



OESTERREICHISCHE NATIONALBANK
EUROSYSTEM

FINANCIAL STABILITY REPORT 31



The OeNB's semiannual Financial Stability Report provides regular analyses of Austrian and international developments with an impact on financial stability. In addition, it includes studies offering in-depth insights into specific topics related to financial stability.

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Call for applications: Visiting Research Program

The Oesterreichische Nationalbank (OeNB) invites applications from external researchers (EU or Swiss nationals) for participation in a Visiting Research Program established by the OeNB's Economic Analysis and Research Department. The purpose of this program is to enhance cooperation with members of academic and research institutions (preferably postdoc) who work in the fields of macroeconomics, international economics or financial economics and/or pursue a regional focus on Central, Eastern and South-eastern Europe.

The OeNB offers a stimulating and professional research environment in close proximity to the policymaking process. Visiting researchers are expected to collaborate with the OeNB's research staff on a prespecified topic and to participate actively in the department's internal seminars and other research activities. They will be provided with accommodation on

demand and will, as a rule, have access to the department's computer resources. Their research output may be published in one of the department's publication outlets or as an OeNB Working Paper. Research visits should ideally last between three and six months, but timing is flexible.

Applications (in English) should include

- a curriculum vitae,
- a research proposal that motivates and clearly describes the envisaged research project,
- an indication of the period envisaged for the research visit, and
- information on previous scientific work.

Applications for 2017 should be e-mailed to eva.gehringer-wasserbauer@oenb.at by November 1, 2016.

Applicants will be notified of the jury's decision by mid-December. The following round of applications will close on May 1, 2017.

Financial stability means that the financial system – financial intermediaries, financial markets and financial infrastructures – is capable of ensuring the efficient allocation of financial resources and fulfilling its key macroeconomic functions even if financial imbalances and shocks occur. Under conditions of financial stability, economic agents have confidence in the banking system and have ready access to financial services, such as payments, lending, deposits and hedging.

Reports

The reports were prepared jointly by the Foreign Research Division, the Economic Analysis Division as well as the Financial Stability and Macroprudential Supervision Division together with the Supervision Policy, Regulation and Strategy Division, the Off-Site Supervision Division – Less Significant Institutions and the Financial Market Authority, with contributions by Christian Beer, Alexander Benkwitz, Andreas Breitenfellner, Gernot Ebner, Eleonora Endlich, Pirmin Fessler, Manuel Gruber, Andreas Greiner, Stefan Kavan, Stefan Kerbl, David Liebeg, Christian Ragacs, Konrad Richter, Benedict Schimka, Josef Schreiner, Katharina Steiner, Paul Stockert, Andreas Timel, Eva Ubl, Walter Waschiczek, Daniela Widhalm and Tina Wittenberger (all OeNB) as well as Martin Erhold and Thomas Füreder (FMA).

Management summary

Increased volatility in international financial markets amid high economic uncertainties

In early 2016, economic dynamics in many advanced and emerging market economies were weaker than expected. Forecasts were adjusted downward, confirming the continued fragility of the global growth momentum. Trade growth slowed down, reflecting rebalancing in China as well as the sharp downscaling of investment in commodity-exporting countries. Bouts of financial market volatility were observed in late 2015 and early 2016 amid rising global risk aversion, sagging global equity prices, widening credit spreads and historically low yields for safe-haven government bonds. Regardless of some more recent improvements, these phenomena underline the high degree of uncertainty in the world economy. In Europe, notwithstanding a strong first quarter, uncertainties have been amplified by a series of political events, including the Brexit referendum and the influx of refugees.

Meanwhile, Central, Eastern and Southeastern European (CESEE) countries performed comparatively well. While the risk assessment for the region deteriorated somewhat in early 2016, this development was less pronounced than in other emerging market regions, and growth and the general macro-financial environment remained broadly solid. Asset quality continued to improve in many CESEE banking sectors, as the resolution of nonperforming loans progressed, and profitability benefited from the lower net creation of reserves and provisions. At the same time, banking sectors in Russia and Ukraine are still burdened by the lingering recession, but signs of macro-economic stabilization have become apparent.

Financing of corporate and household sectors in Austria started to rebound

In Austria, economic growth picked up in the second half of 2015, driven by domestic demand, in particular cyclically sensitive investment in equipment. The recovery in economic growth supported the profitability and thus the internal financing potential of the corporate sector. At the same time, the recovery of investment was accompanied by an increase in external financing, to which equity and debt contributed in roughly equal measure.

Lending by Austrian banks to nonfinancial corporations rebounded somewhat, increasing by 1.2% year on year in March 2016. Austrian banks continued their cautious lending policies, but this is unlikely to have constituted an effective constraint for the financing of Austrian enterprises, as loan demand was still weak. Bank lending to households has gained some momentum since mid-2015, relating in particular to housing loans, which grew by 4.8% year on year in March 2016. Despite this acceleration, loan growth remained below the increase of residential property prices in Austria. The latter accelerated notably in the second half of 2015, to reach 7.6% year on year in the fourth quarter. In light of rising valuation levels (as shown by the OeNB fundamentals indicator), the financing of residential real estate in Austria warrants increased attention.

The low interest rate environment continued to support firms' and households' debt-servicing capacities. But while Austrian companies and households currently face lower interest expenses than their euro area peers, their exposure to interest rate risk is higher due to the large share of variable rate loans (even if this share has

retreated somewhat lately, especially in the case of household loans). A rebound of interest rates could thus prove burdensome, especially for highly indebted companies and households.

Austrian banks' profitability improved as adaptation process continues

The Austrian banking sector is still adapting to evolving challenges. Its profitability recovered strongly in 2015, but was driven by nonstructural factors, such as reduced provisioning and lower write-downs. However, net interest income, which is the cornerstone of Austrian banks' business model, remains under pressure. Domestic net interest income was especially affected by decreasing business volumes, while margins decreased in CESEE. In addition, Austrian banks are not only facing traditionally stiff domestic competition, but also have to ready themselves for new digital competitors known as fintech companies.

Austrian banks' subsidiaries in CESEE considerably stepped up their profitability in 2015, but are still faced with legacy issues related to nonperforming loans and country-specific – legislative as well as macroeconomic – risks. As to another legacy issue, the outstanding volume of foreign currency loans in CESEE (as well as in Austria) declined and related provisioning improved markedly. With regard to foreign currency loans, communication between banks and their customers is of utmost importance.

In this environment, Austrian banks managed to raise their capital levels and reduce the respective gap vis-à-vis their international peers. A first assessment of the potential impact of new minimum requirements on own funds and eligible liabilities (MREL) shows that there is still considerable uncertainty

about the potential effects. A baseline scenario suggests no massive shortfalls for the Austrian banking sector, but this assessment is highly sensitive to the assumptions. Moreover, the definition of MREL is still in flux because the European Commission is striving to harmonize it with total loss-absorbing capacity (TLAC), which might fundamentally change both target MREL levels and MREL-eligible liabilities. Austrian banks' refinancing situation remains strong in general. In CESEE, Austrian subsidiaries' funding has become much more sustainable over the years, with subsidiaries reducing their loan-to-deposit ratios (mostly on the funding side) while avoiding disorderly deleveraging.

The key risks facing the insurance sector remain the low interest rates and weak macroeconomic growth. The introduction of Solvency II, which entered into force in 2016, and the related higher capital requirement for long-term guarantees are additional challenges and will also influence investment allocations. Over the last years, Austria's mutual fund industry has developed in line with the European market. Risks may arise from a combination of elevated leverage and lack of liquidity; such a combination would amplify potential vulnerabilities that may surface when significant fund withdrawals were to be attempted simultaneously.

Recommendations by the OeNB

Against this background, the OeNB recommends that the following measures be taken:

- Banks should continue their structural reforms and further adapt their business models to a longer period of very low interest rates to ensure sustainable profitability. This includes an improvement in operational effi-

ciency as well as the resolution of nonperforming loans – especially in CESEE – to facilitate new lending in order to support the (recovery of the) real economy.

- Banks should further strengthen their capital levels to become more resilient.
- Banks should continue to fulfill the minimum standards for foreign currency loans and repayment vehicle loans as well as adhere to the supervisory guidance provided by the Sustainability Package.
- Banks should adapt to new regulatory requirements such as the systemic risk buffer (SRB), the liquidity coverage ratio (LCR) and the minimum requirement on own funds and eligible liabilities (MREL).
- The OeNB supports the Austrian Financial Market Stability Board's advice to the Minister of Finance for the creation of a legal basis for new macroprudential supervisory instruments to mitigate systemic risks arising from a potential credit-driven real estate price boom.

International macroeconomic environment: global financial stability risks are rising amid weaker world economy

Fragile financial conditions amid lost growth momentum

Macroeconomic dynamics at the turn of the year were weaker than expected in many advanced and emerging market economies around the world. Forecasts have been revised downward, which confirms the continued fragility of the global growth momentum. Trade growth slowed down, reflecting economic rebalancing in China as well as the sharp downscaling of investment in commodity-exporting countries. Bouts of financial market volatility were observed in late 2015 and early 2016 amid rising global risk aversion, sagging global equity prices, widening credit spreads and historically low yields for safe-haven government bonds. Despite some recent improvement, these phenomena underline the high degree of uncertainty in the world economy. In Europe, notwithstanding a strong first quarter, uncertainty was amplified by a series of political events, including the upcoming Brexit referendum and the refugee influx related to geopolitical conflicts. Meanwhile, the economies in Central, Eastern and Southeastern Europe (CESEE), with the exception of Russia and Ukraine, continue to catch up to the EU average.

Emerging market spillovers dampen recovery in advanced economies

World economic growth remained weak and is projected to expand less in 2016 and 2017 than previously expected. Latest data showed some deceleration in U.S. economic activity but moderately increasing inflation confirmed that monetary policy tightening is likely to continue, albeit at a slow pace. Economic recovery in the euro

area has solidified, driven by domestic demand that benefited from Eurosystem monetary policy measures, low energy prices and increased expenditures for refugee accommodation. Even so, major uncertainties remain due to elevated debt levels and slow bank balance sheet repair. The low interest rate environment, caused by very low inflation and the central bank action in reaction to the latter, promotes investment and growth; however, it also poses challenges to the profitability of banks and insurers.

Global financial stability risks have increased since last fall, given a deteriorated outlook in the advanced economies and lost momentum or even sharp declines in many emerging market economies, especially those that are commodity producers. Global trade growth remains well below pre-crisis standards, partly due to lower commodity and producer prices. Declining export revenues together with substantial capital outflows have called the resilience of some emerging markets' liquidity into question. These developments reduced investors' risk appetite, raised credit risks and stalled balance sheet repair almost everywhere. Financial conditions tightened earlier this year and only partially reversed more recently. While advanced economies still have to cope with crisis legacy issues, financial spillovers from emerging market economies have risen in terms of heightened volatility. U.S. stock markets recovered from the sharp decline in January, while their European and Asian counterparts have still lost some ground.

In the U.S.A., real GDP grew by 0.2% in the first quarter of 2016 at the

Weaker expansion
of U.S. economy,
recession avoided in
Japan and slowdown
in emerging markets

slowest quarterly pace of change in two years. This figure, however, might include some residual seasonality subject to future upward revision. The only growth driver was personal consumption while nonresidential investment acted as a major drag. Sluggish growth translated into unemployment stagnating at 5% – close to its pre-crisis level – and low participation rates, notwithstanding the comparatively high job intensity of the current recovery, mirrored by weak productivity developments. Forecasters still expect gains in employment and income to boost growth in 2016 and 2017. U.S. consumer price inflation increased to above 1%. Core inflation declined slightly to above 2% and house prices are on an upward trend, which mainly reflects low investment levels. The Federal Reserve (Fed) has started to exit from its accommodative monetary policy by raising the federal funds rate from 0.25% to 0.5% in December 2015. The pace of U.S. monetary tightening depends on further progress toward the objectives of maximum employment and 2% inflation. The term premium for ten-year Treasuries has reached its lowest level in half a century, signaling global demand for comparatively higher yielding U.S. debt.

Japan's GDP was up 0.5% in the first quarter of 2016 (first estimate), thus avoiding a technical recession, following a contraction in the last quarter of the previous year. Growth was driven by buoyant consumption due to increasing wages and net exports despite market turbulences in China. Headline CPI inflation has dropped below 0%, but core inflation is clearly positive, albeit declining. Long-term inflation expectations weakened over the first quarter, even though the Bank of Japan (BoJ) adopted negative interest rates in January. The BoJ has applied its

policy of “quantitative and qualitative monetary easing” (QQE) for six consecutive quarters, with the aim of “converting people’s deflationary mindset.” Further fiscal stimulus is under discussion, including the postponement of a VAT increase that had been planned for spring 2017. Meanwhile, the Japanese yen has appreciated in nominal effective terms due to increasing current account surpluses (with lower commodity prices), safe-haven flows and the unwinding of carry trades.

In China, GDP growth continued its steady slowdown, reaching 6.7% in the first quarter, which is only marginally above the lower bound of this year’s only just reduced growth target. Until more recently, key economic indicators were weaker than expected: exports dropped further and private sector investment hardly grew in the first four months of the year. This confirms the ongoing transformation of the Chinese economy from export- and investment-led toward consumption-led growth. Chinese CPI fell to 2% in April and producer price deflation has softened since 2015. Still substantial excess capacity, increasing debt ratios and overheating housing markets are nourishing fears of a possible hard landing. The People’s Bank of China (PBoC) cut its base interest rate six times until October 2015 and reduced its reserve requirement ratio (RRR) for banks to a five-year low. Changes in the PBoC’s exchange rate policy in August and December 2015, which were adopted to better reflect the renminbi-yuan’s market values, raised concerns about a possible sharp depreciation of the Chinese currency. To stabilize the currency market, the PBoC tightened controls on capital outflow and intervened in the offshore currency market. The ensuing rapid reduction of China’s reserves (still the largest in the world)

raised doubts about the sustainability of the PBoC's monetary strategy. In January 2016, the depreciation of the renminbi-yuan caused a financial panic and capital outflows. Only since February, when the PBoC signaled its readiness to postpone exchange rate liberalization, have Chinese financial markets calmed down. In March, the fiscal authorities announced that they would support short-term growth with a budget deficit of 3% and the restructuring of the public sector.

In the United Kingdom, the pound sterling depreciated substantially against the euro, mainly reflecting fears with respect to the upcoming referendum at the end of June on Great Britain's EU membership. In Switzerland, the central bank continued to describe the Swiss franc as "significantly overvalued" and kept its deposit rate at its negative level in the face of consumer price deflation. In June, ahead of the Brexit referendum in the U.K., the Swiss franc appreciated further, reflecting safe-haven flows and increasing the likelihood of interventions by the Swiss National Bank.

Euro area recovery continues with very low inflation

The recovery of euro area economic activity continues. Real euro area GDP grew at a faster pace than forecasted, namely by 0.6% in the first quarter of 2016 (quarter on quarter), driven by private consumption and investment, while net exports made a negative growth contribution. Euro area real output returned to its pre-crisis peak level. The latest data are consistent with a more moderate economic expansion in the second quarter. Among the larger euro area economies, Spain performed best, growing by 0.8%, followed by Germany and France.

Euro area inflation dipped back into negative territory in April, after having hovered around zero for the previous two quarters. Disinflation has mainly been attributable to low energy prices, which even had second-round effects on core inflation, which fell below 1%. Most euro area countries, including the four biggest ones, recorded negative inflation rates in April, some even reported deflation. Market-based long-term inflation expectations for the euro area declined to their record low earlier this year but stabilized more recently. The unemployment rate has declined steadily, reaching 10.2% in the first quarter, and employment creation continued.

Euro area fiscal policy has turned slightly expansive, while monetary policy has become even more accommodative, both in terms of standard and nonstandard measures. Given growing concerns that low inflation had become entrenched via second-round effects of low energy prices on wages and other price components, the Governing Council of the ECB further reduced the Eurosystem's policy interest rates to 0% (main refinancing operations) and its deposit facility rate to -0.4%. At the same time, it expanded its monthly purchases of public and private sector securities to a volume of EUR 80 billion, including euro-denominated bonds issued by nonfinancial corporations. Under the new corporate sector purchase program (CSPP), six Eurosystem national central banks carry out asset purchases in both the primary and secondary markets. Purchases of Austrian corporate bonds are made by Suomen Pankki – Finlands Bank. Income and losses from these monetary policy operations are shared by all members of the Eurosystem. When implementing the CSPP, the Eurosystem is mindful of the potential impact of its purchases

ECB steps up its accommodative stance via standard and nonstandard monetary policy measures

on market liquidity. Taken together, all purchases of public and private sector securities are intended to be carried out at least until end-March 2017 and in any case until the Governing Council sees a sustained adjustment in the path of inflation consistent with its aim of achieving inflation rates below, but close to, 2% over the medium term. Additionally, the Governing Council announced a new series of four targeted longer-term refinancing operations (TLTRO II), each with a maturity of four years, starting in June 2016. As a result of these and previous measures, central bank liquidity in the euro area has risen to above EUR 1,600 billion and is expected to rise further by half this amount until spring 2017.

After the exchange rate of the euro had reached a trough in late November 2015 in reaction to the Eurosystem's asset purchase program, it gradually ap-

preciated against the U.S. dollar and, in nominal effective terms, against a basket of 21 currencies until early May 2016, amid increasing current account surpluses in the euro area. Having depreciated again to roughly USD/EUR 1.3 since then, the euro exchange rate has recently been determined by market expectations about the Fed's continuation of monetary tightening, the extension of the Eurosystem's asset purchase program and developments in Japan. By early June, the euro fell to its lowest level against the Japanese yen since 2013.

By the beginning of June, the representative stock index DJ Euro Stoxx rose by around 5.5% from its low in 2016, but was still 8.13% below the value recorded at end-2015. During the Chinese equity slump in January 2016, all global stock markets suffered, although implicit volatility has gener-

Chart 1

Eurobond spreads in selected emerging market regions

Euro EMBIG spread in basis points



Source: Bloomberg

ally come down since the turn of the year. Commodity and financial stocks were among the stocks with the greatest losses. The U.S. Dow Jones index, however, recovered all its losses more recently.

Euro area sovereign bonds have generally strengthened over the review period, against the background of the Eurosystem's quantitative easing and a subdued inflation outlook. Yields of German ten-year government bonds most recently stood at just around 0%, reflecting safe-haven flows. At the same time, however, spreads of non-core sovereign bond yields increased marginally to still very low levels, given concerns about Italian banks, Portuguese fiscal sustainability and negotiations on a Greek debt relief. A deal struck on the latter issue between the Greek authorities and the country's creditor institutions at the end of May narrowed spreads on benchmark bonds in the euro area to relatively low levels. In January 2016, Brent crude oil prices dropped to below USD 30 per barrel as a result of market oversupply and weak global economic data but recovered subsequently to around USD 50 per barrel.

CESEE: Improving asset quality and sound profitability in a broadly stable macrofinancial environment

Compared with other emerging market regions, the CESEE region managed to cope rather well with the difficult international environment. Eurobond spreads remained stable in European emerging markets throughout 2015, while increasing strongly in other regions. However, CESEE was not able to fully decouple from international trends. Especially Russia and Ukraine continued to be affected by the ongoing conflict in eastern Ukraine, but the

risk assessment for Croatia, Poland and Romania also suffered some drawbacks especially in early 2016. This led to a spike in eurobond spreads in January 2016.

In January 2016, Standard & Poor's lowered Poland's foreign currency rating to BBB+ with a negative outlook, citing the weakening of the independence, credibility and effectiveness of key institutions as the reason for its move. At the same time, the President of the Republic of Poland submitted a proposal for the conversion of Swiss franc-denominated loans into national currency-denominated loans. The central bank and supervisory authority assessed this proposal as problematic for financial stability. In a similar vein, major international institutions raised concerns. According to estimates by the Polish Financial Supervision Authority, the proposal might cost banks up to PLN 100 billion (some EUR 23 billion or 5.9% of total banking sector assets) in a worst case scenario. Against this background, the Polish zloti displayed a heightened degree of volatility compared to other Central European currencies.

Also in Romania, legislative initiatives in the financial sector, such as the giving-in-payment law (allowing retail mortgage borrowers to return real estate collateral to banks in exchange for writing off their loans) drew criticism by the IMF, the European Commission and the ECB, in particular due to its retroactive character.

In March 2016, Moody's lowered Croatia's long-term issuer rating to Ba2 and maintained the negative outlook, citing the government's large and increasing debt burden and the weak medium-term economic growth prospects.

On a more positive note, on May 20, 2016, Fitch upgraded Hungary's

CESEE copes rather well with adverse international environment

long-term foreign currency rating from BB+ to BBB–, being the first rating agency to lift the country back into investment grade. The agency cited the sharp improvement in Hungary’s external balance sheet and a reduction in external vulnerability, the gradual decline in government debt and in its external and foreign currency components, and an improvement in the banking sector’s overall situation with reduced risks to economic and financial stability as the major factors behind the upgrade.

In general, the economic situation in the CESEE EU Member States was positive in the second half of 2015, with robust growth rates, declining unemployment and sound external positions. Furthermore, bond spreads and credit default swap (CDS) premiums remained on a comparatively low level, notwithstanding some episodes of increased volatility in some countries. For 2016 to 2018, we expect robust growth to continue in CESEE.¹ Turkey’s economic performance also proved broadly resilient despite domestic political risk and security risks. The country’s economy, however, remains vulnerable to external shocks, given its large (though slightly decreasing) current account deficit, and has to cope with an ongoing weakness of the Turkish lira, high inflation and decreasing capital inflows.

Russia and Ukraine remained stuck in recession and burdened with political uncertainty but signs of economic stabilization emerged. In Russia, the slump in economic output in 2015 (–3.7%) had been largely triggered by the near-halving of the oil price and to a minor degree by the impact of Western sanctions in connection with the Ukrainian crisis. However, the contraction of the Russian economy has

been moderating notably and seems to be bottoming out. In the first half of 2016, the Russian ruble recovered some of its earlier losses (–37% against the U.S. dollar on average in 2015) in line with a recovery of the oil price in early 2016. Nevertheless, the strong depreciation had a profound impact on inflation which, however, declined in recent months from levels of 15% – 16% in the summer of 2015 to 7.2% in April 2016 due to a base effect, persisting weak demand and a shrinking ratio of imports to GDP. Despite this development, inflationary pressures persist, prompting the Central Bank of the Russian Federation (Bank of Russia) to keep its main policy rate stable at 11% after a reduction in August 2015. Private net capital outflows from Russia sharply declined in 2015 to USD 57 billion (from the crisis-triggered height of USD 153 billion in 2014). This was largely because debt service and repayment decreased and Russian residents (banks and corporations) had repatriated some assets. State-owned banks’ and firms’ forced external deleveraging in the context of Western sanctions played an important role in the further drop of Russia’s total external debt to 39% of GDP at end-2015.

In Ukraine, seasonally adjusted GDP again expanded somewhat in the second half of 2015 (quarter on quarter), despite a drop by 9.9% in 2015 as a whole. This was certainly aided by the improved observation of the ceasefire from September 2015 onward. Yet, the OSCE special monitoring mission has reported an increasing number of ceasefire violations since the beginning of 2016. Meanwhile, disinflation, fiscal and external adjustments underpin macroeconomic stabilization tenden-

Signs of economic stabilization in Russia and Ukraine

¹ For further details, see www.oenb.at/en/Monetary-Policy/Central--Eastern-and-Southeastern-Europe--CESEE-/CESEE-Outlook.html.

cies. Having peaked at 60.9% in April 2015, inflation strongly trended downward to reach 9.8% in April 2016. The National Bank of Ukraine (NBU) cut its key policy rate by 300 basis points to 19% in April 2016 and further to 18% in May 2016 as risks to price stability had subsided. The Ukrainian current account deficit fell to 0.3% of GDP in 2015. Thanks to the current account adjustment and international financial support, official foreign currency reserves went up from USD 5.6 billion in February 2015 to USD 13.2 billion in April 2016.

However, the four-year USD 17.5 billion IMF Extended Fund Facility (EFF, USD 6.7 billion have been disbursed so far) has been on hold, as the second review, on which discussions started in September 2015, has not been finalized yet. The IMF has been waiting for more clarity about the status of the government and for conditions enabling further talks. In Kiev, new coalition arrangements were under discussion following political shake-ups that inter alia manifested themselves in the resignation of the Minister of Economy. In mid-April, a new government team was finally approved by parliament. In May, a staff-level agreement was reached on policies needed to complete the second review under the EFF. The implementation of these policies will subsequently pave the way for the IMF Board's consideration of the review in July.

