest income decline by 3.7% year on year. Banks were unable to stop this income from falling despite recording relatively strong growth in lending and in income from the third series of targeted longer-term refinancing operations (TLTRO III), without which the decline would have been even greater.²⁰

Chart 5 Significant year-on-year increase in the banking sector's profit (EUR millions)



Source: NBS.

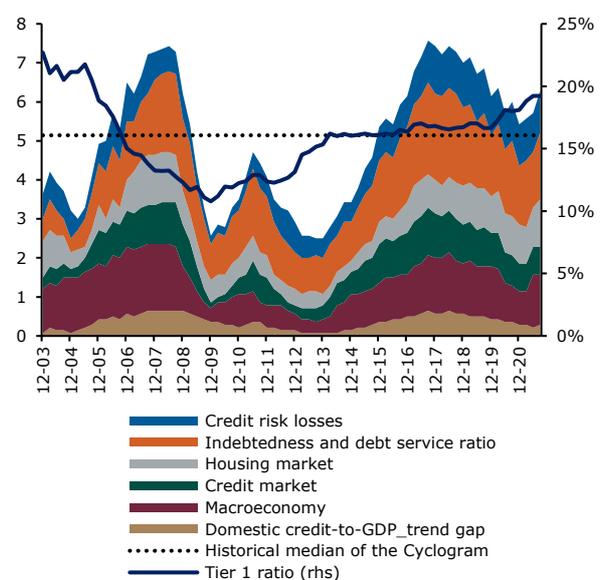
Banks remain well capitalised. September saw the expiry of ECB and NBS recommendations²¹ that urged banks to strengthen their solvency during the unfavourable times of the pandemic crisis. Because the direct risks arising from the pandemic crisis have moderated, the expiry dates of these recommendation were not extended. The banking sector's total capital ratio therefore edged down in the third quarter of 2021, by 0.5 percentage points to 20.3%. Growth in lending, in particular to NFCs and households, had a negative impact on the aggregate capital ratio (-0.7 percentage points), while various regulatory adjustments had a positive impact (0.2 percentage points). The banking sector therefore continues to have sufficient capital, in terms of both volume and structure,²² to maintain lending to the real economy.



The financial cycle upswing is gaining momentum

The potential for imbalances to build up owing to the expanding financial cycle is gradually increasing. While financial sector risks related to the pandemic crisis remain for now stable and at relatively low levels, the economy's gradual recovery from the crisis is increasing the potential for a build-up of imbalances. These relate mainly to the credit market, which was still accelerating during the summer months. Besides a long period of strong growth in loans to households, there is also a gradually accelerating trend in loans to NFCs, which has almost recovered the ground lost when NFC loans declined in the second quarter. Meanwhile, non-performing loan ratios remain low. The main impetus for household loan growth has been the situation in the property market, as property prices have started accelerating again. The availability of financing and rising inflation are providing an additional stimulus to private sector borrowing. The only factor weighing on the financial cycle upswing in the third quarter was the cooling of economic sentiment owing to the onset of the pandemic's third wave. Going forward, however, with economic growth projected to continue²³ after something of a lull during the winter months, it may be expected that the financial market's expansionary trends will continue and that there will be a related accumulation of imbalances.

Chart 6 The Cyclogram shows the financial cycle upturn gathering pace (composite index; percentages)



Source: NBS.

Note: Higher index values imply an intensive build-up of imbalances.

¹⁸ For the first ten months of 2020, cumulative loan loss provisions amounted to €296 million; for the same period of this year, €74 million.

¹⁹ As from July 2020 banks were no longer paying the bank levy.

²⁰ Specifically, 5.5% year on year.

²¹ Recommendation ECB/2020/35 (2020/C 437/01) of 15 December 2020 and NBS Recommendation No 1/2021 of 12 January 2021.

²² The Common Equity Tier 1 (CET1) capital ratio, referring to the highest quality component of banks' capital, remains elevated at 18.8%. CET1 capital therefore makes up more than 90% of the sector's total capital.