It is worth noting that Ukraine achieved progress on the subject of debt restructuring as agreed under the EFF. The restructuring of privately held external sovereign debt was completed, although the dispute over the USD 3 billion eurobonds held by the Russian National Welfare Fund has continued. Russia was offered the same restructuring terms as private creditors, but

rejected the offer. In February 2016, the Russian Ministry of Finance filed a lawsuit against Ukraine. Although the IMF categorized the eurobond as official debt, Ukraine's default on this instrument per se does not endanger the continuation of the IMF program due to a change in the IMF's lending-in-to-arrears policy.

Domestic credit developments across CESEE (nominal lending to the non-bank private sector adjusted for exchange rate changes) were heterogeneous in the review period. A somewhat improving momentum, however, was observed for several of the CESEE EU Member States.

In Slovakia and the Czech Republic, for example, credit growth has been accelerating slowly but steadily since 2013 and came in at 10.6% and 8.7%, respectively, in April 2016. In Slovakia, especially corporate credit accelerated swiftly, mirroring the strong increase of capital formation. Credit developments in both countries were fueled by more favorable expectations for general economic developments and a sound liquidity position. Furthermore, banking sectors are in a healthy shape, with low nonperforming loan (NPL) ratios, sound profitability, deposit overhangs over credit, persistent competitive pressure as well as low stocks of foreign currency loans.

Credit growth was also rather swift in Poland. The key indicators of the country's banking sector, however, are somewhat weaker than in Slovakia and the Czech Republic (e.g. loan-to-deposit ratio, profitability). Furthermore, Poland still reports a substantial share of foreign currency loans (especially Swiss franc-denominated loans) in total loans.

Credit growth in Romania rebounded and came to 2.5% in April 2016, reflecting strong consumption

Credit developments remain heterogeneous...

...with some more positive momentum in several EU Member States...

...and a continuing slump especially in Russia and Ukraine

and wage growth, the surge of investments in the final quarter of 2015 as well as an ongoing NPL workout. Some more positive momentum was also observed in Slovenia: The expansion of credit to households turned mildly positive, which had a favorable impact on total credit to the private sector. But the overall credit stock continued to contract in the review period. Nevertheless, the country made some progress in cleaning up balance sheets, raising banking sector profitability and improving capitalization.

The contraction of the credit stock moderated noticeably in Bulgaria and Hungary. In both countries, base effects were responsible for a large part of this development. In Bulgaria, the effect of the exclusion of Corporate Commercial Bank's assets from banking statistics in November 2014 dropped out of the base. In Hungary, the strong credit contraction in the first quarter of 2015 was related to the conversion of foreign currency loans to households at an exchange rate that was

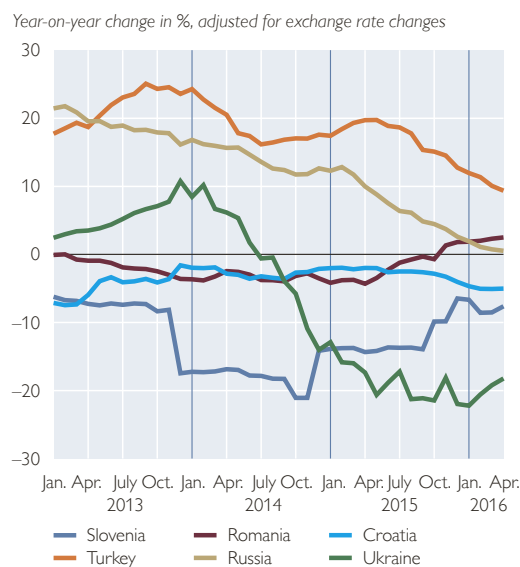
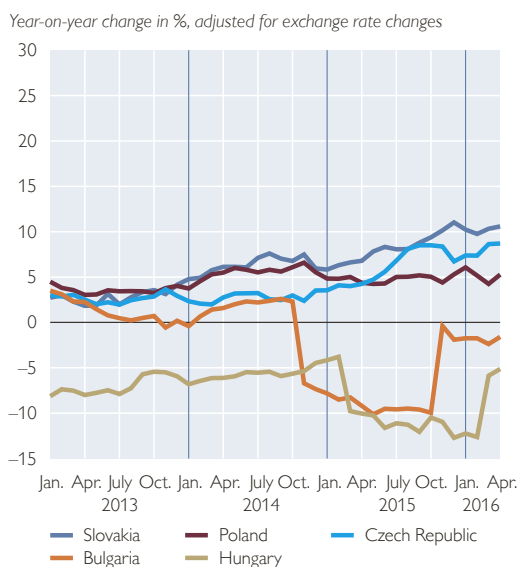
below the prevailing market exchange rate. Hungary continued this policy, and a further tranche of loans was converted in December 2015.

Credit markets in the other countries under observation did not show any positive signs. In Croatia, the process of converting and partially writing off loans denominated in Swiss francs, which was initiated in the last quarter of 2015, added to the impact of the debt overhang and the lack of collateral, thus causing credit growth to decline further in the review period.

Credit growth also moderated substantially in Turkey and Russia and remained deep in the red in Ukraine. In Russia and Ukraine, this development was clearly related to the ongoing economic recession. In Turkey, loan growth came down substantially from high levels against the background of macroprudential measures adopted in previous years. However, the Turkish central bank adjusted consumer loan risk weights to support this loan segment as the growth of consumer loans

Chart 2

Growth of credit to the private sector



Source: National central banks.

has fallen short of that of commercial loans since the start of 2014.

Lending surveys clearly indicated a pickup of credit demand in CESEE. The development of supply conditions, however, was less straightforward. The most recent CESEE Bank Lending Survey of the European Investment Bank (EIB) found that demand for loans improved across the board in the second half of 2015. This marked the fifth consecutive semester of positive developments. All factors influencing demand made a positive contribution to loan demand. At the same time, supply conditions only relaxed somewhat, thus increasing the demand-supply gap. NPLs, the regulatory environment and banks' capital constraints were perceived as the main factors adversely affecting supply conditions. Access to funding continued to become easier, supported by ready access to retail and corporate deposits, while intragroup funding contracted somewhat. For the first half of 2016, banks anticipate a further broad-based pickup in credit demand. Loan supply conditions are also expected to become more flexible, but supply will continue to fall short of demand.

Country-level bank lending surveys support this general picture. Demand rose more or less uniformly in all CESEE countries and among all sectors over the review period. In most cases, supply conditions also improved. The extent of easing supply conditions, however, was not uniform across the region. While some countries (e.g. the Czech Republic) reported a rather broad-based easing, the development tended to be confined to specific sectors or loan classes in most other countries (e.g. Bulgaria, Hungary and Romania). Banks generally expected those trends to continue in the coming months. Interestingly, also the NBU

lending survey reported a more positive outlook for credit developments.

Unlike banks in the rest of the CESEE region, Turkish banks reported lower demand for household and especially for corporate loans (which was traceable to lower demand for investment financing). At the same time, credit standards for loans to enterprises were tightened, as the general perception of risk (i.e. the general and the industry-specific risk outlook as well as the outlook for risk on collateral) deteriorated.

Analyzing the operation of international banking groups in CESEE, the EIB survey found that banking groups continue to selectively reassess their country strategies and discriminate between countries of operation. Nevertheless, more than two-thirds of banking groups describe profitability in CESEE operations as outperforming the profitability of the group as a whole. This explains why a significant number of banking groups signal intentions to expand operations selectively. Market potential continues to differ significantly across the CESEE countries.

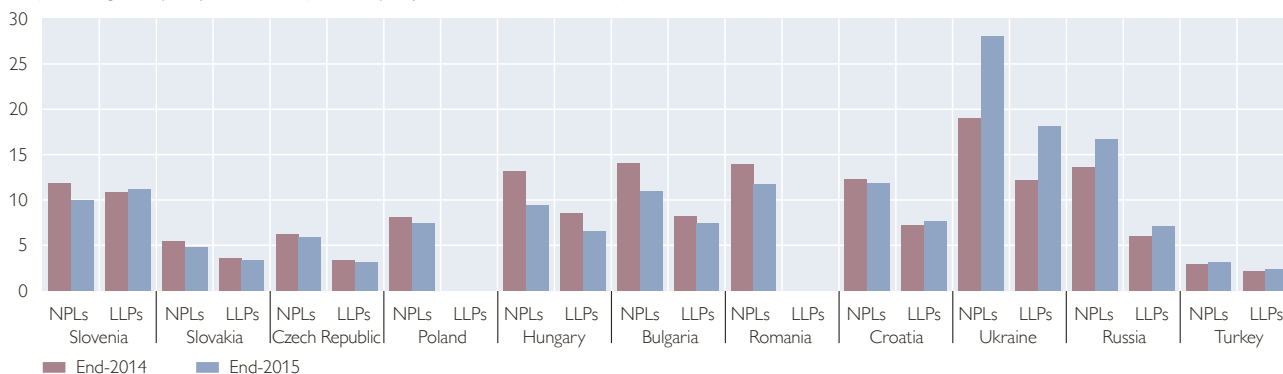
NPL resolution progressed in the review period. Only Russia and Ukraine reported a strong increase in NPL ratios. In most other CESEE countries, NPL ratios either remained largely unchanged at a comparatively low level (Czech Republic, Poland, Slovakia, Turkey) or decreased. The decrease was most pronounced in Hungary, where the compensation of households by banks for abusive terms in loan contracts had to be used for the settlement of arrears in the case of NPLs. Furthermore, a large bank sold a substantial NPL portfolio at the end of 2015. NPL ratios also declined substantially in Bulgaria, Romania and Slovenia due to banks' active portfolio cleansing. In Bulgaria, this happened

Lending surveys indicate a clear rise in credit demand

NPL resolution progresses...

Banking sector: credit quality

Nonperforming loans (NPLs) and loan loss provisions (LLPs) in % of total credit at end of period



Source: IMF, national central banks, OeNB.

Note: Data are not comparable between countries. NPLs include substandard, doubtful and loss loans, except for Ukraine (doubtful and loss loans) and for Romania and Slovenia (in arrears for more than 90 days).

against the background of an asset quality review and stress test based on financial data from end-2015. In Slovenia, the transfer of another tranche of NPLs to a bad bank further helped bring down bad loans.

... and profitability rises

The lower net creation of reserves and provisions had a positive impact on banking sector profitability in many CESEE countries. The return on assets in Hungary, Romania and Slovenia improved substantially in 2015 against 2014. For the first time since 2009, the Slovenian banking sector even reported a positive annual result. At the same time, income (especially interest income) was often somewhat lower than in 2015. In most other CESEE EU Member States, profitability remained broadly unchanged in the review period; it declined moderately in Poland and Turkey.

Most CESEE banking sectors remain well capitalized

A notable deterioration, however, was reported for Croatia, Russia and Ukraine. In Russia, the return on assets declined to close to zero as higher refinancing costs related to Western financial sanctions weighed on interest income. In Ukraine, the return on assets

plunged to -5.5% as the creation of reserves and provisions and write-offs increased strongly compared to a year earlier. In Croatia, the costs of the conversion of loans indexed to the Swiss franc into euro-denominated loans considerably burdened the banking sector.

Capital adequacy ratios remained high and broadly stable in most of the countries under review in 2015. In the CESEE EU Member States, they ranged between 16.3% in Poland and 20.9% in Croatia. In Turkey, capitalization declined moderately to 15% .

Notably lower capital adequacy ratios were reported for Ukraine and Russia. In Ukraine, deteriorating credit quality and profitability pushed the capital adequacy ratio to only 7.1% in the third quarter of 2015, a level that no longer complied with the regulatory minimum level of 10% set by the NBU. Capitalization, however, improved again in the fourth quarter (to 12.3%) related to an increase in the regulatory capital of foreign-owned banks and a reduction in risk-weighted assets. In Russia, the capital adequacy

Chart 4

ratio remained broadly stable at 12.7% at the end of 2015. The impact of a higher share of nonperforming assets and decreasing profitability was buffered by a government-funded capitalization program.

The refinancing structure of CESEE banking sectors has increasingly shifted toward domestic deposits over the past few years. This is especially true for those CESEE EU Member States that recorded no substantial or a negative gap between total outstanding domestic claims and total domestic deposits (relative to GDP) at the end of 2015. The funding gap was somewhat larger in Russia and substantially so in Ukraine and Turkey.

In the second half of 2015, funding gaps decreased in all countries under observation. The decline was most substantial in Ukraine (−7.8% of GDP). Bulgaria, Croatia, Hungary and Russia also reported notable reductions (by more than −5% of GDP). The development was driven by lower claims as well as by rising deposits in these four countries. In Ukraine, deposit displayed a downward trend, too. In the Czech Republic, Poland and Slovakia,

Banking sector: profitability

Return on assets (RoA) in %



Source: IMF, national central banks, OeNB.

Note: The data are not comparable across countries. They are based on annual after-tax profits, except for Russia's data, which are based on pretax profits.

deposits increased more strongly than claims, bringing the funding gap down by some 2% of GDP on average. The gap only declined very moderately in Turkey (−0.4% of GDP).

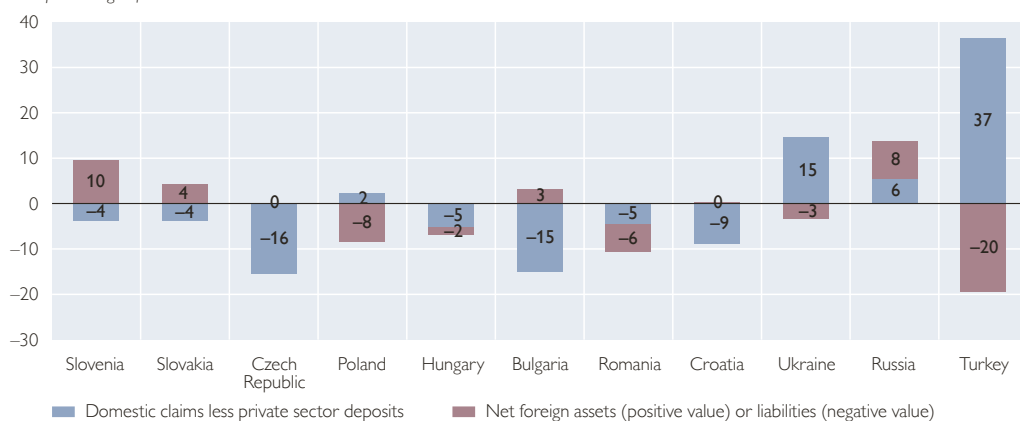
The banking sectors of five of the eleven countries under observation reported net external liabilities by the

Funding gaps continue to be moderate in most CESEE countries

Chart 5

Banking sector: gap between claims and deposits, and net external position

As a percentage of GDP at mid-2015



Source: ECB, Eurostat, national central banks, national statistical offices, OeNB.

end of 2015, mostly ranging between 2% and 8% of GDP. Only Turkey recorded substantially larger net external liabilities. The Croatian banking sector became an international creditor in the review period, reflecting lower refinancing needs and rising domestic deposits.

Corporate and household sectors in Austria: financing volumes start to rebound

Nonfinancial corporations' debt service capacity slightly improved

Economic growth in Austria is gaining momentum

In the second half of 2015, real GDP growth accelerated modestly from 0.2% (quarter on quarter) in the third quarter to 0.3% in the fourth quarter. Economic growth picked up further in the first quarter of 2016 (0.5%). The demand-side composition of GDP growth reflects a muted economic recovery in Austria which is driven by domestic demand. Investment was comparatively strong with quarter-on-quarter growth of about 0.5% since the second quarter of 2015 and 0.6% in the first quarter of 2016. Investment activity was driven by cyclically sensitive investment in equipment, while construction investment shrank. Consumption expenditure gained some momentum at the end of 2015 and further increased in the first quarter of 2016 (0.3%). Expenditures related to the

increased arrival of asylum seekers are likely to have fueled public and partly private consumption growth in the second half of 2015. The contribution of net exports to economic growth was negative during all quarters of 2015 and zero in the first quarter of 2016 – not least due to the high import content of investment in equipment. In line with its June 2016 economic outlook, the OeNB expects the Austrian economy to pick up moderately. GDP growth will accelerate to 1.6% in 2016.¹

Economic recovery after four years of weak growth

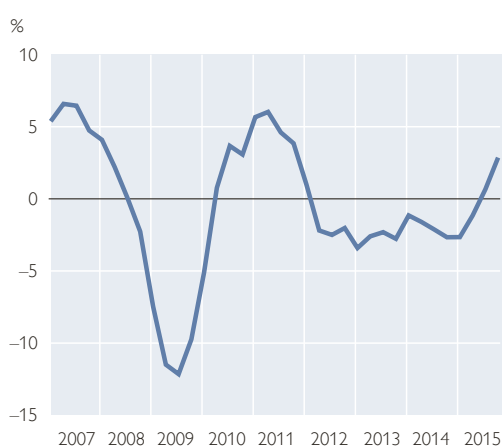
Corporate profits recovered in 2015

The moderate pick-up in economic growth last year and the resulting increase in demand supported the profitability of the corporate sector. After three years of decline, the gross operating surplus of nonfinancial corporations recovered in 2015, posting an increase of 2.9% in real terms (see chart 6). In nominal terms, gross operating surplus was even up 4.5% year on

Chart 6

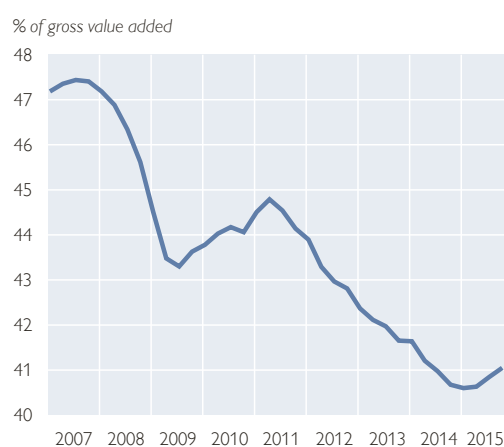
Gross operating surplus of nonfinancial corporations

Real annual change



Source: Statistics Austria.

Profit ratio



¹ The forecast will be published in English in *Monetary Policy & the Economy Q2/16*: <https://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy.html>.

Chart 7

year. On top of the support provided by economic activity, the cost side of firms was relieved by moderate wage growth as well as lower oil and other commodity prices, even if at the same time selling prices declined in an environment of weak demand. Accordingly, the downward trend of profitability (as measured by gross operating surplus divided by gross value added) that had been observed since 2011 came to a halt. By the fourth quarter of 2015, the gross profit ratio had risen to 41.0%, up 0.3 percentage points compared to end-2014 – the first increase since 2011. But this slight increase notwithstanding, profitability is still well below pre-crisis levels, despite the fact that the low interest rate environment has reduced the interest rate burden of indebted nonfinancial corporations (see below). Nevertheless, increased profitability has augmented the internal financing potential of the corporate sector.

External financing of nonfinancial corporations increased in 2015²

The recovery of investment in machinery and equipment was accompanied by an increase of corporate demand for external financing. After three years of muted development, nonfinancial corporations' recourse to external financing picked up in 2015 and, at EUR 15.7 billion, amounted to more than twice the 2014 figure. However, despite this upturn, financing volumes still remained well below pre-crisis figures, possibly reflecting ample liquidity on the asset side of firms' balance sheets.

Equity and debt contributed to total external financing in roughly equal measure in 2015. Their dynamics, how-

Equity financing of nonfinancial corporations



Source: OeNB.

¹ Preliminary figures.

ever, were different. At EUR 7.6 billion, equity financing (issuance of both quoted and unquoted shares) was about 7% lower in 2015 than in the year before. This slowdown was accounted for by the net issuance of listed shares, which – after some signs of expansion in 2014 – fell by more than three-quarters to EUR 0.8 billion (see chart 7). In 2015, there was only one new listing on the Vienna stock exchange, and there has been none this year so far. Other equity instruments (mainly sales to foreign strategic investors) amounted to EUR 6.8 billion in 2015, up by more than one-third compared to the year before, and thus accounted for the lion's share of equity financing.

Equity accounts for close to half of external financing

² For an overview of corporate financing aspects of capital markets union, see: Elsinger, H., R. Köck, M. Kropp and W. Waschiczek. 2016. Corporate financing in the run-up to capital markets union. In this issue of the Financial Stability Report.

Debt financing started to recover

Almost all of the increase in total external financing in 2015 was accounted for by debt financing, in line with what the pecking order theory of corporate finance would suggest. Debt financing, which had been negative in the previous year, amounted to EUR 8.1 billion, thus returning to the volumes registered in 2012 and 2013.

The primary source of debt financing of the Austrian corporate sector in 2015 were other nonfinancial corporations (both domestic and foreign), which thus proved to be a very stable source of funding – as in the previous periods. On the one hand, this financing took the form of trade credit, which accounted for almost half of total debt financing – despite the fact that in a low interest rate environment, this form of finance becomes comparatively

more expensive. One reason for the large share of trade credit might be that as a key element of firms' working capital, trade credit develops broadly in line with the business cycle. On the other hand, one-quarter of debt financing came from loans from other enterprises, mostly transactions within corporate groups. Overall, almost two-thirds of debt financing in 2015 came from domestic sources, which had made a negative contribution last year. Looking at maturities, debt financing continued to be primarily long-term (with a maturity of more than one year).

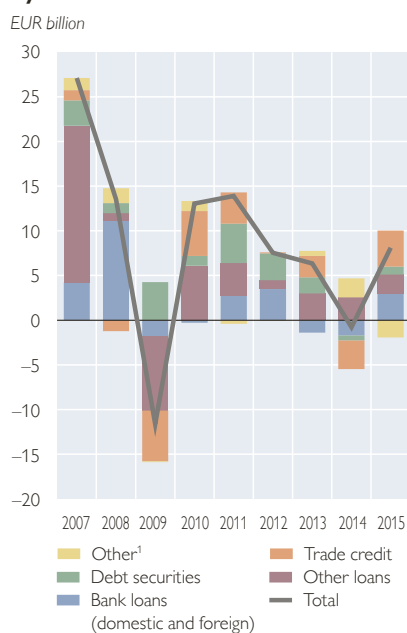
In total, bank loans contributed more than one-third to debt financing in 2015. More than 90% of net new bank loans were made up of borrowings from foreign banks.³ However, these borrowings were largely com-

Debt dominated by long-term financing

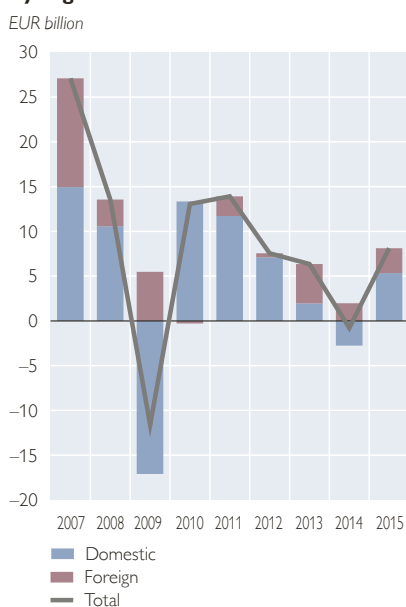
Chart 8

Debt financing of nonfinancial corporations

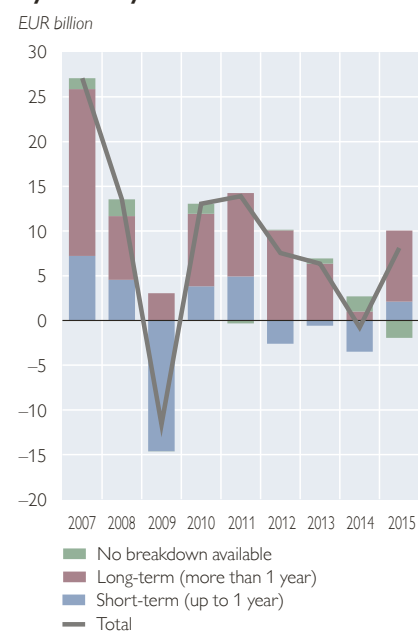
By instrument



By region



By maturity



Source: OeNB, ECB.