²³ In Národná banka Slovenska's autumn forecast (MTF-2021Q3).



Non-performing loan ratios are gradually falling in both the household and corporate loan portfolios

In the retail²⁴ loan book, the non-performing loan (NPL) ratio has been falling for a long time, and as at October 2021 it reached a new historical low of 2.1%. In the NFC portfolio, the NPL ratio increased slightly in the spring months, before gradually declining, down to 3% in October. According to a survey of SMEs, there has also been a moderate decrease in the share of firms reporting problems with late payments from other firms (Chart F in the 'Supplemental charts').²⁵ In the portfolio of government-guaranteed loans, the NPL ratio increased to 0.7% in October and had been rising moderately for several months. The most significant risk concerns developments in the consumer credit segment. The net default rate for consumer credit reached a historical low (1.1%) in June 2021, before rising moderately (up to 1.5% in October). In this segment, moreover, there has been a continuing uptrend in defaults among loans that were under a pandemic-related statutory moratorium,²⁶ whereas in the mortgage and NFC portfolios, the default rate among post-moratorium loans is stable.

Box 1: The impact on firms' exports of supply chain disruptions and rising input prices

Global supply chain disruptions and rising prices of energy and materials are having a negative impact on firms' financial situation. The purpose of this box is to provide a more detailed analysis of these effects using the data for September 2021.

In this box we analyse international trade data, which allows only a partial analysis of the impact of rising input prices and supply chain disruptions. A comprehensive analysis of their impact would require further data on firms' financial situation which are not yet available. This analysis is based on detailed information about the quantity and price of imported and exported products.

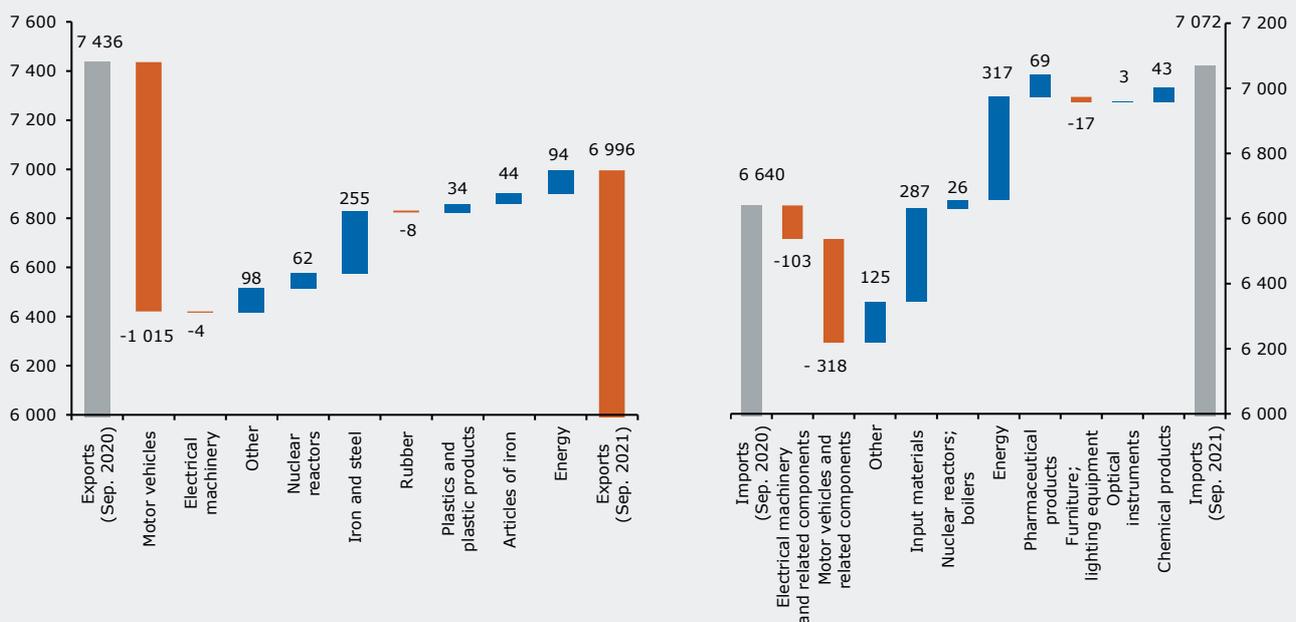
The most severe impact of global supply chain disruptions in Slovakia has been seen in the automotive industry. While total imports increased, year on year, by 6.5% in September (more slowly than in the previous month), imports of components for car manufacturing declined by €0.3 billion (by 25%). This had a major impact on car production. Vehicle exports in September 2021 slumped by more than €1 billion compared with the previous year.²⁷ Since this industry accounts for as much as one-third of Slovakia's total exports, the value of total exports fell by almost 6% in September.