¹ Pension entitlements and other accounts payable.

Note: 2015 data are preliminary.

³ Not adjusted for reclassifications, valuation changes and exchange rate effects.

Growth of bank loans remains frail

posed of a few high-volume transactions, and accordingly a significant part of this increase can be attributed to a limited number of very large transactions. In terms of outstanding amounts, loans from foreign banks contributed some 9% to total bank lending to the corporate sector at end-2015.

Lending by Austrian banks to domestic nonfinancial corporations remained muted. In April 2016, the annual growth rate (adjusted for reclassifications, valuation changes and exchange rate effects) amounted to 1.2% in nominal terms (see left-hand panel of chart 9). However, in real terms, the growth of bank loans remained negative, as it had already done for more than three years. (Nominal) loan growth stemmed from loans with medium-term and longer maturities (over one year), which have accounted for most of the loan growth in the past years, while short-term loans (with maturities of up to one year) have decreased since early 2015.

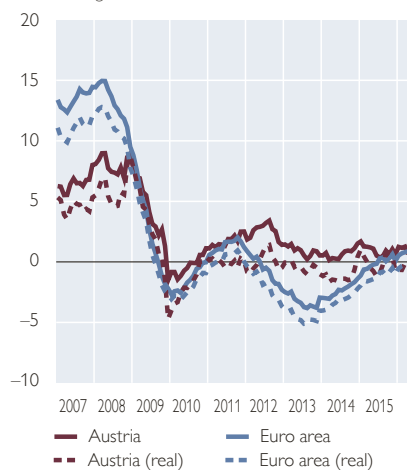
In 2015, as well as in 2016 so far, Austrian banks continued their cautious lending policies and tightened their credit standards for loans to enterprises somewhat, according to the euro area bank lending survey (BLS; see right-hand panel of chart 9). In the survey, banks attributed this tightening primarily to a reduced risk tolerance. Moreover, banks indicated factors reflecting their risk perception, such as their assessment of the general economic situation and of borrowers' creditworthiness. In contrast, cost of funds and balance sheet constraints, which had been named frequently in the past, played a minor role in recent survey rounds. Large firms were affected more strongly by tightened credit standards than small and medium-sized enterprises. Banks also stated that the share of (completely) rejected applications for loans to enterprises rose slightly in 2015 and the first quarter of 2016. Especially firms with poor credit ratings and higher insolvency probabilities may have experienced increased difficulties in obtaining a bank loan.

Chart 9

MFI loans to nonfinancial corporations

Volumes

Annual change in %¹

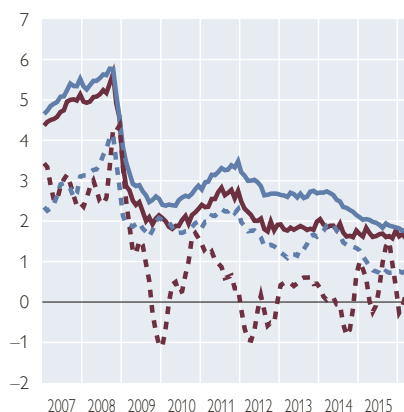


Source: OeNB, ECB.

¹ Adjusted for reclassifications, changes in valuation and exchange rate effects.

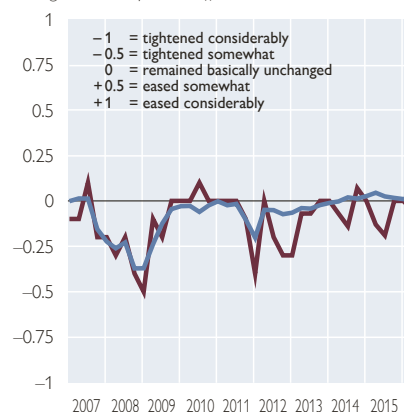
Interest rates

%



Credit standards

Change over last quarter, diffusion index



2007 2008 2009 2010 2011 2012 2013 2014 2015

2007 2008 2009 2010 2011 2012 2013 2014 2015

2007 2008 2009 2010 2011 2012 2013 2014 2015

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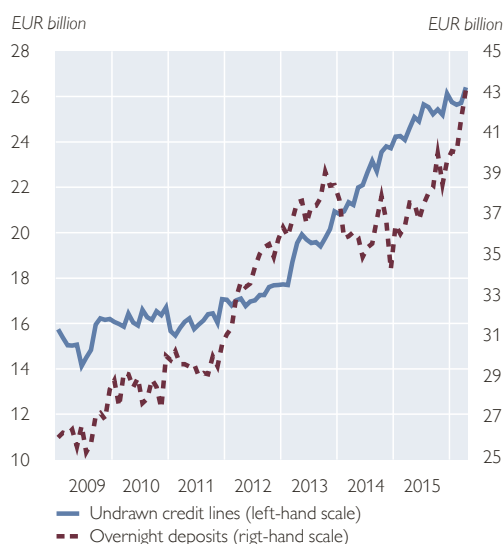
2007 2008 2009 2010 2011 2012 2013 2014 2015

2007 2008 2009 2010 2011 2012 2013 2014 2015

2007 2008 2009 2010 2011 2012 2013 2014 2015

2007 2008 2009 2010 2011 2012 2013 2014 2015

Chart 10

Indicators of nonfinancial corporations' liquidity

Source: Statistics Austria.

At the same time, loan demand by enterprises remained weak, reflecting the current cyclical environment. In the first quarter of 2016, banks surveyed in the BLS reported a slight decrease in corporate loan demand – as they have done in 22 out of 33 quarters since 2008. Whereas banks used to cite lower funding requirements for fixed investment as the main factor behind weak loan demand, they started to highlight the impact of internal financing as the major driver instead from the third quarter of 2015, thus corroborating the pick-up in investments and corporate profits.

Moreover, firms have built up substantial liquidity in recent years (see chart 10). According to the OeNB's statistics on new lending business, the total amount of undrawn credit lines available to enterprises rose by roughly EUR 8 billion, or 45%, from end-2012 to April 2016, much more strongly than the overall volume of credit lines, implying a significant drop in the rate of credit line utilization. Additionally,

firms' overnight deposits, which had already increased markedly in 2012 and 2013, began to rise again in 2015. These liquidity buffers may reflect both precautionary motives and a lack of investment opportunities. Thus, at least in the current environment of weak demand for loans, the more restrictive policies of Austrian banks probably did not constitute an effective constraint for the financing of Austrian enterprises.

The tighter credit standards were reflected in the terms and conditions of bank loans. Thus, wider margins, especially on riskier loans, as well as higher non-interest rate charges, as reported by banks in the BLS, partially dampened the effects of monetary policy easing on financing costs. Yet, interest rates on loans to nonfinancial corporations declined somewhat further. Between end-2014 and April 2016, corporate lending rates sank by 19 basis points (see middle panel of chart 9). The decrease was more marked for loans with an interest rate fixation period of more than five years than for shorter periods. The spread between interest rates on larger loans and those on loans of lesser amounts, which – given the lack of other data – is commonly used as an indicator of the relative cost of financing for SMEs, averaged 43 basis points in the first four months of 2016, one of the lowest levels recorded in the euro area. Because of their very low level, bank lending rates on new business are likely to have supported domestic lending to the corporate sector.

The upturn in debt financing was also mirrored in a slight increase in debt securities issuance, which contributed close to 6% to total external financing. While the exceptionally low levels of corporate bond yields may have been supportive for this form of finance, the recovery in bank lending may have re-

Favorable interest rates for bank loans

Growing liquidity buffers

Slight increase in corporate bond issuance

duced the recourse to corporate bond issuance somewhat. According to financial accounts data, corporate bond issuance rose by 6% in the second half of 2015 in net terms (measured against the outstanding volume one year earlier), after a drop by 3.9% in the first half of the year. In the first months of 2016, this pace was maintained, as indicated by data from securities issues statistics.⁴ In April 2016, corporate bond issuance was up 6.0% year on year in nominal terms.

Although mainly available to larger companies, bonds play a relatively important role in Austrian corporate finance. In the first quarter of 2016, the outstanding amount of long-term bonds issued by the corporate sector amounted to 11.6% of GDP, roughly on a par with the euro area.⁵ The share of floating rate issues rose to 14.8% in April 2016, thus reversing the decrease of the year before. At 1.5%, the foreign currency share in the outstanding volume of corporate bonds was considerably lower in Austria than in the whole euro area, in contrast to the foreign currency share in bank loans. Commercial paper only plays a minor role in corporate finance. The share of short-term debt securities issued (with a maturity of less than one year) amounted to 1.2% of the total outstanding volume of securities issued by the Austrian enterprise sector.

Interest rate risk of the corporate sector remains elevated

While corporate debt rebounded in 2015, its growth rate (1.8% compared

to the year before, measured in terms of total loans raised and bonds issued) remained below the nominal expansion rate of the gross operating surplus. As a result, the debt-to-income ratio of the corporate sector decreased by more than 10 percentage points to 418% in 2015 (see upper-left hand panel of chart 11). However, while this improvement contributed to debt sustainability, the debt-to-income ratio remained considerably above pre-crisis levels, implying that the increase in the corporate sector's vulnerability that occurred in the period from 2007 to 2009 has not yet been reversed. Whereas the debt-to-income ratio is lower in Austria than in the euro area as a whole, the debt-to-equity ratio, in spite of a small improvement last year, is currently higher in Austria than in the euro area, reflecting the importance of debt financing in Austria.

The low interest rate environment continued to support firms' debt-servicing capacity. In 2015, the proportion of gross operating surplus spent on interest payments for (domestic) bank loans continued to decline slightly. This reflected the still very high share of variable rate loans in total new loans, which has come down only 4 percentage points to 92% over the past three years. While Austrian companies therefore currently face lower interest expenses than their euro area peers, their exposure to interest rate risk is higher. A rebound of interest rates could become a burden, especially for highly indebted companies, even if rising debt servicing costs may eventually

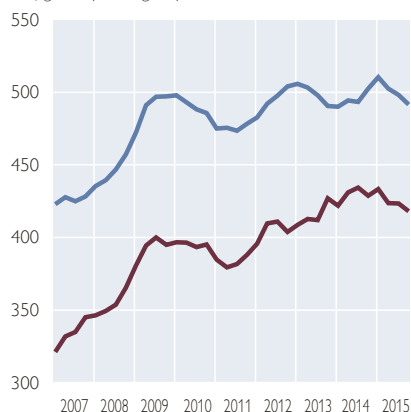
Share of variable
rate loans remains
high

⁴ At the cutoff date, financial accounts data were available up to the fourth quarter of 2015. More recent developments of financing flows are discussed on the basis of data from the MFI balance sheet statistics and the securities issues statistics.

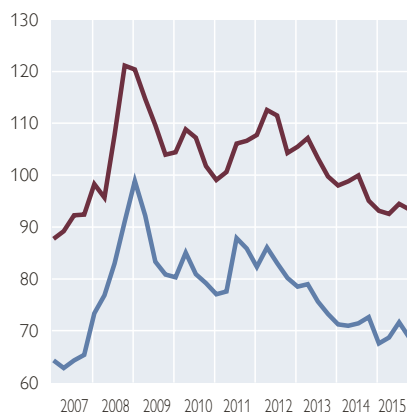
⁵ Due to the implementation of ESA 2010 in the securities issues statistics as of end-2012, there is a considerable break in the time series (mainly reflecting the fact that a considerable part of the enterprises that issue bonds have been reclassified to the government sector).

Risk indicators for nonfinancial corporations**Debt**

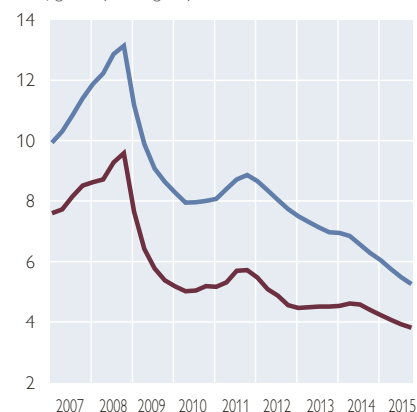
% of gross operating surplus

**Debt-to-equity ratio**

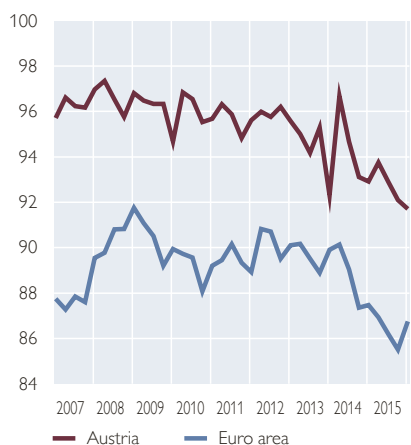
%

**Interest expenses¹**

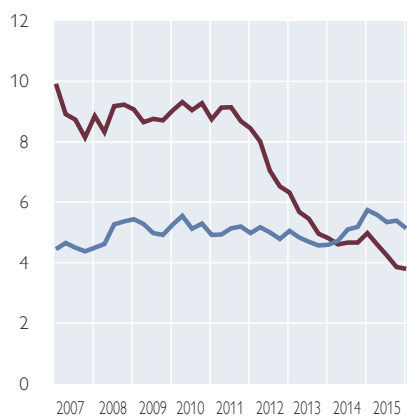
% of gross operating surplus

**Variable rate loans**

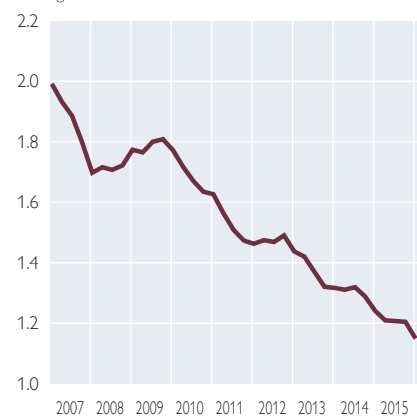
% of total new lending

**Foreign currency loans**

% of total loans

**Insolvencies**

Number of insolvencies in % of companies, four-quarter moving sum



Source: OeNB, ECB, Eurostat, KSV 1870.

¹ Euro area: euro loans only.

be partially offset by the positive impact an economic recovery would have on firms' earnings.

The corporate sector's exposure to foreign exchange risk has continued to decrease, amounting to 3.8% in the first quarter of 2016. Since the second quarter of 2014, the share of foreign currency loans in Austria has been below the figure for the euro area as a whole.

The insolvency ratio (number of corporate insolvencies in relation to the number of existing companies) continued to decline until the first quarter of 2016 (based on a moving four-quarter sum to account for seasonality). On the one hand, this development may be attributed to the moderate increase of debt financing and the low interest rate level, which makes debt servicing easier even for highly indebted companies.

Dipping number of insolvencies

On the other hand, insolvencies usually are a lagging indicator so that the moderate dynamics of economic activity in the past years may not yet have fed through to insolvencies.

Household indebtedness still low

Austrian households' savings rate will temporarily increase in 2016

After a strong decline in 2013 (−2.0%) and a very moderate increase in 2014 (0.5%), real disposable household income shrank again in the year 2015 (−0.7%). In 2015, both the private consumption deflator and the growth rate of nominal disposable household income lost momentum, with the slowdown being stronger for nominal disposable household income. Looking at the structure of disposable income, the rise in nominal compensation per employee at 1.6% was slightly weaker in 2015 than in 2014 due to the fact that the growth of property income clearly lost momentum (0.2% after 4.7% in 2014), and that self-employment income and operation surpluses (net) shrank (−0.5%). Despite the economy's persistent weakness, employment continued to expand. At the same time, unemployment continued to climb as well. Private consumption grew only slightly.

The savings rate of the household sector has exhibited a decreasing trend since 2007 (when it stood at 12.1%), which was prolonged in 2015 (6.9%). As a result of sinking real disposable income, an increasing share of private consumption has been financed out of savings. Furthermore, the composition of disposable household income also may have reduced households' propensity to save as property income usually has a higher marginal saving ratio than earned income. Moreover, the currently low interest rates may have reduced the attractiveness of saving. In its

June 2016 economic outlook, the OeNB predicts an increase of the savings rate in the year 2016. This reflects a strong increase of disposable household income on the back of the tax reform that entered into force in 2016.

Strong preference for liquid assets

Financial investments by households remained flat in 2015. At EUR 10.6 billion, they were 2% below the previous year's level, and amounted to less than half of the values seen before the onset of the crisis (see upper left-hand panel of chart 12). The structure of households' financial investments showed roughly the same pattern as in the years before. Given the low opportunity costs resulting from the low nominal interest rate environment, households continued to display a strong preference for highly liquid assets and shifted almost EUR 15 billion into cash holdings and overnight deposits with banks, while bank deposits with agreed maturity continued to decline. Between 2009 and 2015, households' overnight deposits increased by EUR 58 billion, while deposits with agreed maturity fell by almost EUR 29 billion. As a result, the share of overnight deposits in total financial assets rose from 10.1% to 17.4% since end-2008 while the share of deposits with agreed maturity fell from 31.6% to 19.7%.

Similarly, households reduced their direct holdings of long-term debt securities by EUR 3.4 billion, shunning investments with longer interest rate fixation, but also cut back their direct holdings of quoted stocks by EUR 45 million. Mutual funds were the only other category of financial assets that showed an increase in 2015, with households investing EUR 3.9 billion (in roughly equal measure in domestic and foreign funds); over the past three years, they invested almost EUR 10 bil-

Slight reduction of financial investment

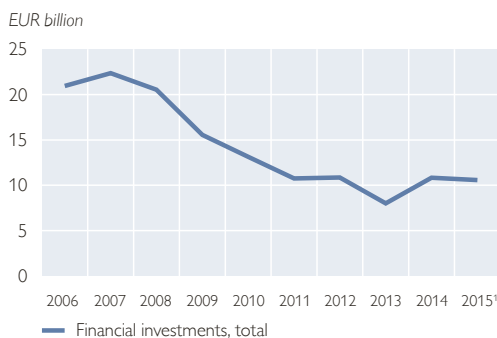
Disposable household income set to rise in 2016

Households continue to invest in mutual funds

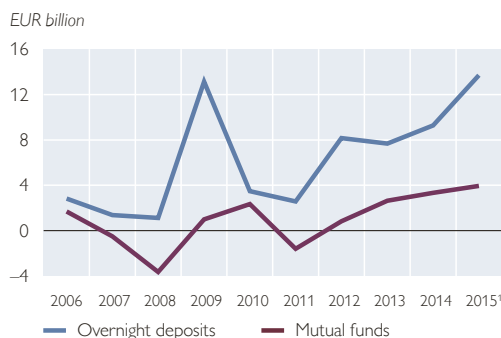
Chart 12

Financial investments of households

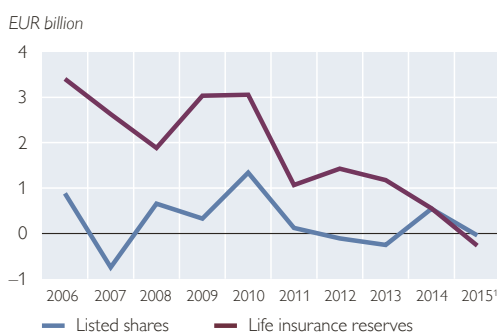
Total



Positive net investments in 2015



Stable net investments in 2015



Negative net investments in 2015



Source: OeKB.

¹ Preliminary figures.

lion in total. Again, the same picture emerged: Households reduced their holdings of bond funds, as the biggest share of investment into mutual funds in 2015 went into mixed funds. In total, households' net financial investment in capital market instruments, which had been negative in the year before, amounted to less than EUR 0.5 billion in 2015 or a mere 4.3% of total financial investments. Looking at outstanding amounts, capital market investments accounted for 17.8% of total financial investments by end-2015. Thus, there are few indications that households made up for low interest rates by investing in riskier assets.

As a result of rising share prices, the Austrian household sector, on aggregate, recorded unrealized valuation gains of EUR 0.4 billion on its securi-

ties portfolios in 2015; this amount was equivalent to 0.4% of households' securities holdings one year earlier. While quoted stocks registered valuation gains, holdings of both debt securities and mutual fund shares registered (equally unrealized) losses. On balance, households benefited from a notional increase in financial wealth from securities holdings for the fourth consecutive year.

Investment in life insurance and pension entitlements continued to slow down in 2015, and at EUR 0.7 billion, did not even reach one-third of the previous year's value. Based on outstanding amounts, they accounted for 20.5% of total financial assets. This decrease was driven mainly by life insurance policies, where net investments turned negative in 2015, amounting to

Net investments in life insurance policies negative in 2015

–EUR 0.2 billion against +EUR 0.6 billion a year earlier. This reduction is all the more remarkable as a large proportion of the gross inflows into these instruments were not an outcome of current investment decisions, but rather reflected past decisions – given the long maturities and commitment periods involved; moreover, life insurance policies often serve as repayment vehicles for foreign currency bullet loans (even if these are converted into euro loans). Investments in pension entitlements (including both claims on pension funds and direct pension benefits granted by private employers) by contrast expanded briskly in 2015 (by two-thirds).

Growth of household loans increased

More than 85% of the financial liabilities of Austria's households are made up of loans by (domestic) banks. The expansion of bank lending to households has gained some momentum since late 2015. In April 2016, bank loans to households (adjusted for reclassifications, valuation changes and exchange rate effects) increased by 2.7% year on year in nominal terms. A breakdown by currency shows that euro-denominated loans continued to grow briskly (by 5.9%), while foreign currency loans continued to contract at double-digit rates – by April 2016, they had fallen by 11.3% year on year. Broken down by loan purpose (see chart 13), consumer loans and other loans shrank by 1.9% and 0.9% year on year, respectively, whereas housing loans grew by 4.9% year on year. Despite this most recent acceleration, housing loan growth remained rather moderate if compared e.g. to property price developments or to pre-crisis growth rates (see top-left panel of chart 13).

Housing loans are the most important loan category for households: they

accounted for almost two-thirds (65.1%) of all their bank loans in 2015. Their growth was driven primarily by long-term loans (with a maturity of more than 5 years), which were up 5.0% in the 12 months to April 2016. Housing loans with a maturity between 1 and 5 years expanded at an even faster pace (+10.2%), but as they account for only a small share in terms of volume, their contribution to overall housing loan growth was low.

New housing loans exhibited even greater dynamics than net transactions, implying rising redemptions of outstanding loans. On the one hand, the relevant regulatory and contractual arrangements in Austria probably do not conflict with an early redemption of loans. On the other hand, the falling interest rates offered an incentive for prepaying an existing loan. The benefits of early redemptions depend on the difference between historical and current interest rates (which is of course higher for fixed rate loans). While the share of variable rate loans (with a rate fixation period of up to one year) in new loans has risen considerably (from about 60% in 2007 to close to 90% in 2014) there is still a sizable amount of loans for which early repayment may yield benefits.

The conditions for taking out housing loans remained favorable. According to the results of the euro area bank lending survey, banks' credit standards for housing loans to households were stable in the first quarter of 2016, after some tightening in the previous quarter. Overall, there has been little change in lending standards in this segment over the past three years.

Credit terms have also remained favorable. At 1.94%, average interest rates on euro-denominated housing loans to households were virtually unchanged in April 2016 compared to one

Loan growth driven
by housing loans

year earlier (+1 basis point), when the lowest value since the start of the MIR statistics in 2003 had been recorded. The interest rate on variable rate loans (with a rate fixation period of up to one year) decreased by 3 basis points to 1.83%. The effective annual rate of interest on housing loans, which reflects total borrowing costs (interest rate component and related charges) dropped by 2 basis points year on year to reach 2.38% in April 2016.