These figures show how sensitive the Slovak economy is to global supply chain disruptions. Component supply shortages in the car industry resulted in net exports falling by €0.7 billion in September.

Chart 7 Foreign trade is being severely affected by supply chain disruptions, particularly by their impact on the automotive industry

Left-hand chart: Exports as at September 2021 and a decomposition of their changes vis-à-vis September 2020 (EUR millions)

Right-hand scale: Imports as at September 2021 and a decomposition of their changes vis-à-vis September 2020 (EUR millions)



Notes: The chart shows the contributions of individual goods categories to the annual rate of change in in foreign trade for September 2021. The categories shown are those with the largest shares in foreign trade (in descending order from left to right).

Sources: NBS, and Statistical Office of the Slovak Republic.

²⁴ The retail sector here comprises households, sole traders, and non-profit institutions serving mostly households.

²⁵ The share of SMEs reporting regular or occasional problems with late payments from other firms or from public administration institutions has fallen, year on year, from 51% to 46%. Even so, this share remains above the EU average (42%).

²⁶ The NPL ratio for post-moratorium consumer credit was 9.7% in October 2021.

²⁷ In relative terms, they declined by 35%.

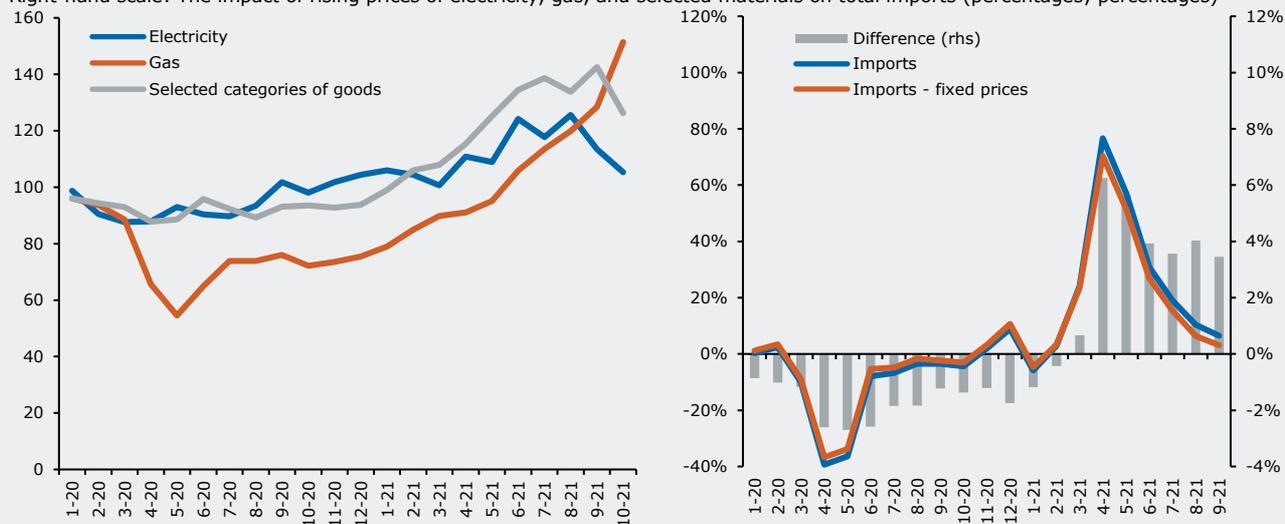
Besides component supply disruptions, firms are having to face rising prices of energy and of certain input materials imported from abroad.²⁸ As regards energy prices, the most notable increase in 2021 was in gas prices. Among selected input materials, prices of wood, metals, and plastics rose most sharply. Electricity prices have so far been rising more moderately, with a greater time spread between increases. This may, however, be simply due to a number of firms paying electricity prices on the basis of period-ahead contracts. Given developments in global electricity prices, however, firms may later be exposed to the risk of rising electricity prices.