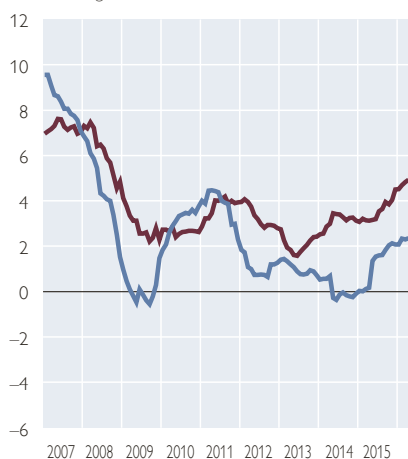
At the same time, banks have been reporting a slight increase in the demand by households for housing loans since last year in the BLS. Since the first quarter of 2015 (when this factor was included in the BLS questionnaire), they have attributed this to a large part to the general level of interest rates. Another factor that consistently has affected the increasing demand for housing loans has been housing market prospects, including expectations of rising

Chart 13

MFI loans to households: volumes and interest rates

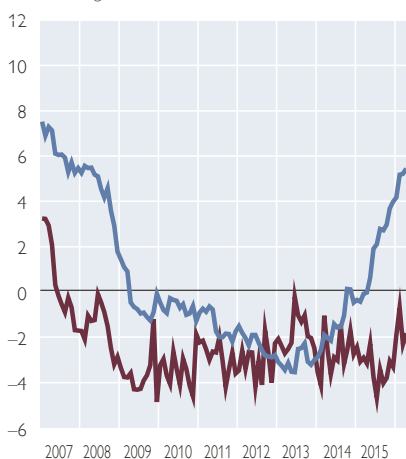
Housing loans: volumes

Annual change in %¹



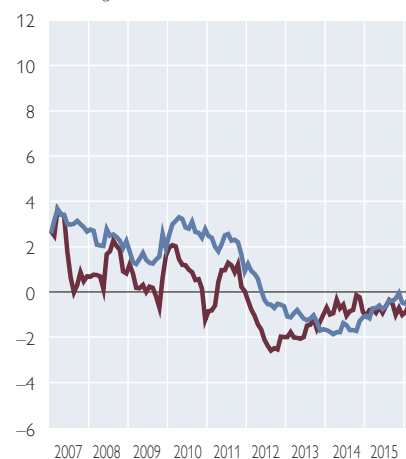
Consumer loans: volumes

Annual change in %¹



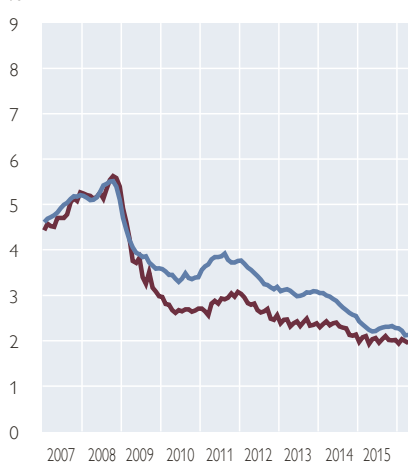
Other loans: volumes

Annual change in %¹



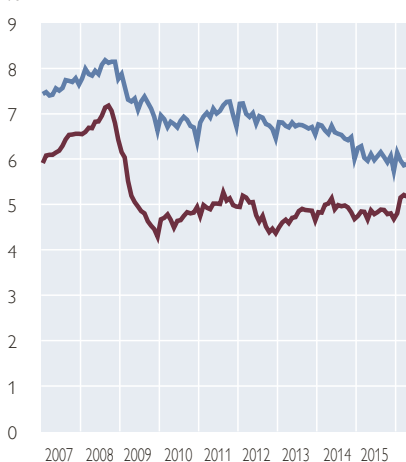
Housing loans: interest rates

%



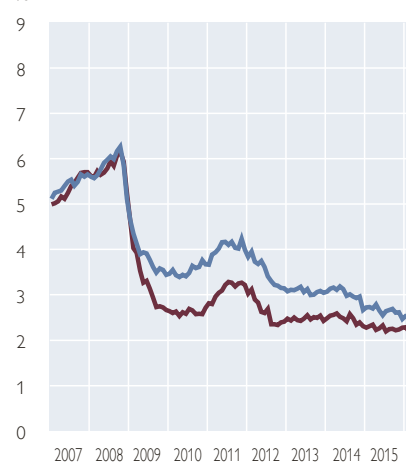
Consumer loans: interest rates

%



Other loans: interest rates

%



— Austria — Euro area

Source: OeNB, ECB.

¹ Adjusted for reclassifications, valuation changes and exchange rate effects.

Share of variable rate loans begins to recede

house prices. The strong increase in house prices registered over the past years (see below) may have boosted the funding needs for real estate investment. In 2015, the transaction volume on the residential property market in Austria increased by roughly 20% year on year in nominal terms, according to data published by RE/MAX and compiled from the land register by IMMOUnited, which also implied an increase in financing needs. However, to a large extent this increase in real estate transactions is likely to reflect a frontloading of transactions, especially of transfers in kind that do not require financing, as property tax increases took effect in 2016. Thus, despite the recent increase, housing loan growth most likely still does not surpass the rate of expansion of the volume of residential property transactions in Austria.

Households' currency and interest rate risks

Household indebtedness low despite slight increase

By the end of 2015, the household sector's total liabilities amounted to EUR 175.3 billion, according to financial accounts data, 3.3% up in nominal terms on the previous year's figure. Expressed as a percentage of net disposable income, household debt rose by 2.6 percentage points to 91.6% during 2015 (see chart 14). Despite this increase, the debt ratio of households in Austria thus remained lower than in the euro area as a whole. Moreover, it should be taken into account that, according to data from the Household Finance and Consumption Survey (HFCS), only about one-third (34%) of Austrian households have an outstanding loan, one of the lowest shares observed in all

Foreign currency loans remain a concern

euro area countries. Thus, it is not the absolute level of Austrian households' indebtedness that is the primary concern, but rather the high shares of variable rate and foreign currency loans.

In the first quarter of 2016, loans with an initial rate fixation period of up to one year accounted for 77% of new lending (in euro) to households compared to almost 85% in the same period of the previous year. This reduction can be associated with the fact that interest rates no longer fell in 2015 and that the spread between the interest rates on long and short interest rate fixation periods continued to contract. But even if the share of variable rate loans has been falling recently, it is still very high by international comparison. Households' interest expenses equaled 1.8% of aggregate disposable income in the fourth quarter of 2015, about 2 percentage points less than in 2008, the year before interest rates had begun to fall. Lower current interest expenses result from the fact that the pass-through of the ECB's lower key interest rates to lending rates was faster in Austria than in the euro area as a whole. Loan quality may have also played a role in view of the comparatively low level of indebtedness of Austrian households. However, the high share of variable rate loans in total lending implies considerable interest rate risks in the household sector.

The still very high share of foreign currency loans in total lending remains a major risk factor for households, despite a noticeable decrease in past years.⁶ In the first quarter of 2016, the share of foreign currency loans fell to 16.0%, almost half the maximum value reached about ten years ago. The for-

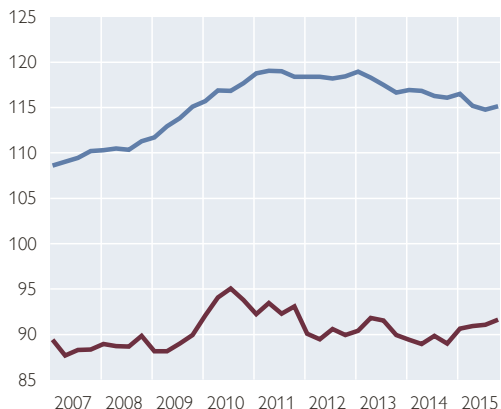
⁶ This risk had been highlighted in January 2015 when, as a result of the strong appreciation of the Swiss franc following the decision of the Swiss National Bank to discontinue the minimum exchange rate of CHF 1.20 per euro, the foreign currency share rose from 18.0% to 19.5% within one month.

Chart 14

Indicators of household indebtedness

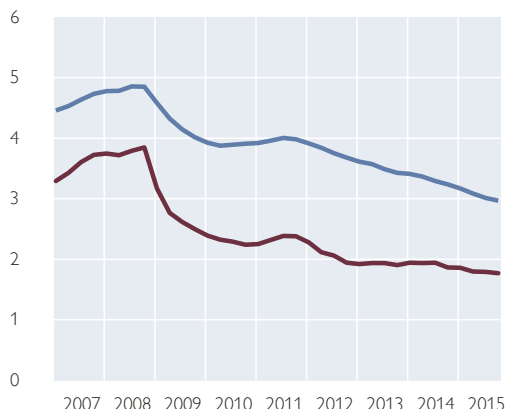
Liabilities

% of disposable income



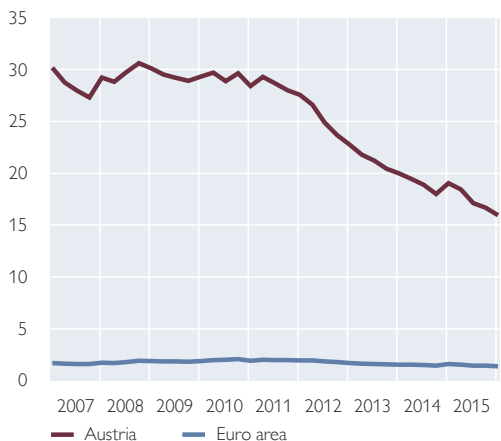
Interest expenses

% of disposable income



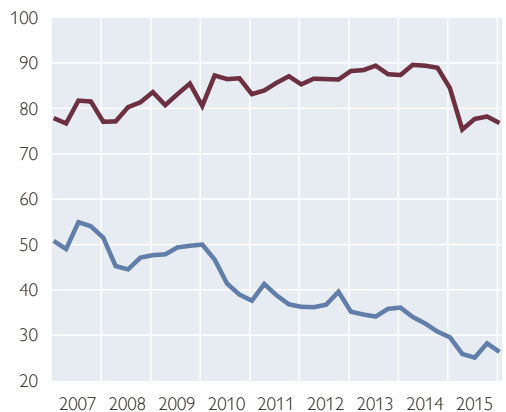
Foreign currency loans

% of total loans



Variable rate loans

% of total loans



Source: OeNB, Statistics Austria, ECB, Eurostat.

Note: Figures for the euro area represent only interest rate expenses on euro-denominated loans.

Foreign currency share varies considerably depending on loan purpose: For housing loans, it was 19.5%, for consumer loans 5.4% and for other loans 11.7%. Almost all outstanding foreign currency-denominated loans are denominated in Swiss francs (close to 97%). In those cases where households have not hedged their foreign currency exposures, shifts in exchange rates affect both the euro-denominated value of the foreign currency liabilities and the

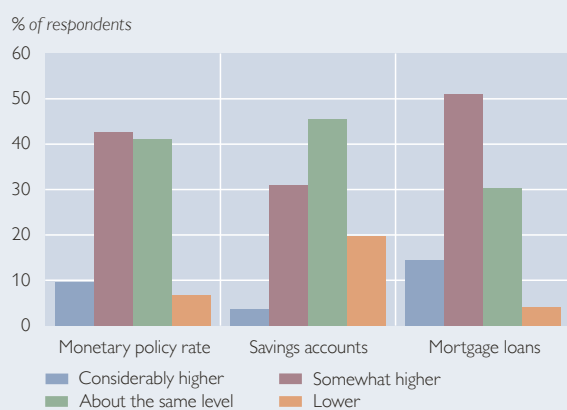
interest to be paid on the outstanding loans. Exchange rate movements not only feed through to interest expenses but also affect the euro equivalent of the principal at maturity – even if they may be considered unrealized valuation changes in bullet loans; they may well affect current payments into a repayment vehicle intended to ensure repayment when the exchange rate risk eventually materializes at maturity date.

How do Austrian households perceive the current ultra-low interest rate environment and how do they react?

Are Austrians fully aware of the prevailing ultra-low interest rates? Do they expect these low interest rates to persist for a protracted period? Are Austrian households adapting their savings and loan decisions to ultra-low interest rates? To answer these questions, the OeNB conducted a survey on the interest rate perceptions and expectations of Austrian households and on the impact of recent and expected interest rate developments on households' savings, portfolio allocation and borrowing decisions. The survey was conducted in spring 2015 and included questions about interest rate perceptions at the time of the survey as well as interest rate expectations for the year 2020. Regarding changes in households' portfolios, participants were asked to compare their current savings and investment products as well as their outstanding loans with the status three years before the survey and to state their plans in this area for the year following the survey. As the survey explores decisions at the household level, survey results complement findings from financial accounts data, which are regularly analyzed in the OeNB's Financial Stability Report.

With regard to interest rate perceptions at the time of the survey, we find that people are largely aware that interest rates are extremely low. But we also find that the knowledge of interest rates is limited, as a large share of respondents do not know the levels of various types of interest rates and as people tend to overestimate interest rates both on savings accounts and mortgage loans. The majority of respondents expect interest rates to stay at about the same level or rise somewhat by the year 2020. Only few respondents expect lower monetary policy rates or lower interest rates on mortgage loans, while one-fifth of respondents expect interest rates on savings accounts to be even lower in five years. By contrast, almost two-thirds expect somewhat or considerably higher mortgage rates. Quite a large fraction of survey participants have not formed any expectations about interest rates in 2020. Whereas awareness of interest rate developments is correlated with socioeconomic factors and the personal relevance of information, these factors appear to only weakly affect perceptions and expectations concerning the level of interest rates.

Interest rate expectations for the year 2020



Source: Authors' calculations based on the OeNB barometer survey.

Note: The respondents who gave no answer have been excluded. Their fraction corresponds to about 22% for both the monetary policy rate and the interest rate on mortgages and to 15% for the interest rate on savings accounts.

We find that low interest rates were only one of several determinants guiding savings decisions, and that they had only a small effect. Almost 60% of households did not change their savings behavior in the three years before the survey. 26% of households stated that they were saving less than three years before, with 45% among them stating that they were doing so because of low interest rates. By contrast, 9% of households reported that they were saving more than three years earlier; 14% of these households cited low interest rates as a reason for this. Overall, 11% of households stated that they preferred other savings and invest-

ment products because of low interest rates. High-income households were more likely to adjust their portfolios.¹ Households that adapted their portfolios often showed a stronger preference for savings with savings and loan associations than for other options. Furthermore, we observe a shift to real assets. By contrast, portfolio rebalancing into riskier assets is not widespread. Furthermore, only 8% of households confirmed that the low current interest rates would prompt them to change savings and investment products in the 12 months following the survey.

Many households at the time of the survey considered circumstances relatively favorable for taking out loans. However, this does not imply that loan demand increased strongly, as borrowing decisions are also affected by other, potentially more important determinants. If they were to be faced with higher loan installments, most loan holders would rather cut consumption expenditures.

The survey results suggest that policymakers cannot simply take for granted that people are well-informed about actual interest rates. One needs to take into account perception limitations and biases. The modest impact of recent interest rate levels on savings and portfolio rebalancing into riskier assets suggests that ultra-low interest rates have a limited ability to stimulate aggregate demand through the risk-taking and portfolio rebalancing channels, at least in the case of households in Austria. People's limited knowledge of interest rates may be seen as yet another argument for central banks to pursue an active communication policy and financial literacy activities.

For detailed survey results see the studies “Interest rate perceptions and expectations when interest rates are low – survey evidence on Austrian households” and “Saving, portfolio and loan decisions of households when interest rates are very low – survey evidence for Austrian households” that were published in *Monetary Policy & the Economy Q4/2015* and *Q1/2016*, respectively (<https://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy.html>).

¹ A similar result was obtained by the Deutsche Bundesbank (see *Monthly Report*, October 2015) for German households. Additionally, data from the German Panel on Household Finances (PHF) show that wealthy households (i.e. households that tend to own diversified portfolios and have a greater appetite for risk) have been more likely to change their portfolio allocation because of the low interest rate environment.

Residential property price growth in Austria gathered pace in 2015

The growth of residential property prices in Austria accelerated notably in the second half of 2015, reaching 7.6% year on year in the fourth quarter, which ended a period of falling growth rates as witnessed since 2013. Moreover, contrary to the years before, when price increases had been significantly more pronounced in Vienna than in the rest of Austria, it had been the “Austria excluding Vienna” aggregate which displayed particularly strong residential property price growth, reaching 9.6% year on year in the fourth quarter of 2015. Since the first quarter of 2010, residential property prices in

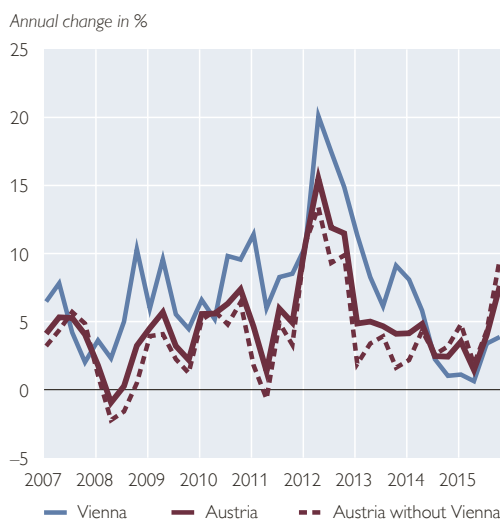
Vienna have advanced by a total of 54%, whereas prices outside Vienna have increased by 30%.

According to the OeNB fundamentals indicator for residential property prices, residential property in Vienna was overvalued by 21% in the fourth quarter of 2015. For Austria as a whole, the indicator shows a slight increase in the level of overvaluation to 3.5%, which was attributable primarily to residential property price growth clearly outpacing the growth rates of household income, rents, construction costs and consumer prices. Despite these recent upticks, this value can be seen as still signaling that residential property prices are justified by funda-

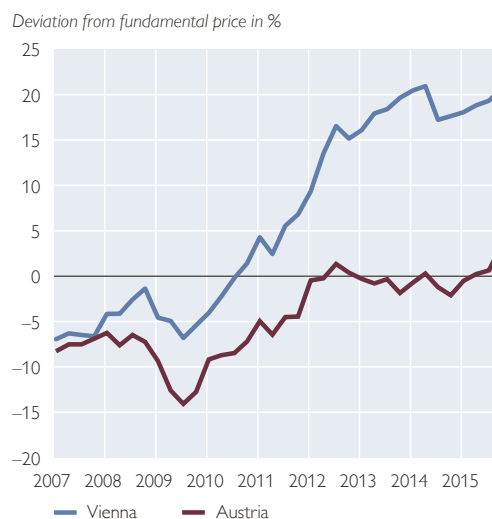
Price dynamics differ across regions

Austrian residential property market

Residential property prices in Austria



OeNB fundamentals indicator for residential property prices



Source: TU Wien (Wolfgang Feilmayr, Department of Spatial Planning), OeNB.

mentals, in view of the uncertainties inherent in the method of calculation. However, a renewed increase in the in-

dicator could be considered a warning sign of a potential overheating of the Austrian residential property market.⁷

Box 2

Household indebtedness in Austria¹

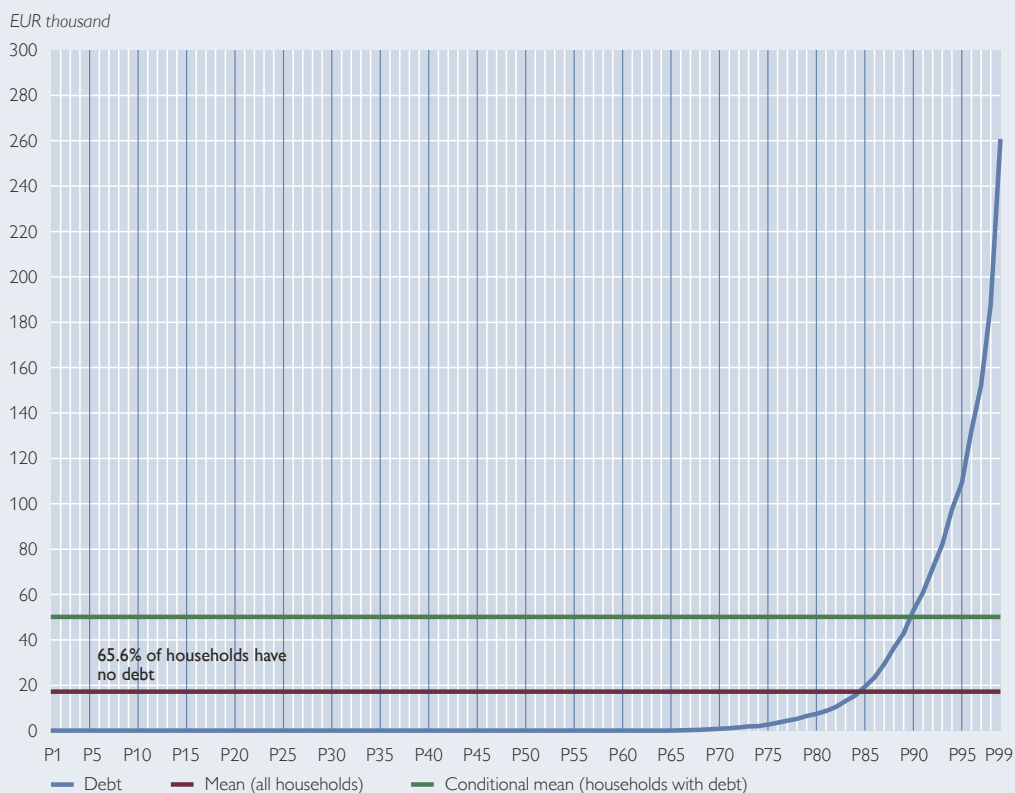
In this box we present some descriptive statistics on household indebtedness in Austria based on newly available data of the Eurosystem Household Finance and Consumption Survey (HFCS). The chart below shows the distribution of debt across Austrian households represented by its quantile function. Approximately two-thirds of Austrian households (65.6%) have no debt. The unconditional average of debt is roughly EUR 17,000. The conditional mean, calculated for those households with positive debt, lies at roughly EUR 50,000. Smaller debt amounts primarily represent uncollateralized loans as well as collateralized ones, which are close to being paid off. The larger amounts reflect different levels of mortgage debt at different stages of repayment.

All in all, few Austrian households hold debt, and even fewer hold substantial amounts of debt. This is mainly due to the large share of tenants (about half of all households) and the relatively low share of mortgage holders (roughly one-third of all owner occupiers). Most low-income, low-wealth households (actually almost all below median wealth levels) resort to the highly subsidized and regulated rental market, which prevents these households from engaging in highly leveraged real estate investments and allows them to consume more. Rental housing, which is especially widespread in Vienna, also leads to a large number of single households among young persons who could not afford to buy a home at such an early stage in life.

¹ See also Albacete, N., P. Fessler and P. Lindner. The distribution of residential property price changes across homeowners and its implications for financial stability in Austria. In this issue of the Financial Stability Report.

⁷ For more analyses and data on the Austrian real estate market see <https://www.oenb.at/en/Monetary-Policy/real-estate-market-analysis.html>.

Distribution of debt from the 1st to the 99th percentile



Source: HFCS Austria 2014, OeNB.

Approximately 16% of households have debt collateralized by the household's main residence. The median of debt collateralized by a household's main residence lies at around EUR 60,000 and the mean at around EUR 90,000; this difference reflects not only differences in initial loan amounts but also the current state in the repayment of the loan. Only about 2% of households hold debt collateralized with other real estate properties.

Approximately 21% of households have uncollateralized debt. The outstanding volume is by far smaller than that of collateralized debt. About 12% of households have overdraft debt (median value: EUR 1,000). With a mean amount of EUR 17,000, unsecured loans are the most relevant category of uncollateralized debt. Debt on credit cards is fairly irrelevant in Austria. Credit cards are still mostly used like debit cards and accumulated debt is fully paid every month.

Between 2010 and 2014 the proportion of households with collateralized as well as uncollateralized debt decreased slightly although the debt participation pattern as a whole has been very stable. However, while the outstanding values in collateralized debt and its subcomponents in 2014 were significantly higher than in 2010, uncollateralized debt and its subcomponents have remained largely stable in terms of their median values.

Note that the increases in collateralized debt not only arise because new and higher loans are taken out but also because of the phenomenon of bullet loans, which usually are foreign currency loans. On the one hand, outstanding amounts for bullet loans are fully outstanding until the point of repayment, which in most cases is still to come, as such loans were hardly in place 20 years ago. On the other hand, because of the unfavorable development of the Swiss franc, the outstanding amount in euro also increased between 2010 and 2014.

Table 1

Extensive and intensive margins of debt

	2010			2014		
	Have item	Conditio- nal median	Conditio- nal mean	Have item	Conditio- nal median	Conditio- nal mean
	%	EUR thousand		%	EUR thousand	
Collateralized debt	18.4	37.5	76.3	16.7	60.4	89.5
main residence	16.6	37.3	72.7	15.5	59.9	89.0
other real estate property	2.4	36.4	80.2	1.5	53.0	75.7
Uncollateralized debt	21.4	3.0	12.7	20.6	2.9	11.1
overdrafts	13.6	1.2	2.3	12.3	1.0	2.3
uncollateralized loan	11.1	8.0	21.5	11.7	6.2	16.8
granted by family or friends	0.9	3.2	10.1	4.8	2.9	7.8
outstanding balance on credit cards	1.5	0.5	1.0	1.4	1.3	2.7

Source: HFCS Austria 2010, HFCS Austria 2014, OeNB.