Firms' costs are increasing sharply on the back of rising prices of energy and basic input materials. If prices of energy, wood, metals, and plastics imported from abroad had remained at 2019 levels, firms would have saved approximately €310 million in September alone.²⁹ Some of these costs have a negative impact on firms' financial situation; others are passed on to other sectors (e.g. households) by increasing output prices.

Furthermore, the imported quantity of several of these items³⁰ has declined. This implies that some firms may be reducing or postponing their stockbuilding owing to high price increases, with a possible downward impact on production. The imports of other items are increasing despite rising prices, which may reflect efforts to stock up on them. If prices had remained at 2019 levels, total imports in September would not have increased year on year, but rather would have fallen.³¹ It should be noted that this is only part of the impact of rising input prices, since the calculation covered only certain goods. The overall impact of rising input prices on the corporate sector will therefore probably be greater.

Chart 8 Increases in import prices of energy and materials in recent months have significantly affected the total value of imports

Left-hand chart: Unit import prices of electricity, gas, and selected categories of goods (index: 100 = average level in 2019)
 Right-hand scale: The impact of rising prices of electricity, gas, and selected materials on total imports (percentages; percentages)



Sources: NBS, and Statistical Office of the Slovak Republic.

Note: The unit import prices for individual months are calculated as the average for the given category of goods. Selected materials include inter alia the following: iron, steel, copper, aluminium, other metal ores, wood, plastics, and wood and plastic products.

'Imports - fixed prices' denotes the year-on-year change in imports where the prices of imported goods are fixed at their average level for 2019. The right-hand scale shows the difference (in percentage points) between the year-on-year change in current imports and imports at fixed prices.

This analysis shows that disruptions in component supplies have severely affected the automotive industry. Rising prices of energy and imports could have a relatively broad impact on the corporate sector. Moreover, other economic sectors could be affected through secondary effects, as firms seek to pass on rising input prices by increasing output prices. The impact on firms' financial situation will depend on the duration and severity of these developments. Among car makers, revenue losses and input cost increases amounted to around €1 billion in September 2021. If this situation continued for a longer time, the overall impact could be in the order or several billion euro, on a par with the impact of the pandemic crisis on firms' revenues in 2020 (€7.5 billion).

²⁸ The goods categories included in input material were ones whose unit price can be determined with relative precision, including iron, steel, aluminium, copper and other metals, wood, plastics, and wood and plastic products.

²⁹ If prices had stayed at September 2020 levels, which were lower compared with 2019, firms would have saved almost €480 million.

³⁰ Articles of iron or steel, aluminium, copper, and wood and wood products.

³¹ Using 2019 prices, the annual rate of change in imports as at September 2021 would have been lower by almost 7 percentage points, at -0.5%. Using September 2020 prices, the rate of change would have been even lower, at -2.6%.

The SME sector's current situation at a glance

The data are based on a survey of SMEs about their access to financing.³²

This survey is conducted jointly by the European Commission and the ECB.

The Slovak segment of the survey for the first half of 2021 was conducted on sample of 341 firms.

The survey for the first half of 2021 was conducted from 6 September and 15 October 2021.

Chart A The availability of traditional loans has increased since the pandemic's first wave, but the need for them has fallen



Source: ECB.

The chart shows the difference between the share of firms which reported an increase during the previous six months and the share which reported a decrease.