Looking at the coverage of debt at the household level helps us understand the potential risk associated with the outstanding debt (see below). Once financial assets are subtracted from debt, the share in total debt is down to 65.6%. Almost 35% of the debt is therefore covered by relatively liquid assets. Many households hold substantial financial assets alongside their debt. If real estate and other tangible assets are deducted, only 5.6% of all households have positive debt that is not covered by some assets. This debt makes up 6.9% of total debt. This means a priori risks stemming from households defaulting on their debt are rather limited. And most likely only a small share of these households might even be vulnerable under adverse economic developments.

Table 2

Debt covered by assets

	Have debt (not covered)	Share in total debt
	%	
Debt	34.4	100.0
Debt minus current accounts	31.5	96.6
Debt minus current and savings accounts	21.4	73.4
Debt minus financial wealth	19.0	65.6
Debt minus financial wealth and other real estate	17.2	55.3
Debt minus financial wealth, other real estate and main residence	7.4	8.9
Debt minus all wealth	5.6	6.9

Source: HFCS Austria 2014, OeNB.

Results from the second wave of the HFCS are also presented in the study on “The distribution of residential property price changes across homeowners and its implications for financial stability in Austria” (Albacete et al., 2016) in this Financial Stability Report. An overview of first results of the second wave of the HFCS in Austria can be found in Fessler et al. (2016). An accompanying methodological report is provided by Albacete et al. (2016).²

² Albacete, N., P. Lindner and K. Wagner. 2016. Eurosystem Household Finance and Consumption Survey 2014: methodological notes for Austria (second wave). Addendum to Monetary Policy & the Economy Q2/16. Fessler, P., P. Lindner and M. Schürz. 2016. Eurosystem Household Finance and Consumption Survey 2014: first results for Austria (second wave). In: Monetary Policy & the Economy Q2/16.

Austrian financial intermediaries: adaptation process continues in the financial sector

Austrian banks' financial performance has improved, but its sustainability remains to be proven

Euro area banks' profitability improved moderately in 2015, while remaining at low levels. The annual increase in profits was mainly driven by higher non-interest income and lower loan loss provisions. Despite these improvements, impairments still account for more than half of pre-impairment operating profits. The current weak economic growth outlook, low interest rates and flat yield curves remain a key challenge to European banks' profitability.

This equally applies to Austrian banks, which are additionally undergoing an adaptation process. Reducing structural costs further is meant to pave the way for more sustainable business models, and some banks have already started to take action along those lines. Nevertheless, the competitive Austrian market calls for further efficiency enhancements, as technological change is in full swing and has a major impact on banks' traditional business and distribution channels.

Austrian banks' consolidated net profit amounted to EUR 5.2 billion in 2015, up significantly from the 2014 figure, which had been compressed by write-downs and losses from restructuring. The return on average assets increased to 0.6%. This was to a large extent attributable to lower credit risk provisions and one-off effects that reduced operating expenses. But even when adjusted for one-off effects, which occurred in both 2014 and 2015, the increase in profits in 2015 was slightly above 50% year on year.

Austrian banks' consolidated operating profit increased by 17.7% to EUR 10.5 billion, although their un-

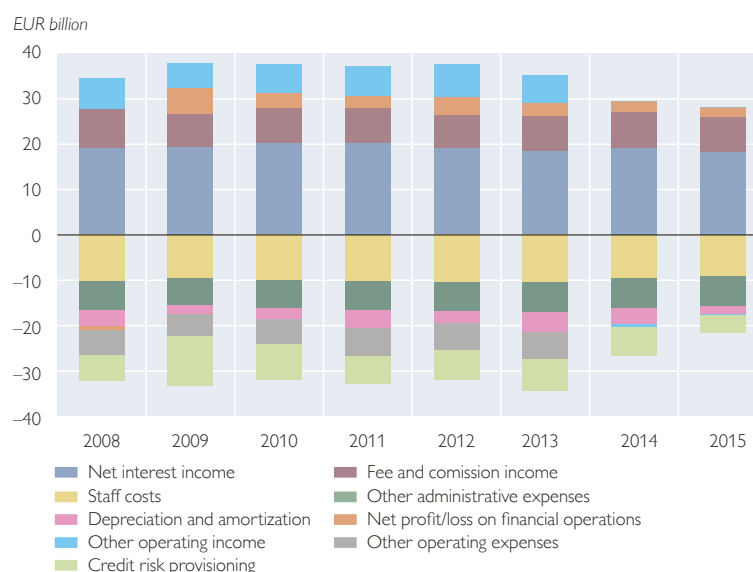
derlying operating income (before risk) in 2015 lagged behind the corresponding 2014 figure. The decrease in income was driven by net interest income dropping 5.2% year on year. In addition, dividend income went down by one-third, to run to EUR 0.6 billion at end-2015. Fee and commission income remained relatively stable, while trading income turned negative for the first time since 2008.

In terms of expenses, Austrian banks cut their costs by 11.2% in 2015, but mainly on account of a one-off effect in pension provisions, which was again partially offset in early 2016. Administrative costs grew by 4% year on year. Goodwill write-downs, which had proved material in 2014, more than halved in 2015. Having peaked in 2009 at EUR 11 billion, until 2014, Austrian banks' provisions to cover credit risks in the loan portfolios remained at levels between approximately EUR 6 billion

Reduction in personnel expenses based on one-off effects

Chart 16

Selected components of Austrian banks' consolidated profitability



Source: OeNB.

Note: As from end-2014, other operating income has been netted with other operating expenses.

and EUR 7 billion. In 2015, this figure plunged by more than one-third to EUR 4.0 billion.

Thanks to declining operating costs, the Austrian banking sector managed to slightly raise its operating efficiency. The cost-to-income ratio improved from 69% in 2014 to 63% at end-2015. However, as banks were not able to compensate for the drop in net interest income by considerably strengthening other sources of operating income, they need to take further efficiency-enhancing measures. In addition, the substantial costs banks incur on account of the still high branch density in the domestic market weigh on operational efficiency.

In 2015, European banks started to make regular contributions to new funds. The Single Resolution Mechanism (SRM) was established to facilitate the effective and efficient resolution of failing credit institutions or credit institutions that are likely to fail. In Austria, banks' initial contributions to a national resolution fund were esti-

mated to have amounted to approximately EUR 198 million in 2015. Starting with 2016, banks are also required to contribute to the Single Resolution Fund (SRF). The level of banks' individual contributions will depend on their size and risk profile in comparison with other euro area banks. Moreover, in 2015, Austrian banks also had to provide their share of initial funding (an estimated EUR 90 million) for the Deposit Guarantee Scheme.

Profitability in domestic business back in positive territory

After having registered a loss in the domestic market in 2014, which was mainly due to one-off effects (i.e. accounting and restructuring effects), Austrian banks improved their net result significantly in 2015. At EUR 3.7 billion, this figure was back in positive territory. Operating expenses came down slightly to EUR 13.8 billion. Likewise, administrative costs decreased by EUR 0.3 billion, which was mainly attributable to reduced staff costs.

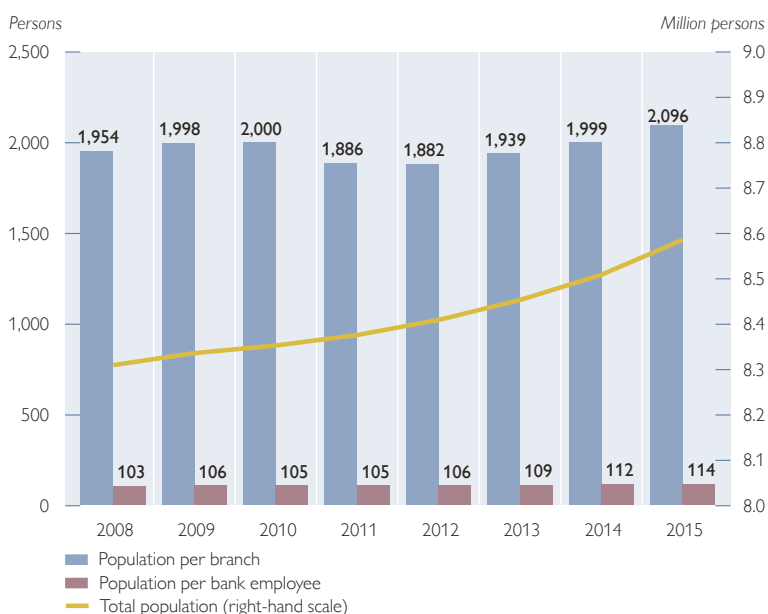
Even though net interest income as well as securities and investment income contracted, operating income rose by 4.4% against the previous year. Credit for this is due mainly to a EUR 1.0 billion improvement in other operating income and a slight increase in fee and commission income. Risk provisioning decreased by nearly two-thirds to EUR 2.1 billion in 2015. However, it should be noted in this context that restructuring within the Volksbanken sector had driven up net risk costs in 2014.

In early 2016, operating income decreased as net interest income continued to decline and fee and commission income was falling for the first time since 2012. Furthermore, financial market turmoil in the first quarter burdened Austrian banks' trading income.

Structural indicators of the Austrian banking sector improve

Chart 17

Structural indicators of the banking sector in Austria



Source: OeNB, Statistics Austria (population as at the beginning of the year).

Chart 18

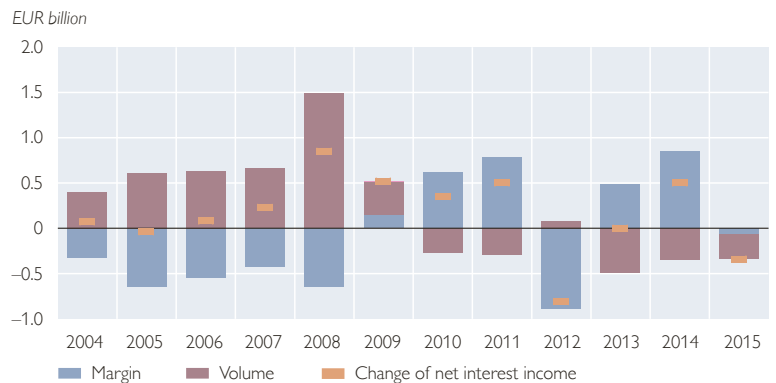
Structural indicators of the Austrian banking sector (“population per branch” and “population per bank employee) increased, which points to an improved utilization of resources over recent years. Since this development was influenced by a rise in the Austrian population, banks should continue their structural reforms to further improve their efficiency.

New competitors as well as financial technology start-ups are entering the market with innovative, technology-driven products and services that differ from the traditional banking model. Besides, customers are getting more confident in using the full range of digital services. Banks should therefore analyze what digitalization means for both their customers and processes and explore and pursue new service opportunities (see also box 3 in this report).

The negative impact of the low interest rate environment is manifesting itself only gradually (as higher-yielding assets and liabilities mature). In the Financial Stability Report 30, an econometric study examined the impact of the low interest rate environment on Austrian banks’ interest margin. Given that Austrian banks’ net interest income eroded by 3.6% in 2015, we took a closer look at the causes of this development. The reduction was mainly driven by contracted volumes rather than a slightly lower margin. This was true especially for banks with total assets of more than EUR 2 billion, while smaller banks experienced comparatively more pressure from lower margins.

Before the onset of the financial crisis, the increase in net interest income in Austria was basically driven by higher volumes, but burdened by compressed margins; a trend that was reversed after 2008.

Factors influencing banks’ net interest income in Austria



Source: OeNB.

Profitability of Austrian subsidiaries in CESEE improved

Austrian banks’ operations in CESEE remain a key source of profits and continue to compensate for the relatively weak performance in the domestic market. The profitability of Austrian banks’ subsidiaries in CESEE improved considerably in 2015, as the aggregated net profit almost tripled to EUR 2.0 billion from EUR 0.7 billion a year before.

Like in previous years, the Czech Republic and Slovakia provided stable and substantial profit contributions (EUR 0.8 billion and EUR 0.3 billion, respectively) in 2015. In Russia, which is still a crucial market for Austrian banks’ subsidiaries, profits continued to decline (–23%), though. In Croatia, Austrian subsidiaries reported a net loss of EUR 0.5 billion in 2015, after having recorded a steady string of profits also during the recession that had lasted from 2009 until 2014. In Romania, the latest net result turned positive again (EUR 0.4 billion), following a period marked by strong earnings volatility. Also on the upside, Austrian subsidiaries were profitable in Hungary for the first time since 2010. They had posted extraordinary high losses particularly

Asset reduction as the main driver for reduced net interest income in Austria in 2015

Credit risk provisions in CESEE decline

in 2011 (–EUR 1.0 billion) and 2014 (–EUR 0.7 billion) partly due to state interventions in banks' loan books. Losses in Ukraine decreased to EUR 0.2 billion in 2015, down from EUR 0.5 billion the year before.

Drivers behind the improved CESEE profits are manifold and confirm the heterogeneity of the developments in the region, including political risk and macrofinancial developments. In general, the profit and loss account of Austrian CESEE-based subsidiaries shows that changes were registered in income rather than in expenses. Net interest income, the main component of Austrian banking subsidiaries' profits, declined by EUR 0.6 billion in 2015. At 1.7% in 2015, the increase in average interest-earning assets was not high enough to compensate for a noticeable reduction in the total spread from 3.3% (2014) to 3.1% (2015). Fee and commission income, which likewise contracted (–EUR 0.1 billion) did not balance out the lower net interest income. Trading income, on the other hand, increased by EUR 0.9 billion, driven by operations in Russia and Turkey, after having plummeted in 2014.

Other operating expenses – which are part of the other operating result – shrank by EUR 0.7 billion. This improvement can be traced back to 2014 legislative measures in Hungary tackling particularly foreign currency loans and the sale of an Austrian subsidiary in Romania. In 2015, Austrian subsidiaries in Croatia were also confronted

with governmental measures related to foreign currency loans.

Risk provisions had a crucial impact on the aggregated net profit, as they shrank by EUR 1.0 billion, which was mostly attributable to subsidiaries in Romania and Hungary. In Romania, the reduction of nonperforming loans and the sale of an Austrian subsidiary led to a decrease in loan loss provisions. In Hungary, the need for credit risk provisioning declined in the wake of legal interventions to convert outstanding foreign currency loans into forint and loan loss provisions created earlier. In numerous CESEE countries, the macroeconomic environment also contributed to the reduction of loan loss provisions. At the same time, risk provisioning increased fairly strongly in Croatia and Russia, albeit from low levels (especially in Russia). In Croatia, the rise followed foreign currency loan conversions mandated by law, while in Russia it was due to the country's still ongoing recession.

Austrian banks' business models and activities in CESEE are also adapting to a changing environment. There is selective growth in markets that are perceived as being stable, such as the Czech Republic and Slovakia. By contrast, business is downsized, for instance, in Russia and Ukraine. The outlook for growth continues to be more favorable for CESEE than for Western Europe, with an expected GDP growth differential between CESEE EU countries and the euro area of about 1.5%.

The impact of fintech companies on banks and payment systems

Over the last decade, several industries (e.g. music, travel, taxi) have been disrupted by the advent of new Internet competitors. This has put incumbents in these sectors under serious pressure – the question is whether this will also happen in the financial sector. The term fintech (an acronym for financial technology) comprises both several thousand small Internet-based enterprises/start-ups and big Internet incumbents (e.g. Apple, Google and Amazon) that are aiming to enter the market for financial services. Fintechs focus in particular on those market segments that are prone to standardization: in terms of services, they have a strong focus on payments/transactions and to a lesser extent on (peer-to-peer) lending/investments. In terms of customer segments, they concentrate on retail customers (in particular young “digital natives”) and small and medium-sized enterprises. In terms of business processes, they try to eliminate the middleman by bridging the gap between providers and customers.

Global investments in fintechs grew exponentially over the last couple of years, to reach more than EUR 10 billion in 2014. This increase has accelerated further recently. In January 2016 alone, EUR 7 billion were invested in fintechs. In Germany, Austria and Switzerland, such investments stood at around EUR 125 million in 2014, which suggests that the development of fintechs in this region lags somewhat behind compared with the United States and that a “big wave” of fintech market entries is yet to come. Until 2025, selected bank segments are estimated to shrink by up to 40% due to the market entry of new fintech players; among the most commonly known are Kickstarter (crowd investment), Lending Club (peer-to-peer lending), Apple Pay and Google Wallet (payments) or Number 26 (free current account with a strong focus on user experience). Besides being a threat to established banks, fintechs might also act as a catalyst for the former to improve their profitability, e.g. by cooperating with and/or taking over new players to increase efficiency, improve (segment-specific) customer services or generate new business.

With the rise of fintechs, supervisors will also need to integrate them into their scope and ensure a level playing field between new and established financial service providers. Besides its responsibilities in banking supervision, the OeNB is responsible for the smooth functioning as well as the oversight of payment and securities settlement systems. The payments market, traditionally dominated by banks, is particularly driven by (technological) innovations. Fintechs, which are able to react more quickly to market developments given their size and structure, are increasingly challenging the existent market players by promoting fast and convenient payment methods. This trend is facilitated by decreasing customer loyalty and an increasing affinity for technical gadgets. In this area, currently favored fintech activities relate for example to mobile payments, near field communication, customer authentication, blockchain technology or cryptocurrencies. Payment system overseers closely monitor these new trends and face the challenge of managing the balancing act between fostering innovation and ensuring a level playing field. While the current supervisory regime is focused on traditional payment system operators (which often hold a banking license), new market players also have to be adequately overseen. This necessitates harmonized regulatory efforts. Here, the new Payment Services Directive (PSD2) may be considered to be one piece of the puzzle: it enables new market players to enter the regulated payments market, while at the same time ensuring basic requirements in the area of consumer and data protection, authentication and safeguarding.

Cleanup of nonperforming loan (NPL) portfolios remains sluggish in Europe

Euro area banks’ weak profitability and their subsequent reduced ability to build capital buffers hinder the resolu-

tion of NPLs in several national banking systems, where elevated NPL volumes have become a major structural weakness. At end-June 2015, euro area banks still had EUR 900 billion of NPLs on their books.

NPL ratios of Austrian banks improve in 2015

The asset quality of Austrian banks' domestic loan portfolio remained stable in 2015 due to improvements especially in the second half of the year. The quality of retail loans increased continuously, while the quality of domestic corporate loans deteriorated only slightly. Asset quality on a consolidated level improved due to a modest reduction of NPLs at Austrian subsidiaries in CESEE.

Chart 19

Nonperforming loan ratios of the Austrian banking sector



Source: OeNB.

NPL ratios of CESEE subsidiaries still elevated, but coverage improves

Nevertheless, elevated NPL levels need to be tackled urgently, especially in some CESEE markets, by using a comprehensive strategy combining assertive supervision, reforms of insolvency regimes, the development of distressed debt markets and the involvement of asset management companies.

The NPL ratio of Austrian banking subsidiaries in CESEE improved slightly, dropping to 11.5% at end-2015 (end-2014: 11.8%), while the NPL ratio for foreign currency (FX) loans increased marginally to 16% at end-2015 (end-2014: 15.7%). However, based on heterogeneous economic and foreign exchange rate developments, the cross-

country differences in Austrian subsidiaries' NPL ratios remain substantial: while the ratio remained below or close to 5% in Slovakia and the Czech Republic, other countries like Romania, Croatia, Hungary and Serbia – although having recorded (slight) declines in their NPL ratios in recent years – still attained levels between 16.5% and 19.5%.

The NPL coverage ratio of Austrian subsidiaries in CESEE improved further: the NPL coverage ratio I (ratio of loan loss provisions on NPLs to NPLs) improved from 56.7% at end-2014 to 59.0% at end-2015, while the respective figure for FX loans increased from 55.6% to 58.2% over the same period.

Foreign currency loan volumes continue to decline

Stepped-up supervisory efforts aimed at curbing FX lending have proven to be effective – outstanding FX loan volumes in Austria continued their year-long downward trend. Between October 2008 and March 2016, FX loans to domestic nonfinancial borrowers declined by almost 43.5%. The associated exchange rate-adjusted reduction amounted to 56%. Last year alone, the volume shrank by 12% on an exchange rate-adjusted basis. In March 2016, FX loans to domestic nonfinancial borrowers equaled EUR 32.8 billion, of which around EUR 23.5 billion corresponded to FX loans to households and EUR 5 billion to FX loans to nonfinancial corporations.

The share of FX loans to households in total loans to households came to 16%, which is markedly below the all-time high of 31.7% registered in May 2006. Loans to households in Swiss franc are by far the most common, accounting for more than 96% of all FX loans to households.

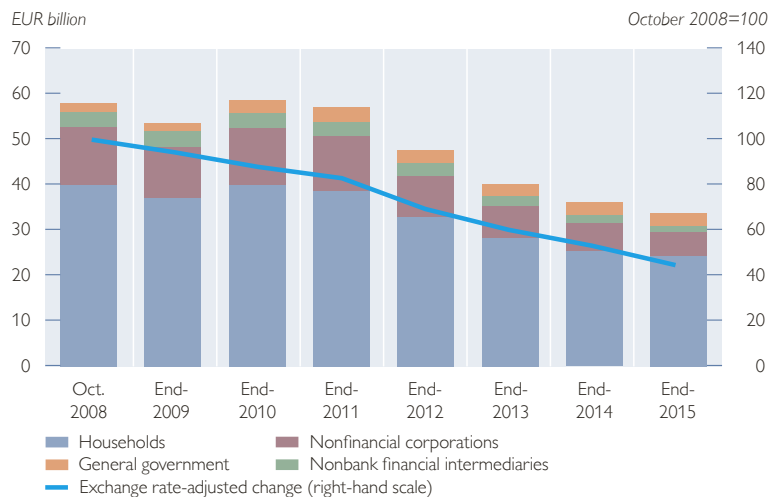
While the volume of domestic FX loans has been declining steadily, legacy issues continue to be relevant for the Austrian banking system. As at March 2016, nearly 80% of outstanding FX loans to households were set to mature from 2021 onward, which entails significant redemption risks to Austrian banks, as three out of four FX loans to households are bullet loans linked to a repayment vehicle. Besides exchange rate risks, these loans and their borrowers are also vulnerable to adverse capital market developments reducing the value of the repayment vehicle. In order to assess borrowers' funding gaps, the OeNB together with the FMA will conduct a survey in 2016, along the lines of surveys that had been carried out in 2009, 2011 and 2015.

Loan loss provision ratios in Austria improved steadily in the course of 2015, driven by lower provisioning for euro-denominated loans to nonbank retail customers and cross-border loans. At the same time, provisioning for FX loans has been increasing. This trend continued into early 2016, which is especially important as most domestic FX loans are bullet loans approaching maturity.

Austrian banks also continued to reduce their FX exposure in CESEE. At year-end 2015, the total FX exposure (including direct and indirect lending via subsidiaries as well as leasing) of Austrian banks in CESEE had decreased by 7.6% year on year to EUR 106.8 billion. This reduction was largely driven by the conversion of FX loans in Hungary and Croatia, where Austrian subsidiaries saw their FX loan volumes drop by 9.7% to EUR 69.3 billion (see chart 22). As a result, the aggregate share of FX loans – the bulk (62%) of which is denominated in euro – in total loans declined from 41.9% at end-2014 to 38.2% at end-2015.

Chart 20

Foreign currency loans to Austrian nonbank borrowers



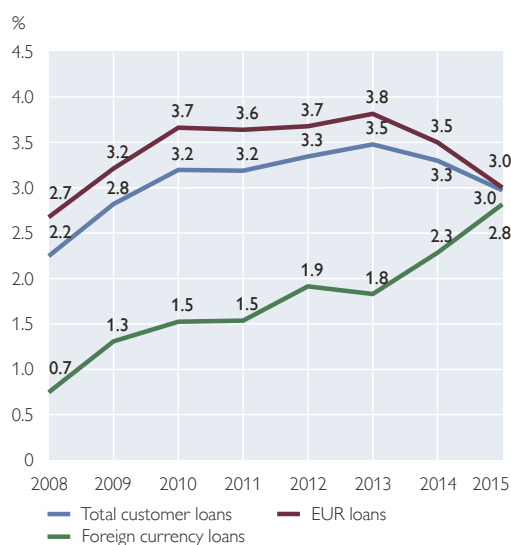
Source: OeNB.

The strong appreciation of the Swiss franc in recent years triggered a series of legislative action in several CESEE countries forcing FX loan conversions. All known measures, whether already implemented or still under discussion, are expected to increase the financial burden on Austrian banks operating in these countries.

Provisioning for foreign currency loans in Austria has been increasing

Chart 21

Loan loss provision ratios in Austria

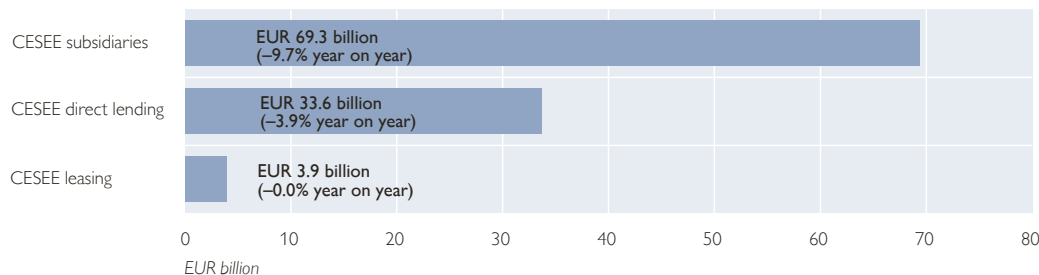


Source: OeNB.

Chart 22

Foreign currency loans of Austrian banks in CESEE

Growth rates from Q4 14 to Q4 15



Source: OeNB (growth rates are exchange rate unadjusted).

Austrian banks further strengthened their capital position

The recovery process of the EU banking system continues to go hand in hand with a major strengthening of banks' capital position. During the first half of 2015, the amount of CET1 capital grew by 6.1%, while risk-weighted assets (RWAs) increased by approximately 2.5%. This goes to show that EU banks' strengthening capital position continues to be driven by increases in capital rather than by reduced RWAs.¹

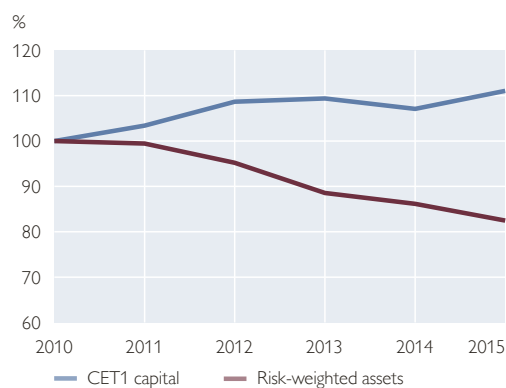
This EU trend does not fully correspond with that of Austrian banks, however. Although CET1 capital increased by 3.3% against 2014, RWAs have been falling as well. As a consequence, the capital ratio of the Austrian banking system improved to 12.7% (CET1 ratio as well as tier 1 ratio). An adjustment of capital ratios driven by RWAs is often seen as particularly critical, because – rather than sustainably increasing their capital base – banks could have been “optimizing” their risk weights and/or could have reduced lending to customers with higher capital charges while total lending increased.

Austrian banks have increased their capital ratios ...

... but still lag behind the level of their peer groups

Chart 23

Components of Austrian banks' CET1 ratio



Source: OeNB.

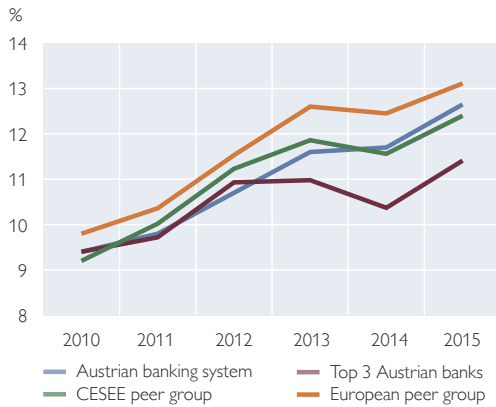
The regulatory overhaul of the banking sector is nearing its completion, as the outstanding elements of the Basel III framework related to the reduction of the variability in risk-weighted assets and the calibration of the leverage ratio are about to be finalized in 2016. Under the current definition, the leverage ratio of Austrian banks further increased to 6.3% in the year 2015.

In the same vein, both the CESEE and European peer groups² of Austrian banks increased their capital ratios in

¹ Source: EBA Risk Assessment of the European Banking Sector, December 2015.

² The CESEE peer group consists of 12 European banks with relevant CESEE exposure, while the European peer group consists of 29 European banks with similar business models.

Chart 24

CET1 ratios in an international comparison

Source: OeNB, SNL Financial.

the course of 2015. And even though the CET1 ratios of the top 3 Austrian banks have been growing faster than the respective figures of their peer groups, banks in both peer groups still display a noticeably higher capitalization.

In May 2016, the Austrian Financial Market Authority, after having duly notified the EBA, the ESRB and the ECB, published the decision on the implementation of a capital buffer for other systemically important institutions in Austria (O-SII buffer). The O-SII buffer aims to raise the risk-bearing capacity of these banks and mitigate the too-

big-to-fail issue. The decision followed a recommendation of the Austrian Financial Market Stability Board from June 2015. To identify the affected banks, the Austrian authorities applied the respective EBA Guideline (EBA/GL/2014/10). As can be seen from table 1, there is a gradual phase-in of the buffer requirement, which cumulates to 2% for Erste Group Bank, Raiffeisen Zentralbank, Raiffeisen Bank International and UniCredit Bank Austria and 1% for other banks by 2019. The decision on the O-SII buffer levels is scheduled to be reviewed in November 2016.

It is worth noting though that a systemic risk buffer was implemented in Austria at the beginning of 2016 and only the higher of a bank's systemic risk buffer and O-SII buffer shall be applied (in line with Article 131 paragraph 14 CRD). Since the O-SII capital buffer decision lists neither additional banks nor higher requirements, there is no additional capital effect due to the O-SII buffer.

The minimum requirement for own funds and eligible liabilities (MREL) is one of the key elements in resolution planning. It is a major tool to remove impediments to the effective resolution of banks, as its purpose is to ensure that

Capital buffer for other systemically important institutions (O-SIIs) implemented in Austria

Table 1

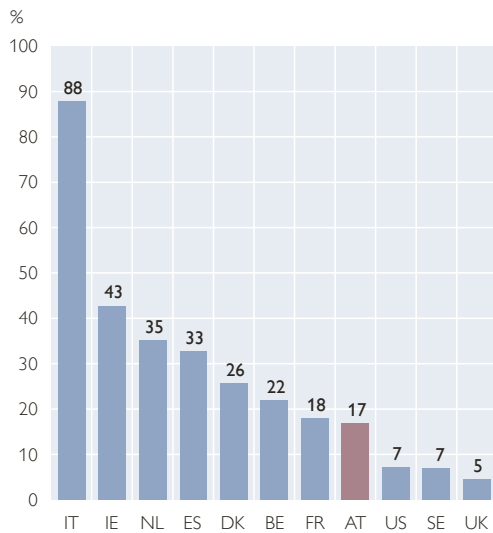
List of Austrian banks subject to the O-SII buffer

	Applicable O-SII buffer			
	June 2016	Jan. 2017	Jan. 2018	Jan. 2019
	% of risk-weighted assets			
Erste Group Bank	0.25	0.50	1.00	2.00
Raiffeisen Zentralbank	0.25	0.50	1.00	2.00
Raiffeisen Bank International	0.25	0.50	1.00	2.00
UniCredit Bank Austria	0.25	0.50	1.00	2.00
Raiffeisenlandesbank Oberösterreich	0.125	0.25	0.50	1.00
Raiffeisenlandesbank Niederösterreich Wien	0.125	0.25	0.50	1.00
BAWAG P.S.K.	0.125	0.25	0.50	1.00

Source: OeNB.

Chart 25

Consolidated Texas ratios (nonperforming loans net of provisions to capital)

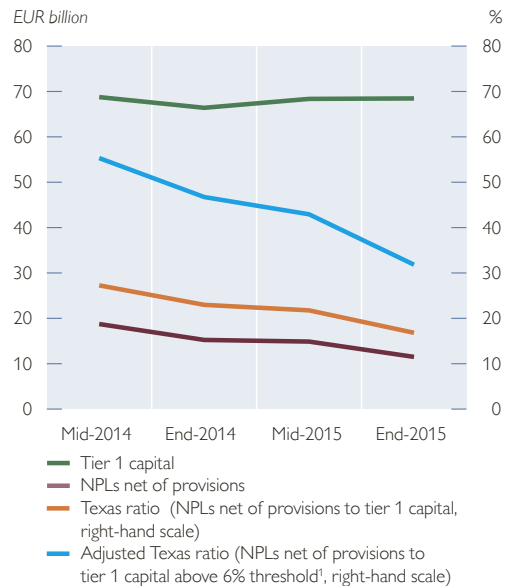


Source: IMF (Financial Soundness Indicators, consolidation basis: CBCSD) or DCCBS) and OeNB (authors' calculations).

Note: Q4 15 or more recent data. The lower the ratio, the better.

Chart 26

Consolidated Texas ratios of Austrian banks



Source: OeNB.

¹ The 6% threshold helps define "excess" tier 1 capital above the minimum tier 1 capital requirement.

Note: The lower the ratio, the better.

banks have an adequate loss absorption and recapitalization capacity in case of resolution. Additionally, it can have direct effects on the going concern situation of banks, since banks may need to adjust their funding structure to some extent to comply with this new requirement.

A first survey indicates that there is great uncertainty about the potential impact, which is amplified by the current international discussion of harmonizing MREL and total loss-absorbing capacity (TLAC). Challenges might occur in some cases in CESEE EU Member States, where funding is predominantly based on customer deposits. For a more detailed analysis of the impact of MREL on Austrian banks, see the special topics section in this issue.

The Texas ratio is a measure to assess banks' credit risk-bearing capacity by comparing the volume of (gross) nonperforming loans to the stock of built-up provisions and capital. In this context, the IMF's financial soundness

indicator "nonperforming loans net of provisions to [tier 1] capital" is used in order to compare international figures (on a consolidated basis, as at end-2015 or latest available data). The lower this ratio, the better the bank should be able to absorb credit losses it has not yet provisioned for. In this international perspective, Austrian banks' Texas ratio of 17% compares favorably with that of peers (e.g. 22% for Belgium or 35% for the Netherlands), while Italy displays a very high ratio of close to 90%.

Austrian banks' Texas ratio improved markedly (from 27% to 17%) from mid-2014 to end-2015, as the volume of tier 1 capital remained stable and the volume of nonperforming loans net of provisions dropped substantially, driven by a drop in nonperforming loans and an improving coverage ratio. Assuming that tier 1 capital can only be used up to the regulatory minimum of

High NPL coverage drives strong Texas ratio of Austrian banks

6% of risk-weighted assets in a going concern scenario, an adjusted Texas ratio³ was calculated: it improves from 55% to 32% over the same period. This implies that if all nonperforming loans were to default at once, banks would still keep 68% of their current “excess” tier 1 capital after absorbing all losses (the impact on the volume of risk-weighted assets was ignored).

Deposits gain importance in the context of bank funding

The unconsolidated loan-to-deposit ratio in Austria stood at 112% at end-2015. Compared with 2008, this represents a significant decline of more than 20 percentage points. As a direct consequence of the economic downturn, credit growth dwindled while deposits rose, although at a slower pace in 2015 than in previous years. Reduced or even negative cross-border lending to countries in the CESEE region also contributed to the decline in the unconsolidated loan-to-deposit ratio of Austrian banks between 2008 and 2015. On the other hand, provisioning had a minor impact as the loan quality in Austria was quite stable during those years.

The Austrian supervisory Sustainability Package adopted by the OeNB and the FMA in 2012⁴ stipulates that the stock and flow loan-to-local stable funding ratios (LLSFRs) of the foreign subsidiaries of Austria’s three largest banks be monitored.

In 2015, most monitored subsidiaries’ stock LLSFR remained stable or it

declined, which points to an improved local stable funding position. At the end of 2015, all 35 subsidiaries in the sample had a sustainable business model (compliant with the supervisory guidance). Only one smaller subsidiary exhibited an elevated stock LLSFR, albeit with a positive trend in its new business (driven by strongly increased local stable funding). In a year-on-year comparison, the aggregate stock LLSFR of all 35 banking subsidiaries fell from 87% (end-2014) to 81% (end-2015), as the local stable funding base rose substantially, while the volume of loans (after provisioning) increased only slightly.

When analyzing changes in the balance sheet composition of those subsidiaries that have been continuously monitored since end-2011, major developments improving the LLSFR occurred on the funding side, where a marked reduction in deposits from credit institutions (often intra-group liquidity transfers by the parent bank) was (more than) balanced out by a strong rise in deposits from nonbanks.

Bank funding markets in Europe have been adversely affected by the heightened volatility in financial markets in early 2016. But funding conditions improved following the ECB’s announcement of additional measures. The three-month EURIBOR continued to move deeper into negative territory. This will allow banks with high creditworthiness to refinance themselves at cheaper rates than banks mainly relying on deposit taking.

Loan-to-deposit ratio in Austria has been declining since 2008

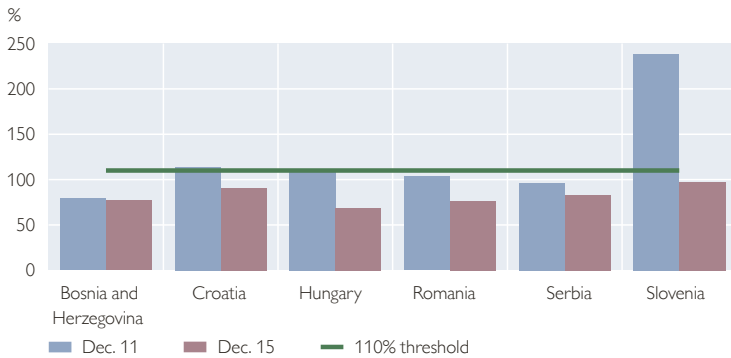
Austrian banks’ foreign subsidiaries continue to improve the sustainability of their funding position

³ The adjusted Texas ratio was calculated as NPLs net of provisions to tier 1 capital above the minimum 6% threshold.

⁴ For more details, see <http://www.oenb.at/en/Financial-Stability/Systemic-Risk-Analysis/Sustainability-of-Large-Austrian-Banks--Business-Models.html>.

Chart 27

Stock LLSFR of Austria's three largest banks' subsidiaries in selected host countries¹

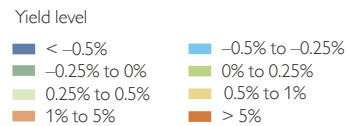
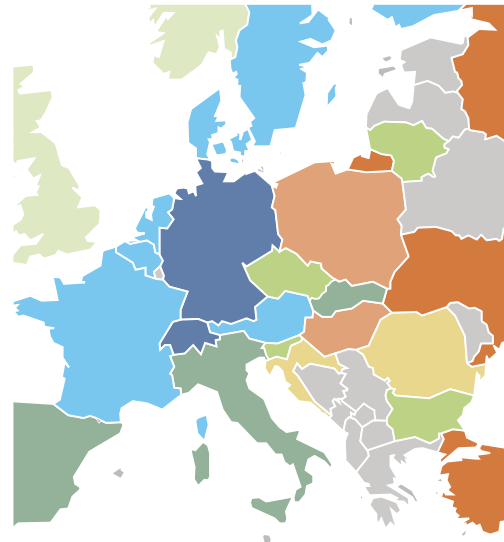


Source: OeNB.

¹ The country sample is based on the continued presence of all three parent institutions in the host country. End-2011 serves as the starting point for the comparison given that the Sustainability Package was adopted in March 2012.

Chart 29

Government bond yields in Europe

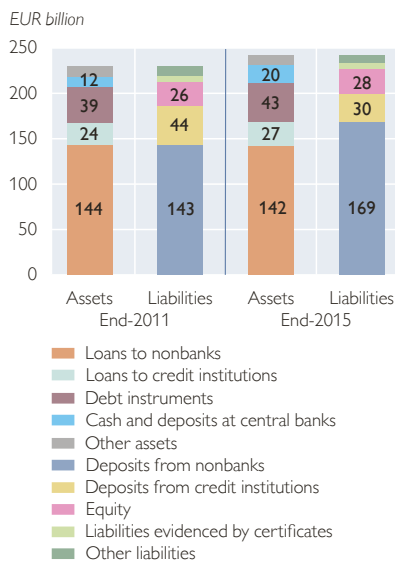


Source: OeNB.

Also, an increasing number of government bonds are trading at negative yields. Looking back one year, the yields of bonds with negative yields decreased further, while those of bonds

Chart 28

Balance sheet of Austria's three largest banks' foreign subsidiaries¹



Source: OeNB.

¹ The sample is based on subsidiaries that were active throughout the observation period. End-2011 serves as the starting point for the comparison given that the Sustainability Package was adopted in March 2012.

Growth in mortgage loans is picking up against the backdrop of buoyant property prices

with positive yields approached zero. At the one-year maturity, Spain, Italy and Slovakia now entered the list of countries with negative yields, while bonds of the Czech Republic, Slovenia and the Baltic countries are very close to zero. In the CESEE region, we observe countries with still relatively high yields like Hungary and Poland, while negative yields are spreading especially to the euro area countries in Central and Eastern Europe.

Given that Austrian banks and their subsidiaries have large holdings of Czech government bonds, the latter's approaching zero yields (0.05% for a maturity of one year) is of particular interest from Austria's financial market perspective, as this puts pressure on interest income.

Box 4

Have Austrian CESEE subsidiaries' loan-to-deposit ratios at the onset of the financial crisis affected subsequent lending and deposit gathering?

After the aggregate loan-to-deposit ratio (LDR) of Austrian CESEE subsidiaries peaked at the beginning of 2009, it experienced a sharp and continuous fall. This trend, however, masks major variations in the subsidiaries' underlying lending to and deposit gathering from customers. This box examines whether a subsidiary's initial LDR helps explain these variations. Moreover, it looks at the loan and deposit developments at the host country level at the height of the crisis and during a transition phase, when intra-group liquidity transfers were substituted by local deposits (as envisaged by the Austrian supervisory Sustainability Package).

First, the change in each subsidiary's gross loan volume since the start of the financial crisis (Q4/2008) is plotted against its initial LDR (chart 1).¹ The line of best fit shows a negative relationship between these two variables. In addition, the unweighted average change in loans among subsidiaries with LDRs below 150% was +48% (Q4/2008–Q4/2015), while it was negative for subsidiaries with LDRs above 150% (–11%). This is of particular interest for high-LDR subsidiaries, as many of them reined in their lending (or reduced their NPL portfolios). They did so partly to adjust their business models and reduce large local funding gaps, which were seen as a vulnerability following the outbreak of the crisis. Meanwhile, subsidiaries with low LDRs and sustainable funding levels seem to have been more willing and able to lend.

Second, banks can also lower their LDR by strengthening their deposit base, but this additional lever is less directly controlled by financial intermediaries. In analogy to the above, chart 2 shows a positive relationship between subsidiaries' initial LDR and their subsequent deposit growth. Again, high-LDR subsidiaries made a particular effort to close their local funding gap and reduce their often high dependence on parent funding, while low-LDR subsidiaries seem to have felt less pressure to collect further deposits. The unweighted average growth in deposits (over the entire period under review) was 90% for high-LDR versus 51% for low-LDR subsidiaries.

Chart 1

Change in gross loans versus initial loan-to-deposit ratio

Change in gross loans in % (2009–2015)



Source: OeNB.

Note: The regression coefficient is significant at the 0.01 level.

¹ The sample of 53 Austrian CESEE banking subsidiaries in this box comprises only those that operated continuously from 2009 to 2015. In order to estimate lending behavior, changes in gross retail loans are analyzed (i.e. before provisioning, which is considered to be exogenously driven).

Chart 2

Change in deposits versus initial loan-to-deposit ratio

Change in deposits in % (2009–2015)



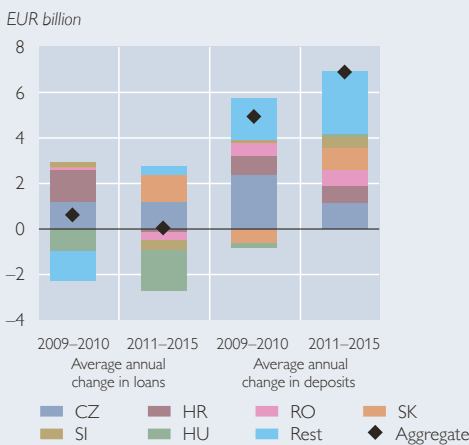
Source: OeNB.

Note: The regression coefficient is significant at the 0.05 level.

These two findings are mutually reinforcing, since a subsidiary’s initial LDR bears similar impact strength on its lending as well as on its deposit gathering: high LDRs at the outbreak of the financial crisis made affected subsidiaries proactively close local funding gaps by both limiting lending and strengthening the deposit base. Lower LDR levels, in contrast, allowed subsidiaries to meet re-emerging credit demand more freely and hence to support nascent economic recoveries.

Chart 3

Net loan and deposit growth periods of Austrian subsidiaries in CESEE



Source: OeNB.

Finally, the drop of the aggregate LDR of Austrian CESEE subsidiaries can be analyzed over two distinct periods: the height of the crisis in 2009/2010 and the subsequent transition to a new post-crisis equilibrium with lower LDRs and higher local funding (chart 3). At first glance, aggregate net loan growth² was low and almost zero for the latter years, but aggregate deposit growth was strong and gained in momentum. The regional rebalancing of business models therefore occurred mostly on the funding side, while disorderly deleveraging was avoided. A more granular analysis at the CESEE country level reveals that while deposit growth was broad based, growth in net loans was more heterogeneous. This was caused by diverging macroeconomic developments affecting loan demand and provisioning needs, as well as idiosyncratic shocks (e.g. national policy actions).

² This analysis looks at net loans (after provisioning) given that it is not so much the lending behavior, as the factors affecting the LDR (which is calculated as net loans to deposits from customers) that are in focus.

Risks in mortgage lending need to be monitored

The financing of residential real estate exhibits increasing risks in the face of rising property prices, housing demand and mortgage lending, while the level of risks remains by and large muted. As mentioned in the previous section, growth rates of property prices picked up again in the second half of 2015. The acceleration was more pronounced in the rest of Austria than in Vienna. Such buoyant property prices should however be seen against the backdrop of anemic property markets before the financial crisis.

Demand for real estate as a form of saving and investment has remained strong compared to demand for other products, such as bank deposits and life insurance policies, particularly in light of low and constantly decreasing interest rates. Debt financing has become more important, too, as indicated by increasing mortgage growth rates. While yearly growth of housing loans averaged 3.0% from 2009 to 2015, housing loans expanded by 4.9% year on year in April 2016. This is the strongest growth rate since the end of 2008. Nominal pre-crisis growth rates of housing loans were considerably higher than recent ones; average yearly growth amounted to 8.1% from 2005 to 2008.⁵

All in all, the recent developments of key indicators warrant heightened caution. Against this backdrop, the Financial Market Stability Board has, upon the OeNB's initiative, issued the advice to the Minister of Finance to initiate the extension of the macro-

prudential toolkit by providing for the possibility of imposing limits on the LTV ratio, the DTI ratio and the DSTI ratio in new real estate lending.

External assessments confirm banks' resilience, but further enhancements are needed

The most recent international reviews (the IMF's 2015 Article IV consultation and an in-depth review under the European Commission's Macroeconomic Imbalance Procedure in 2016) broadly coincide in their assessment of the Austrian banking system regarding its comparatively low capitalization by international standards, its subdued profit outlook and the risks related to its CESEE exposure and foreign currency lending. Besides, it is noted that the low interest rate environment is putting pressure on banks' interest margins. Moreover, market intelligence reveals that developments around HETA have led to investor uncertainty, in particular about some Austrian banks. This contributed to elevated funding spreads, which are detrimental to banks' profitability and capital generation capacity.