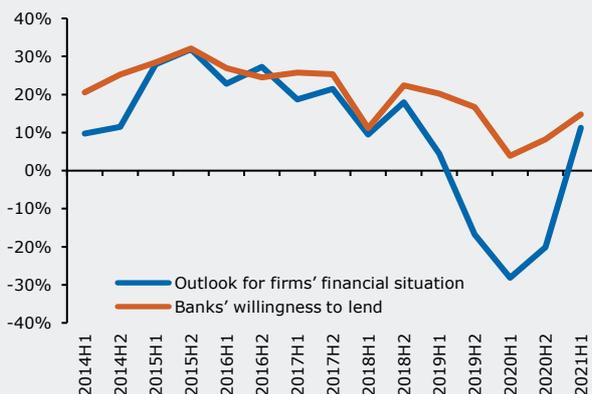
Chart B The availability of credit lines and overdrafts has gradually increased since the pandemic's first wave



Source: ECB.

The chart shows the difference between the share of firms which reported an increase during the previous six months and the share which reported a decrease.

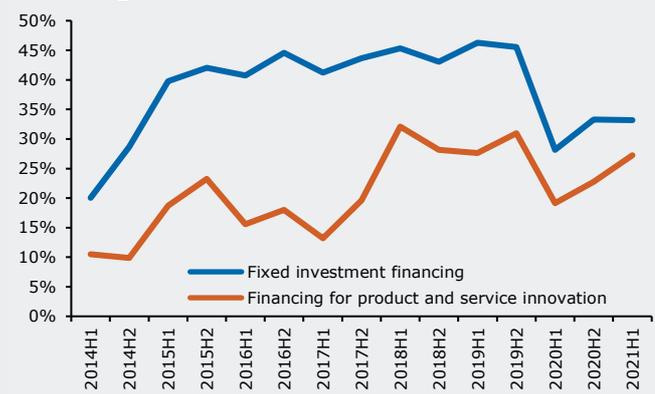
Chart C Firms expect their financial situation to improve; banks are more willing to lend



Source: ECB.

The chart shows the difference between the share of firms which reported an increase during the previous six months and the share which reported a decrease.

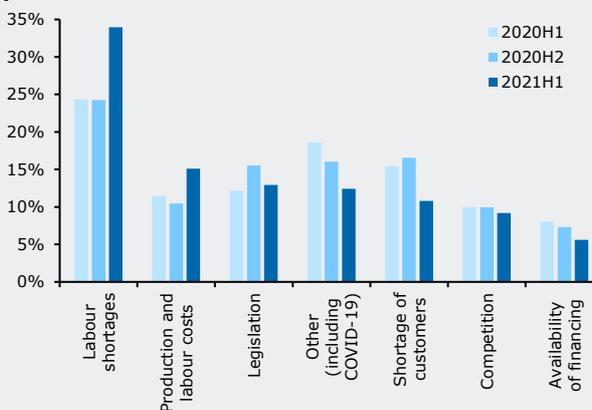
Chart D Fixed investment financing has picked up only partially; on the other hand, innovation financing is increasing



Source: ECB.

The chart shows the share of firms that used financing for fixed investment purposes and the share that used financing to innovate their products and services.

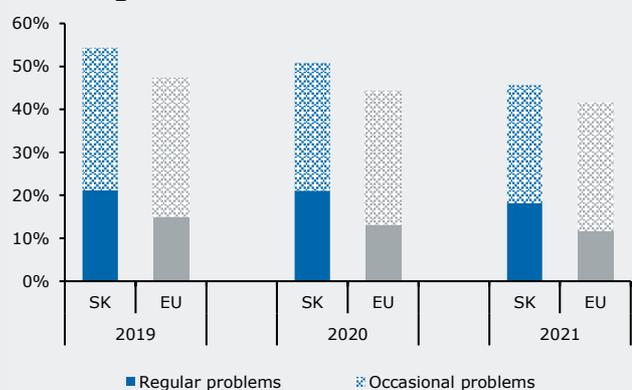
Chart E The most serious problem facing firms continues to be labour shortages; the importance of production and labour costs has also increased



Source: ECB.