In early 2016, Austria was subject to its first ever in-depth review under the Macroeconomic Imbalance Procedure of the European Commission. The review focused inter alia on the risks emanating from the Austrian financial sector's large foreign exposure and the potential impact on credit supply. The results of the country report⁶ were published as a Commission staff working document. Based on this report, the Commission concluded that

⁵ However, if the upward bias due to the strong growth of (foreign currency) bullet loans and inflation rates are taken into account, pre-crisis growth rates are at the level of current growth rates.

⁶ See http://ec.europa.eu/europe2020/pdf/csr2016/cr2016_austria_en.pdf.

Single Resolution Board fully operational since January 1, 2016

In response to the financial crisis that had started in 2008, the European Commission called for a European banking union to improve the soundness of and confidence in the banking sector. One of its three pillars is the Single Resolution Mechanism, which divides tasks and responsibilities between the competent institutions at the European and at the national level.

At the European level, the Single Resolution Board (SRB) is responsible for those banks that are directly supervised by the ECB, operate as cross-border banking groups within the euro area or draw funds from the Single Resolution Fund (SRF). On January 1, 2016, the SRB took direct responsibility for resolution matters related to ten Austrian banks: Erste Group Bank AG, Raiffeisen Zentralbank Österreich AG, Raiffeisenlandesbank Niederösterreich-Wien AG, Raiffeisenlandesbank Oberösterreich AG, Volksbank Wien AG, BAWAG P.S.K., Sberbank Europe AG, VTB Bank (Austria) AG, HYPO Group Alpe Adria AG and Bausparkasse Wüstenrot AG. In addition, UniCredit Bank Austria AG is covered by the SRB via its Italian parent company. The new resolution regime has a strong precautionary character, as it includes the preparation of resolution plans, the definition of common rules designed to prepare banks for their potential resolution and the provision of a common framework to manage the process of winding down banks. To be precise, resolution plans will be prepared by internal resolution teams that include representatives of the SRB and the competent national resolution authority (NRA). In Austria, the Financial Market Authority (FMA) fulfills the role of NRA, and all Austrian non-SRB banks will remain under its full responsibility.

The purpose of the SRB is to ensure the orderly resolution of failing banks, while minimizing the impact on public finances and on the real economy. The SRB's key tasks include the establishment of a credible and feasible resolution regime, the adoption and implementation of resolution schemes and the management of the SRF. Importantly, the SRB triggers the resolution of a failing bank in its direct responsibility, i.e. it decides whether and when to place a bank into resolution, decides about restructuring measures and sets out the resolution scheme. The latter is a framework for the use of resolution tools and the SRF, when a failing bank is being wound down. Under the supervision of the SRB, the FMA will be in charge of executing the resolution scheme. The SRB will monitor the execution at the national level and – should an NRA not comply with its decision – directly address executive orders to the troubled bank.

Finally, the SRF, which has been set up under the control of the SRB, can make funding support available during a bank's resolution on the condition that at least 8% of that bank's total liabilities have been bailed in. The resolution of banks which are not under the SRB's direct responsibility, but have requested funding from the SRF will be transferred from the national to the European level. Starting in 2016, the SRF will be built up over an eight-year period with contributions from the banking sector. At the end of this transition period, the total target size of the SRF will be at least 1% of the amount of covered deposits of all credit institutions in the Member States participating in banking union (the target is currently estimated at EUR 55 billion).

Austria was not experiencing macro-economic imbalances.⁷ While finding the domestic banking sector to be resilient, the report highlighted some key challenges, in particular the below-average capitalization, the low prof-

itability and the weak loan portfolio quality of the subsidiaries in CESEE. In addition, foreign currency lending in Austria and CESEE continues to be a risk factor. According to the report, credit demand rather than supply has

⁷ See http://europa.eu/rapid/press-release_IP-16-591_en.htm.

been the major driver of low credit growth in Austria. Another key finding was that the restructuring of the Austrian banking sector has reached a point where it can advance without additional public support. Regulatory and macroprudential requirements at the EU and national level have reduced the risk of negative spillovers to public finances. In this respect, the macroprudential measures – the systemic risk buffer, the Sustainability Package as well as several measures addressing foreign currency lending in Austria and CESEE – have strengthened the risk-bearing capacity and resilience of the Austrian banking sector and improved the local funding base and asset quality of operations in CESEE.

The IMF acknowledged in its 2015 Article IV consultation⁸ the progress made by Austria in revamping the regulatory and supervisory framework in line with the implementation of the EU banking union. Furthermore, the considerable progress which has been made in the resolution of nationalized banks was noted. While large Austrian banks are changing their business model by focusing more on core markets and improving efficiency, the IMF nevertheless underlined the need for additional measures. A case in point are banks' capital cushions, which have been strengthened but remain low relative to their peers. Furthermore, cross-border exposures to CESEE and loans denominated in Swiss franc remain a source of risks for Austrian banks. This means that the supervisory authorities will have to monitor and reassess large banks' capitalization and

to stand ready to implement additional measures if needed. Moreover, extending the macroeconomic toolkit by real estate-specific instruments would limit risks to banks' asset portfolios if real estate price bubbles were to emerge.

Investment performance poses a challenge to the insurance sector in a prolonged period of low interest rates

Low interest rates and weak macroeconomic growth remain the key risks for the insurance sector: while in 2015 the aggregate return on investment of Austrian insurance companies was 3.7%, today an increased reinvestment risk can be observed, as assets with a long duration are now generating much lower returns than in the past. The introduction of Solvency II, which entered into force this year, and the related higher capital requirement for long-term guarantees are a further challenge for the insurance sector and will also influence its investment allocation. There is a high incentive for insurance companies to switch new business away from “classical” life insurance policies to unit-linked⁹ and fee-based products; a move some Austrian companies have already made. But given the transition period of up to 16 years under Solvency II, it will take some time to observe the full impact of such a shift.

Chart 30 displays investment returns at the (solo) life insurance level, which are rather heterogeneous. A remarkable overall decrease can be observed since 2004, although the median rate of return in 2014 was still

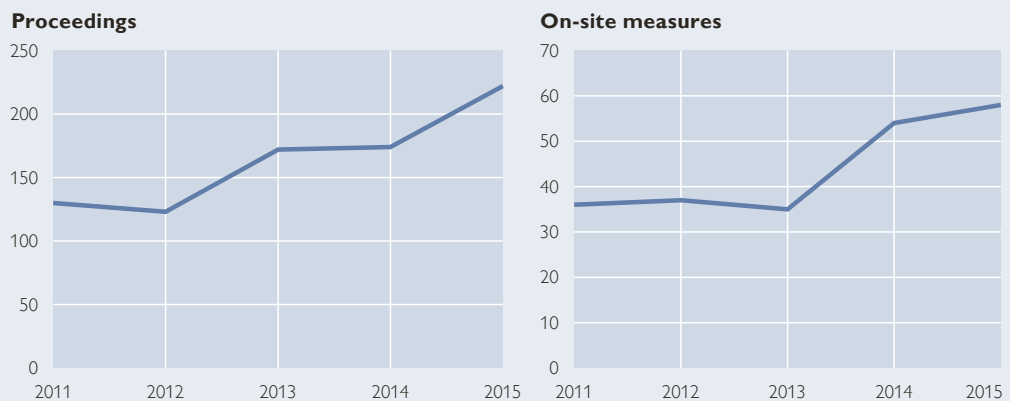
⁸ The IMF carries out bilateral consultations with member countries regarding economic and financial developments as required under Article IV of its Articles of Agreement, usually on an annual basis. See <http://www.imf.org/external/np/sec/pr/2016/pr1658.htm>.

⁹ A unit-linked insurance plan combines insurance with investment. A part of the premium paid is utilized to provide insurance coverage to the policyholder, while the remaining portion is invested in mutual funds; typically no interest rate guarantee is given by the insurance company.

Prevention of money laundering and terror financing in Austria

In Austria, the Financial Market Authority (FMA) is responsible for the (micro)prudential and conduct supervision of financial institutions and their compliance with the relevant regulatory laws and regulations. These include provisions for the prevention of money laundering (i.e. anti-money laundering – AML) and combating the financing of terrorism (CFT). As a follow-up to the Financial Action Task Force's (FATF) mutual evaluation of Austria in 2008, a comprehensive package of measures was agreed in 2010. Among other things, a specialist AML/CFT division was established at the FMA with effect from January 1, 2011. Austria thus strengthened its commitment to effectively monitoring and enforcing financial institutions' AML/CFT efforts and to helping enhance the Austrian financial market's capacity to ward off money laundering and the financing of terrorism.

FMA activities on anti-money laundering and combating the financing of terrorism (AML/CFT)



Source: FMA.

The AML/CFT division's core tasks include implementing on-site measures, conducting investigation proceedings and administrative proceedings to restore legal compliance as well as processing legal requests. The division is involved in policy formulation at the national and European level and represents Austria in various international bodies.

In its AML/CFT supervision, the FMA applies a risk-based approach to account for the money laundering and terrorist financing risks present in individual sectors and firms. In the past two years, the AML/CFT division has extended its on-site measures to include foreign subsidiaries and branches of Austrian financial institutions. On-site supervision entails testing and assessing the quality of the AML/CFT systems in place as well as their adequate application and efficiency in light of the institution's money laundering and terrorist financing risks. In the event of violations, the FMA instructs the institution to remedy the deficiencies. It may subsequently impose sanctions, which in the past ranged from the reorganization of banks' executive boards to the imposition of fines against directors.

In April 2016, the leak of the so-called Panama Papers triggered immediate on-site measures. In addition, off-site investigation proceedings were initiated to increase market transparency and thus contribute to further strengthening financial stability in Austria.

Chart 30

Rate of return of Austrian life insurance companies compared with the average guaranteed rate



Source: FMA (insurance statistics).

slightly above the average guaranteed interest rate for the stock of life insurance policies. Nevertheless, insurance companies need to further adjust to this challenging environment and reconsider their investment strategies. From a macroprudential perspective, it is crucial to closely monitor investment portfolios to detect a potential shift to riskier assets at an early stage.

The net asset value of Austrian mutual funds reached EUR 168 billion at the end of 2015, which is as high as the value recorded at the end of 2006. The Austrian mutual fund industry has developed in line with the European

market, where considerable growth was observable over the last years. Risks related to mutual funds may arise from their combined leverage and liquidity risk; leverage amplifies potential vulnerabilities that may surface when many investors simultaneously attempt to withdraw their money. Funds would then be forced to sell their assets, which may lead to a deterioration in prices and start a downward spiral. To address such risks, additional macroprudential instruments could be considered and become part of the macroprudential toolbox.

Austrian mutual funds have reached their pre-crisis volume

Special topics

The distribution of residential property price changes across homeowners and its implications for financial stability in Austria

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We employ newly available data of the second wave of the Eurosystem Household Finance and Consumption Survey (HFCS) for Austria to construct a house price index for an analysis of households' financial resilience to possible price shocks in real estate markets. We estimate this house price index based on directly observed object-level information provided by homeowners. This results not only in an accurate index of house price developments as shown in the seminal contribution of Kiel and Zabel (1999), but also allows us to analyze the full distribution of house prices and their changes beyond the mean. We compare our approach to the two other price indices available in Austria, which use hedonic regressions based on transaction or quotation prices, and discuss advantages and disadvantages of the available indices while focusing on our primary objective, analyzing implications for financial stability. We find that the fairly steep increase of house prices recently observed has been driven by a rather small segment of the market. Further results suggest that the observed long-term real estate price increases have been remarkably stable. At the heart of our contribution is an analysis of the impact of house price changes on the loss given default of vulnerable mortgage holders. We base this analysis on scenarios that incorporate the observed empirical distribution of house price changes and show that the risks to financial stability are relatively limited. We conclude with a summary of the findings and provide a general assessment of the Austrian housing market.

JEL classification: C81, D31, E21, E31, G21, O52, R31

Keywords: household-specific property prices, mortgages, banking sector, Austria

Monitoring asset prices and evaluating associated risks that may arise are a core concern of central banks worldwide, including the OeNB, since financial crises that involve real estate booms and busts have been shown to be particularly severe.

In this study, we employ newly available microdata of the second wave of the Eurosystem Household Finance and Consumption Survey (HFCS) for Austria to construct a house price index to analyze households' financial resilience to possible price shocks in real estate markets.

Real estate holdings are by far the most important asset of Austrian households. The largest part of real estate holdings in households' portfolios are

their main residences. In 2014, about 47.7% of households were owner-occupiers, and the value of their main residences amounted to more than half of their total gross wealth. About 15% of households hold mortgage debt, using their main residence as collateral.

The two available house price indices for Austria suggest that the change in real estate prices has been very strong in some segments of the real estate market. In the period from 2010 to 2014, the joint house price index of the Technische Universität Wien (TU) and the OeNB increased by 26.7% and the one recently published by Statistics Austria climbed by 24.1%.

A number of recent OeNB studies have discussed the importance of hous-

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ing wealth and house price developments for the transmission of monetary policy, financial stability, consumption and the economy as a whole (see e.g. Fessler et al., 2009; Albacete and Wagner, 2009; Fessler et al., 2010; Albacete and Fessler 2010; Albacete et al., 2012a; Albacete et al., 2014; Albacete and Lindner, 2013). The contribution of this study is that we examine house price developments at the micro level to investigate the direct link between such developments and financial stability and assess the possible risks to the Austrian banking system stemming from the house price increases observed recently.

For households that finance their house purchases by loans or mortgages, adverse price shocks may be especially critical if they buy their house during a price boom that turns out to be unsustainable. If house prices decrease sharply, the mortgages of such households might easily become “underwater,” i.e. the households’ mortgage debt exceeds the value of the property. However, only once a large share of indebted households is unable to service their debt, this translates into risks to financial stability. If households default and real estate needs to be (fire) sold to pay back debt, the resulting loss given default (LGD) might turn out to be substantial if the debt exceeds the selling price of the collateral. LGD is the amount in percent of total debt which cannot be recovered by the bank in case of a borrower’s default. Similar developments had dramatic consequences in the U.S.A. and Spain in the late 2000s.

The remainder of this study is organized as follows. In section 1, we discuss the theoretical background of house price indices in a comprehensible way. Section 2 presents data background and our contribution in terms of the analysis of property price devel-

opments. It includes a short data description (2.1) and the main definitions of our micro-based house price index as well as comparisons with other property price indices (2.2). Subsection 2.3 deals with the distribution of property price changes and subsection 2.4 with house prices in the long run. Section 3 delivers the assessment of risks to financial stability stemming from possible house price shocks. In section 4, we conclude and provide a general assessment, including policy advice with regard to the Austrian housing market.

1 Theoretical background on house price indices

A transacted price is a quantity of payment per unit of a good. The payment is delivered by a person or another entity in exchange for a good or a service. Usually, prices are measured in some monetary unit representing a quantity of goods and services that could be bought at a specific moment in time. Without a payment, i.e. a transaction, such a price does not exist and therefore it can neither be observed nor measured. Note that we restrict our discussion to prices which directly relate to an exchange of goods and/or services as well as their change over time. We do not talk about offering or any other prices which do not directly relate to an exchange of goods and/or services. In short, the number on a price tag in a supermarket is not a price; rather, the amount that you actually pay at the counter is the price.

In classical general equilibrium theory, the pricing problem is solved by the “auctioneer paradigm,” which provides economic theory with a so-called market-clearing price vector which equilibrates supply and demand. All goods are priced in a way that markets are cleared. Trade and payments only occur given these prices and are by

definition always related to an exchange of goods and services.

In reality we do not observe such a price vector for all goods and services at any point in time. Many goods and services are not traded for a long time, some are never traded at all, and without an exchange of a good and a corresponding payment, we do not observe a price. Some goods and services are traded at the same time but at different prices. One famous example from the stock market is the so-called Royal Dutch Shell puzzle. See Lamont and Thaler (2003) for a number of such violations of the law of one price in financial markets. In general, the law of one price only holds under very specific circumstances as products are often spatially differentiated (Rogoff, 1996).

Nevertheless, fictional prices play an important role in our daily life and the economy as a whole. If we cannot observe a transaction, we wonder “what would be the price if I paid somebody to repair my car?” or “what would be the price if I sold my old stereo set?” Quite often, decisions in our daily life are based on guessing possible prices and costs. This problem of “measuring” a price which does not exist in reality cumulates once we try to measure price developments over time to construct price indices.

A price index is constructed by observing a series of prices (transactions) referring to a basket of the same set of goods or services over time. However, in reality, neither will transactions occur for all goods and services in such a basket at all points in time nor will the goods and services stay the same. Some may change, some may cease to exist, some new ones may emerge. Often a good or service consists of a bundle of circumstances directly and indirectly connected to the possible occurrence and value of a transaction payment.

Real attempts to construct price indices have to deal with such problems and try to account for such changes over time using a variety of statistical methods. There must be adjustments for quality improvements to existing products, product attrition and new products as well as for prices not observable by proxying such missing observations by “similar” observed transactions in the time-good continuum – quite similarly to “guessing” non-existent, non-observable prices in real life.

When it comes to devising house price indices, these problems are quite substantial. Houses are traded rather rarely; sometimes it takes years, decades or even generations until a house is sold again. A house may be demolished and rebuilt or changed in a way that it cannot be considered the same object when it is sold again and a price change can be observed. In an international comparison the share of owner-occupiers is rather low. People often live their whole lives in the house they have built; houses are also passed on to the next generation without the occurrence of an observable price. Actually, almost one-third of owner-occupiers in Austria live in houses they have inherited (Fessler et al., 2016). We do not observe this phenomenon to that extent in many other countries. In the U.S.A., for instance, people tend to move more often and therefore far more transaction prices are observable. That is the reason why the Case-Shiller house price index is able to sample all available and relevant transaction data to create matched sale pairs for pre-existing houses. It explicitly does not sample sale prices of new constructions, as, obviously, no price change is observed (see S&P/Case-Shiller, 2015). In Austria, such a purist approach is not feasible, as the share of overall houses that have

been the object of transactions and the share of observable prices are too small. In addition, no data source exists which would accurately track such prices. Therefore, methods are used to observe prices of “similar” objects in the time-good continuum and use them as proxies for unobserved real price changes. Such an approach is complex and comes with serious caveats: finding objects “similar” to homes is difficult, as all objects are differentiated by location – and location matters. See Hill (2013) for an extensive survey on hedonic price indices.

Also, the variety of objects is rather large in Austria. If an object is not traded, no transaction will take place and therefore no price will exist; in such cases, it is difficult to find similar objects in terms of location, size, neighborhood and all the other characteristics which may influence transaction prices. In the end, one has to work with rather crude estimates trying to guess unobserved price changes using sophisticated statistical methods.

To summarize, if no repeated transactions of the same house is observed (exists) to construct a price index, it is necessary to observe prices of existing transactions of different houses at different points in time and to try to identify similar houses to construct a price index.

In the case of our micro-based approach we do not have the problem of finding similar houses as we always have information on the same house at two points in time. Our primary objec-

tive is however not the construction of a house price index but a micro-based analysis of household vulnerability.

2 A survey-based residential property price index

2.1 Data

We use the second wave of the Austrian HFCS, which was conducted in 2014 and 2015. The HFCS is a euro area-wide project coordinated by the European Central Bank (ECB).² The OeNB is responsible for conducting the survey in Austria. HFCS data provide detailed information on the entire balance sheet as well as several socioeconomic and sociodemographic characteristics of households in the euro area. In particular, the survey provides information on the wealth held in various forms of real estate property (households’ main residence, other real estate). Additionally to the estimated (fictional³) market price of a particular property at the time of the interview, the survey also collects information about the value of each property at the time of the transaction, i.e. at the time the household became the owner of this property.

Homeowners within the representative sample of Austrian households (in 2014) were asked what the price of their house or apartment (henceforth house) was at the time of acquisition. This information can be expected to be of good quality as most owners know quite accurately what they paid. Moreover a transaction really took place.⁴ Homeowners tend to know best what the true costs were, especially if many

² The first wave of the HFCS in Austria was conducted in 2010 and 2011. It is envisaged that this survey is conducted about every three years. The HFCS in Austria has no panel component.

³ “Fictional” in that no transaction takes place and therefore no price exists; not “fictional” in that it is self-assessed, i.e. estimated by the respondent.

⁴ Also in the case of an inheritance the person who inherited may be best informed about the actual price (in this case fictional market price), even though no market transaction takes place.

different contractors were involved in building the house, if the household partly built it on their own instead of just purchasing a finished house. Of course, the price information will likely be more precise for recent years than for transactions which took place a very long time ago; but given that such large transactions take place rather rarely in most owners' lives, they tend to remember them well. As long as the house price is unbiased in expectation over all households, households' problems recalling the exact price will only increase variance but will not affect the value itself. Additionally, as the price of a property depends heavily on its location, changes to a property may in a lot of cases have little impact on the overall valuation in the long term. The second point in time for which we have information on the value is the time of the interview (2014). We asked the owner to estimate the price they could sell the house for. This is a fictional price as no transaction takes place and no transaction price exists. We also have a large amount of other information on the house, which allows us to estimate values using actual transaction prices of similar houses, similarly to the way price indices are calculated. Such plausibility checks lead to very similar results for house price distributions. However, the literature shows that houses are very different from each other and that even within a small neighborhood price differences can be very large for numerous different reasons; therefore, if the goal is to estimate prices at the object level, direct information from owners is more reliable than residential house price estimates using statistical models. That is especially obvious in cases like Austria, where transaction price data are rather scarce.

Bucks and Pence (2006) assess the ability of respondents to report the value of real estate and find (page 1)

“... that most homeowners appear to report their house values and broad mortgage terms reasonably accurately.”

Also Bucchianeri and Miron-Shatz (2010, page 11) conclude that there is a “significant association” between reported values and market prices. Furthermore, Kiel and Zabel (1999, page 1) show that although the average owner overvalues their house by about 5%, the use of owners' valuations “will result in accurate estimates of house price indexes and will provide reliable estimates of the prices of house and neighborhood characteristics” because differences between sale prices and owners' valuations are not related to particular characteristics of the house or the occupants. Benítez-Silva et al. (2009) also show reasonable slightly overestimated self-assessed values and find them to be especially accurate for difficult economic times.

Furthermore, as our primary objective is to analyze vulnerability at the household level, our focus is on obtaining reliable estimates of house price changes at the level of the individual house and household.

Therefore we use the information on the transaction price and the self-assessed fictional market prices provided by the owner at the time of the interview to calculate the change of the house price. Put simply, compared to hedonic price indices that means that instead of guessing which houses of a number of different houses are similar (by controlling for a potentially large set of characteristics of the property) to combine two prices, we use the same house and ask the owner to estimate its current market price. In the case of hedonic models, by contrast, the matching of similar houses does not

take place explicitly but rather implicitly through the functional form of the regression, where in the simplest case of a time-dummy method all houses are implicitly assumed to stay the same over the years. Both matching and regression with controls are valid under the same identifying assumption of conditional independence.

In section 3 of this study, we combine the past behavior of property prices with Austrian households' debt levels and debt sustainability. In the HFCS, various different forms of debt, i.e. mortgage and nonmortgage as well as debt from family and friends, are recorded. Nonmortgage debt includes all possible forms of consumer loans as well as credit card debt and overdrafts in sight accounts. We define the household's total stock of debt as the outstanding amount of all liabilities held at the time of the interview. To assess the risk stemming from household debt, the asset side and income also need to be taken into account appropriately. The HFCS provides detailed information on each of these aspects (for a complete account of the entire balance sheet of a household see Fessler et al., 2016). The results reported in the present paper pertain only to households resident in Austria. All estimates are calculated using the final household weights and taking into account the survey's multiple imputations provided by the data producer (see chapter 5 in Albacete et al. (2016) for a detailed description of the multiple imputation procedure in Austria). Of the total of 2,997 households in the net sample, 891 are homeowners without any outstanding mortgages⁵ taken out for the acquisition of

their home and 393 are homeowners with at least one outstanding mortgage taken out for the acquisition of their home. Concerning other-than-main residence real estate, 284 are owners of other properties without any outstanding mortgage taken out for the acquisition of these properties and 42 are owners of other properties with at least one outstanding mortgage taken out for the acquisition of at least one other property.