The chart shows the share of firms that reported the stated problem as the most serious facing their operation in the respective half-year period.

Chart F Problems with late payments from other firms have diminished slightly, but remain greater than the EU average



Source: ECB.

The chart shows the share of firms that reported late payments from other firms or from public administration institutions.

³² [Survey on the Access to Finance of Enterprises \(SAFE\)](#)



How has the pandemic crisis affected the commercial real estate (CRE) sector?

Does macroprudential policy have the potential to mitigate risks related to the CRE sector? To answer that question, an IMF paper³³ provides an analysis based on a sample of 23 advanced economies and 7 emerging market economies. According to the authors' estimates, CRE prices remained overvalued despite the pandemic crisis. This is because the prices did not fall to the extent implied by fundamentals (the capitalisation rate and the expected return of holding CRE assets). Moreover, CRE prices in several economies were overvalued even before the onset of the pandemic crisis. Such price misalignments increase the likelihood of future price corrections and exacerbate the downside risk to future economic growth. This risk is further accentuated by the current environment of low interest rates and easy financial conditions. In addition, the CRE sector is facing uncertainty resulting from the acceleration of structural shifts towards e-commerce and teleworking. A permanent increase in the CRE vacancy rate of 5 percentage points would result in CRE prices dropping by about 15% after five years. The effects of CRE misalignment on GDP growth are amplified in economies that are more highly leveraged or have a stronger reliance on cross-border capital flows. Macroprudential policies, such as limits on the loan-to-value and debt service-to-income ratios and the regulation of risk weights can mitigate risks related to the CRE market. The impact of such measures is more long-lasting when these measures are introduced early on in the financial cycle upswing.

What impact is deleveraging having on economic growth?

High household debt in an economy usually calls for a deleveraging, but according to some economists such adjustment can slow GDP growth by weighing on consumption. According to an IMF study³⁴ conducted on a sample of 39 advanced and emerging market economies, there is in fact an indirect relationship between changes of household debt-to-income ratios and saving rates. This relationship is however asymmetric and applies only to deleveraging of debt in the form of consumer credit, which usually constitutes the smaller part of overall household debt. According to the paper's authors, decreasing mortgage debt-to-income ratios are not associated with higher saving rates or with lower consumption growth. This implies that reductions in this area of household debt need not be detrimental to economic growth. To mitigate the risks related to high household indebtedness, the authors recommend the introduction of more flexible personal bankruptcy regimes that reduce the costs of the whole bankruptcy process. At the same time, macroprudential policy should pay greater attention to curbing household debt growth, and not focus only on increasing credit quality.

The effects of macroprudential policy tools

According to a Bank of England analysis,³⁵ capital requirements can nullify the effects of financial frictions and reduce the effects of shocks emanating from the financial sector on the real economy. According to the authors, LTV ratio limits, on their own, are not sufficient to constrain household indebtedness in booms. On the other hand, in the expansionary phase of the financial cycle, debt-service ratio (DSR) limits can lead to a significant decrease in the volatility of lending, consumption and inflation, since they disconnect the housing market from the real economy. Moreover, according to the authors, interest rate movements resulting from monetary policy changes have stronger effects on lending with DSR limits in place rather than with collateral constraints. Macroprudential policy does not have a significant impact on the implementation of monetary policy goals in regard to economic output and inflation.



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³³ Deghi, A., Mok, J. and Tsuruga, T., "Commercial Real Estate and Macrofinancial Stability During COVID-19", *IMF Working Papers*, No 21/264, International Monetary Fund, November 2021.

³⁴ Bouis, R., "Household Deleveraging and Saving Rates: A Cross-Country Analysis", *IMF Working Papers*, No 21/257, International Monetary Fund, October 2021.

³⁵ Millard, S., Rubio, M. and Varadi, A., "The macroprudential toolkit: effectiveness and interactions", *Staff Working Papers*, No 902, Bank of England, January 2021.