The overall methodology of the second HFCS wave 2014 follows – with some improvements – that of the first HFCS wave (2010) and is documented in Albacete et al. (2016).⁶

2.2 Construction of the indicator for residential property price changes

We analyze the housing market in two subsets. First, we focus on the set of household main residences (HMRs), which are by far the most important asset class and represent all main residences of households in Austria. Second, we focus on the set of most important other properties (HMOPs). This set consists of the most valuable property that households own apart from their main residence. Note that the set of owners is therefore different from the first subset. While the first subset includes all households that own their main residence, the second set includes all households that own any other real estate regardless of whether they own their main residence. The second subset is quantitatively less important in households' asset portfolio structure, but provides some account of the behavior of property prices of

⁵ The HFCS collects only information on outstanding liabilities but not information on mortgages that were used to finance real estate and have already been fully repaid.

⁶ An extensive methodological documentation of the first wave of the euro area HFCS can be found in ECB (2013). Additionally, similar documentation is planned to be published for the second wave.

objects which are used by their owners for purposes other than as their main residence (most notably for investment and income-generation purposes but also for recreational purposes). Note that we exclude business ownership-related commercial uses of real estate that arise when a household owns businesses which own real estate. These are subsumed under business assets and not under real estate property of households. Most prominently, this categorization excludes farmers' real estate, which is by definition also counted as business assets.

Let us denote owner households by $i = 1, 2, \dots, I$ and years by t . The (estimated) prices of the owners' main residence or, analogously, of the most important other property of owner i at time t are denoted by P_{it} . We observe a price for each property of owner i at two points in time: at the point it was acquired (P_{it}) and in 2014 (P_{iT}). While the first term is the reported transaction price, the second term is the self-assessed (fictional) market price. As a first step, we can construct the average of reported transaction prices over time, which we call the HFCS average transaction index:

$$ATI_t = \frac{\sum_i P_{it}}{n_t}, \quad (1)$$

where n_t is the number of houses for which transaction prices are actually observed in year t , which are all the values homeowners report for the time they acquired their main residence. Using appropriate weighting, this implies that overall, the resulting time series is representative of the dynamics of the prices of all houses in Austria currently in use as a household main residence. This approach does not use any self-assessed (fictional) market prices but relies exclusively on the in-

formation reported about actual past transactions. At the same time, once regarded as a "price index," the ATI is closer to indices using transaction information without being able to match houses, as it does not refer to changes in the price of the same objects but reports only changes in the transaction price level over time.

In a next step, we exploit the price information on the same houses over time and use the estimated market value in 2014. The easiest and most straightforward way to construct a price index is to use a simple ratio between the mean of the prices of houses acquired at a specific point in time in the past and the mean of the estimated market value of the same houses in 2014. This method is also applied in Mathä et al. (2014), who use the first wave of the HFCS and data for all euro area countries. The resulting index is then given as

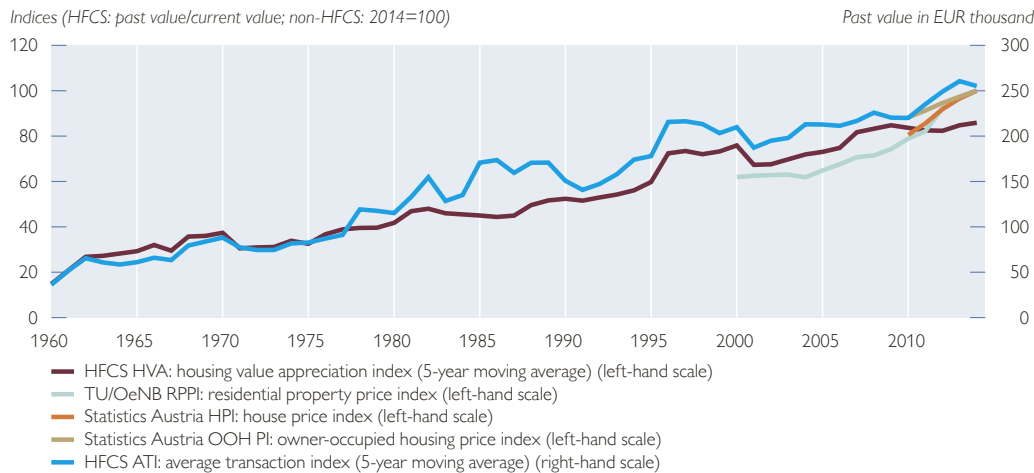
$$HVA_t = ATI_t \left(\frac{\sum_{i \in N_t} P_{iT}}{n_t} \right)^{-1}, \quad (2)$$

where N_t is the set of houses for which transactions actually took place in year t . We call this index the HFCS housing value appreciation (HVA) index.

Chart 1 shows both resulting time series based on our data as well as the residential property price indices available in Austria. Note that the levels shown in chart 1 are not comparable. The ATI delivers a simple average of reported transaction prices in euro (right-hand scale). The HVA is a measure of past average transaction prices as a share of the estimated current market price, which we show directly as a percentage in chart 1. The micro-based indices are plotted as five-year moving averages, as on average only about 30 observations (for recent decades, i.e. since 1980) underlie each single year.

Chart 1

HFCS main residence price increases versus available property prices



Source: HFCS Austria 2014, OeNB, TU Wien, Statistics Austria.

For interpretational reasons we did not rescale it to be 100 in 2014 like all the other property price indices shown.

The TU/OeNB index shows an increase of about 27% for the period 2010 to 2014, followed by the Statistics Austria HPI (24%), the HFCS ATI (16%) and the Statistics Austria OOH PI (13%), while the HFCS HVA is rather flat at 3%. Note again that by construction of the HVA, that implies a very steep price increase of about 16% for its last observation (HVA roughly equals 86%). The fact that it remains rather flat at the end of the time series reflects owners who purchased their house in the last few years all estimating current prices, which are on average 16% to 20% higher than the value at purchase, no matter if the purchase happened only one year or a few years ago (see caveats at the end of the paragraph). As expected, the HFCS ATI index matches the available property price indices quite well. Its path is close to the steep increase measured by the property price indices available for Austria (see box 1), of which the index best comparable to the HFCS ATI index

might be Statistics Austria's OOH PI. The latter also covers only owner-occupied housing (OOH PI) similar to our indices, which are based on main residences only.

The increase in the prices of owner-occupied housing was less pronounced than the overall increase in the prices of private properties. Furthermore, the HFCS average transaction index also matches the increases in the TU/OeNB property price index fairly well in the period from 2000 to 2010. For more recent years, the HFCS average transaction index is slightly below the TU/OeNB property index, which may reflect the fact that it covers only households' main residences. The TU/OeNB index also includes all other noncommercial real estate not used as main residence, specifically also those belonging to owners living outside Austria. This matters especially for Vienna, as the index also includes transactions related to very wealthy nonresidents buying real estate for investment reasons. The flight to safety witnessed since the economic and financial crisis of 2008–09 has led to a strong increase

in demand at the high end of the real estate market, which has driven up the mean considerably.

Note some caveats of the self-reporting approach with regard to current prices. Firstly, households might give too much weight to the actual building compared to the land it is attached to. That might explain part of the overestimation generally observed in the literature. Secondly, self-reporting might be especially problematic for

houses purchased very recently as owners might severely underestimate the speed of devaluation once a house is used. Thirdly, owners may at the same time overestimate the universality of their own taste and preferences. The latter two points might lead to an additional overvaluation of current prices for houses recently purchased. Fourthly, the intensity of observing the market might also affect subjective estimates of current prices.

Box

Residential property price indices for Austria

TU/OeNB

The TU/OeNB residential property price indices use data provided by a private real estate company which cover roughly 80,000 transaction prices for each year. State-of-the-art hedonic regressions to adjust for quality changes are applied. There are different models for different object categories (e.g. new and resale apartments, single-family houses). Some of the data series start in 1986. Semi-parametric models take into account nonlinearity and spatial heterogeneity. It is a state-of-the-art approach given limited data availability.

A detailed documentation can be found here:

https://www.oenb.at/dam/jcr:c2fb0be8-5a1a-4e58-94dc-175b8984ca56/stat_2012_q3_analyse_brunauer_tcm14-249405.pdf (retrieved on April 4, 2016).

Statistics Austria

In 2014, Statistics Austria also started publishing property price indices (covering the years from 2010 onward). Unfortunately, Statistics Austria has not made available any detailed documentation so far. Therefore it is not possible to comment on the methods used.

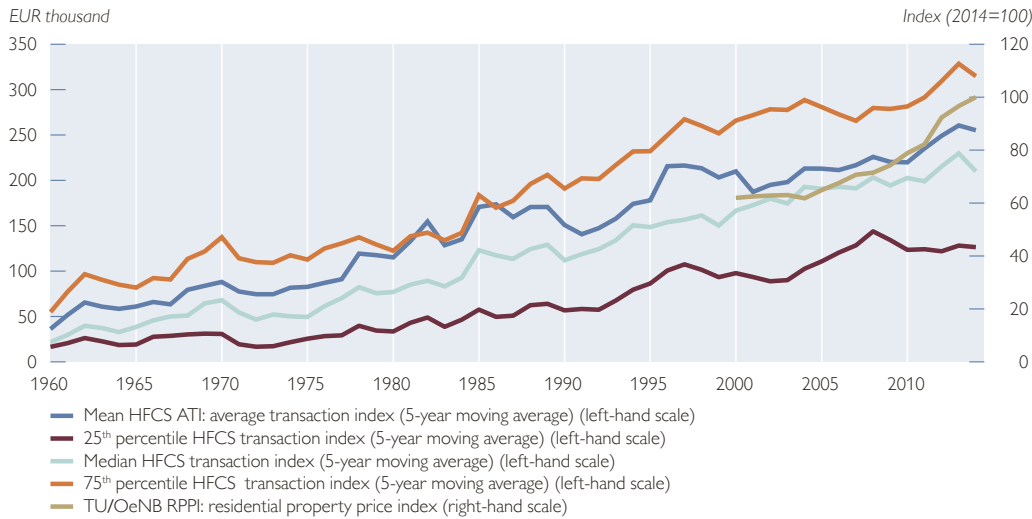
http://www.statistik.at/web_de/statistiken/wirtschaft/preise/haeuserpreisindex/index.html (retrieved on April 4, 2016).

To illustrate why classical mean-oriented property price indices might not be the ideal tools for financial stability analysis, we plot also indices of percentiles, analogously to our ATI index (chart 2). It suggests that recent increases in property price indices might mainly reflect developments in the upper part of the distribution. While the TU/OeNB property price index aligns with rather steep increases at the ATI mean and P75, it seems that transaction price increases at P50 and P25 were less pronounced. In times of rather hetero-

geneous price developments such as those triggered by the flight to safety and the accompanying rise in demand for real estate as investment vehicles, classical property price indices might provide less useful information for financial stability analysis. Mortgage holders investing in real estate for reasons of owner-occupation are very relevant for financial stability analyses. High-end real estate market segments in large cities like Vienna and other market segments characterized mainly by house purchases for investment pur-

Chart 2

HFCS-based transactions versus property price index



Source: HFCS Austria 2014, OeNB, TU Wien.

poses by less vulnerable households may influence overall property price indices in a way that they are deemed less representative of ordinary mortgage-based financing of households' main residences. That is why analyzing real estate price developments beyond the mean is crucial in interpreting results with a view to financial stability.

For our financial stability analysis at the household level as well as a disaggregated analysis of implicit price developments beyond the mean, we additionally need a measure of house price developments at the micro level. Therefore, we construct for each property unit an average annual price change index and call it the unit average change, denoted by UAC_i . For this calculation we make use of the compound interest formula. The average yearly rate of return of a given household's real estate can be calculated by

$$UAC_i = \left(\frac{P_{iT}}{P_{it}} \right)^{\left(\frac{1}{T-t} \right)} - 1. \quad (3)$$

Thus, the formulation yields an average yearly rate of return for a property from the time of ownership transfer until $T=2014$. Combined with the values P_{iT} and P_{it} this estimate of a price change at the individual property level allows us to analyze possible loss given default under different scenarios. Note the important difference in the indices presented. While the ATI refers to the average price of houses bought in a certain year and the HVA refers to the price change using the average of the set of houses acquired in a certain year and the average of the same set in 2014, the UAC gives the average price change on the individual level implied by the price change between the two years (year of acquisition and 2014).

2.3 Distribution of residential property price changes

Chart 3 shows the UAC over all housing units (HMR and HMOP), regardless of when they were acquired. The majority of households experienced a yearly UAC of about 0% to 5%. The structure of this price behavior seems

to be similar for both the HMR and the other real estate or mortgage holders and non-mortgage holders. Less than around 10% of homeowners (with and without a mortgage) have experienced negative UACs on average.

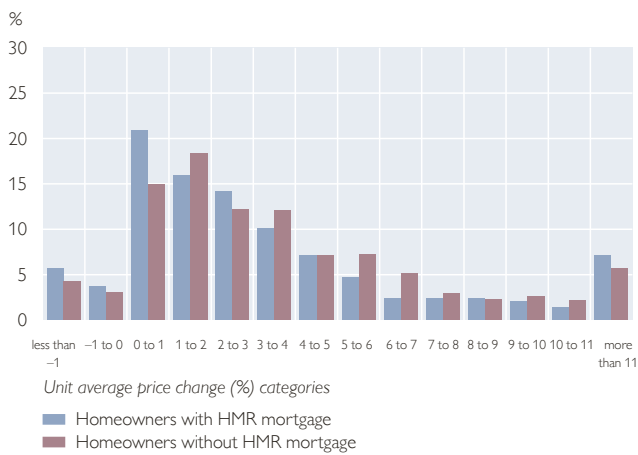
Some households have experienced a relatively high increase in the value of

their house as can be seen by the bars furthest to the right of both diagrams of chart 3. These high increases are mostly related to parts of the properties recently acquired, which have experienced more pronounced price changes than the rest (see also charts 4 and 5).

Chart 3

Distribution of unit average price changes

Main residence



Main other property



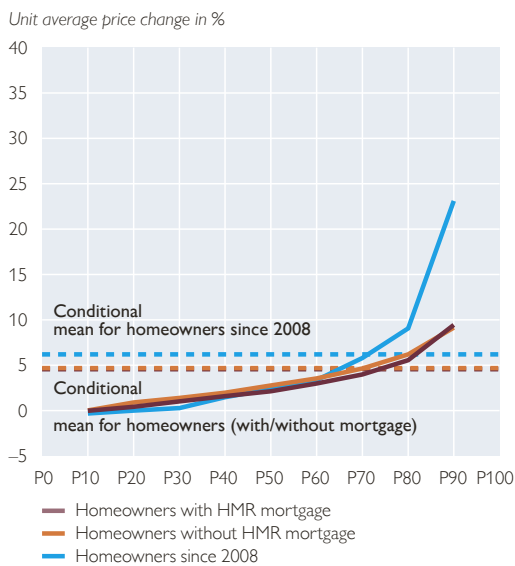
Source: HFCS Austria 2014, OeNB.

Note: HMR=household main residence; HMOP=household main other property.

Chart 4

Percentiles and mean of unit average price changes

Main residence



Source: HFCS Austria 2014, OeNB.

Note: HMR=household main residence; HMOP=household main other property.

Main other property

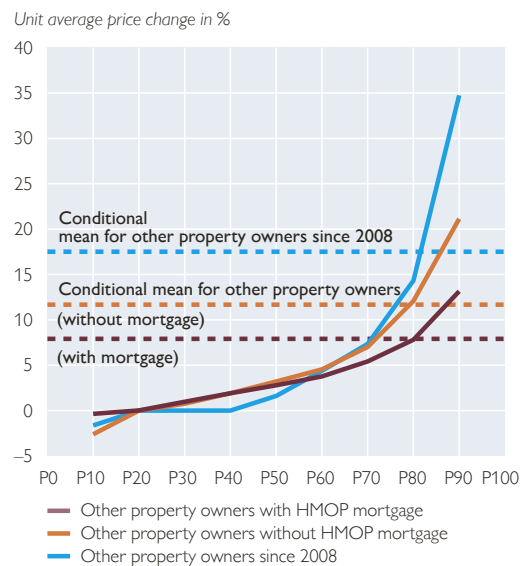


Chart 4 shows quantile functions of the UAC, again divided into HMR and HMOP as well as mortgage holders and households without mortgages.

A relatively large majority (i.e. about 80% of properties used for the HMR and about 70% of main other properties) saw a yearly increase in value of 5% at most. The mean is always above the median, pointing to a small fraction of houses whose prices have increased relatively strongly. This small fraction seems to belong to a great extent to households that became homeowners since 2008 (see blue line in chart 4). Note that the distribution of unit average price changes is more right-skewed in the case of households' main other properties and even more so in the case of the subsample of owners since 2008. This suggests that recent increases measured in property price indices are mainly driven (1) by the upper tail of the market and (2) by properties not considered main residences. This implies that these increases are driven by acquisitions of households which are either fairly rich and/or using real estate purely for investment purposes and are therefore usually less vulnerable.

However, it cannot be excluded that some recent mortgage-based homeowners who bought their home during the recent period of steep price increases in the upper part of the main residence price distribution may encounter difficulties in case of negative price shocks. In section 3 we analyze the potential vulnerability of households stemming from such detrimental house price developments.

2.4 Residential property prices in the long run

We now plot the UAC for different subgroups of households depending on the year when they purchased their house. To do so we construct two types of time

series. First, we show the yearly average of the UAC of all owners who purchased their property in a specific year, i.e. the mean of the average yearly price change that the buyers faced until 2014 (top panels in chart 5 labeled "housing transactions"). This gives us an idea of the periods in which properties may have been comparably expensive or cheap; i.e. we can find out whether certain years were a particularly good time to enter the market compared to 2014. We find that this was not the case – at least until recently. According to our data, average price developments were remarkably stable. In general, prices for main residences tend to increase between about 3.5% and 4.5% annually. Only since 2008 have the rates of increase been higher. In the case of main other properties the rates are somewhat higher, and the increase larger since the 2000s and even more since 2008. The pattern resembles the part of the TU/OeNB property price index that covers Vienna.

In the annex (chart A1), we plot a similar chart using the median instead of the mean average yearly price change. It confirms the long-run stability and is very similar to the mean index, which points to the robustness of our approach. It also confirms the finding that prices behaved differently in the upper part of the price distribution. While the mean index, which is highly influenced by this segment, shows a strong increase for all homeowners in recent years, it shows no increase in the median index for all homeowners and homeowners with a mortgage. Only those few homeowners who bought recently without a mortgage show increases also in the median index. Such homeowners are fairly wealthy households in the upper market segment. For main other properties, the index based on the median even shows a declining

price increase in recent years, which is especially pronounced for those with a mortgage. Again, this index resembles the overall pattern described by the TU/OeNB index for Vienna. As less than 20% of households in Vienna are owner-occupiers, and those who buy in such a market are comparably wealthy, Vienna can be considered a market that is driven more by investment-based motives than the rest of Austria.

These long-term averages for all years point to a remarkable stability of long-term price developments. Secondly, we look at the average of the UAC of all owners who acquired their properties up to a certain year in the past so that the number of observations

increases from left to right (bottom panels in chart 5 labeled “housing stock”). The second method provides an estimate of the long-term average price change. Whereas the estimate for the long run hardly changes over time for household main residences, the long-run estimate for other main properties increases slightly. However, keeping in mind that properties used for investment purposes may be sold more often than main residences, such a long-term perspective may be problematic; we can only measure the unit price developments since its last transaction (change of ownership).

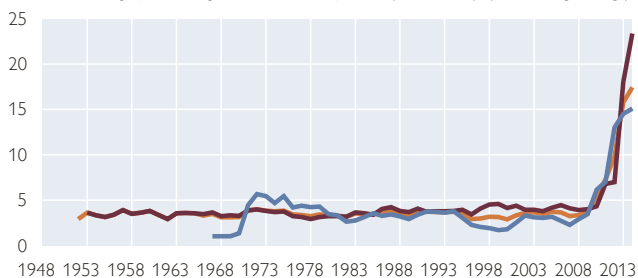
Chart 5

Unit average price changes by year

Main residence

Housing transactions

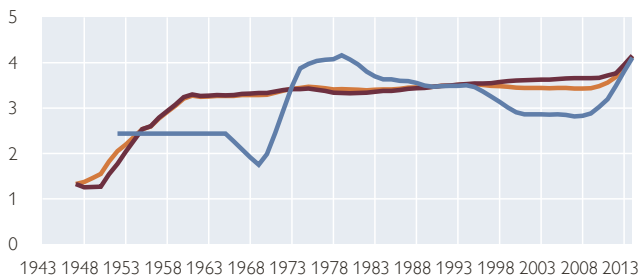
Mean unit average price change of residences acquired in year x in % (5-year moving average)



Main residence

Housing stock

Mean annual house price change of residences acquired until year x in % (5-year moving average)



— Homeowners with HMR mortgage
 — Homeowners without HMR mortgage
 — All homeowners

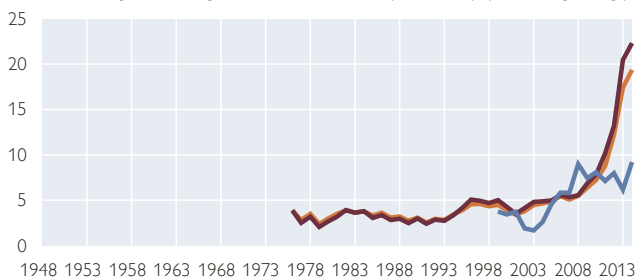
Source: HFCS Austria 2014, OeNB.

Note: HMR=household main residence; HMOP=household main other property.

Main other property

Housing transactions

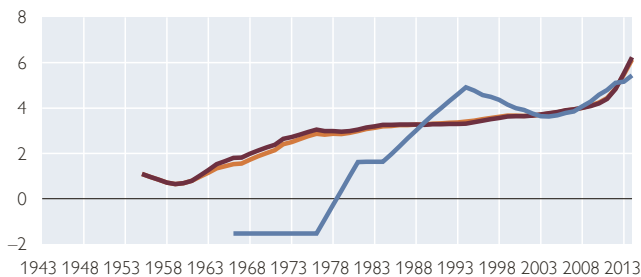
Mean unit average price change of properties acquired in year x in % (5-year moving average)



Main other property

Housing stock

Mean annual house price change of properties acquired until year x in % (5-year moving average)



— Other property owners with HMOP mortgage
 — Other property owners without HMOP mortgage
 — All other property owners

3 Loss given default of vulnerable mortgage holders under an adverse house price scenario

We now turn to the risk-bearing capacity of indebted households, focusing on developments in the real estate market. In order to do so we focus only on mortgage holders and restrict the discussion to households' main residences (HMRs), as this combination is most characteristic of households which are indebted and own real estate.⁷ We use standard risk measures extensively discussed in Albacete and Fessler (2010) and Albacete and Lindner (2013).

We first look at some risk indicators and then define vulnerable households, their exposure at default (EAD) and loss given default (LGD) by the year of HMR acquisition.

Table 1 shows some owner characteristics of mortgage holders by three different periods in which they

bought their HMR. All groups show gross income and net wealth levels far above the median, which is typical for Austria, as most households with lower income and wealth are tenants benefiting from a largely subsidized and highly regulated rental market. The share of households among the top 5% wealth class households is disproportionately high for households having acquired the HMR prior to 2008 and almost proportional for younger mortgage holders. This reflects the fact that relative to other households, many households who have mortgages also hold large amounts of wealth other than their HMR. Maturities and outstanding amounts are – as expected – lower for households who acquired their HMR earlier. Note, however, that the share of foreign currency mortgage holders drives up outstanding amounts, as many foreign currency loans are bullet

Table 1

Risk indicators for homeowners with HMR mortgage by year of HMR acquisition

	HMR acquisition		
	before 2000	2000 to 2007	after 2007
Household characteristics			
Gross income (median), EUR thousand	52	57	55
Net wealth (median), EUR thousand	281	246	229
Share of households in top 5% wealth class, %	10.6	9.1	4.7
Characteristics of highest HMR mortgage			
Remaining maturity (median), years	13	19	24
Share of outstanding amount (median), %	49.9	67.0	84.5
Subjective risk measures			
Households whose expenses exceed income, %	14.3	10.7	12.5
Households with above-average expenses, %	41.0	35.8	37.5
Households able to borrow EUR 5,000 from friends, %	58.3	58.5	65.7
Debt ratios			
Initial LTV ratio for main residence (median), %	50.2	72.1	62.2
LTV ratio for main residence (median), %	9.6	34.1	43.9
Debt-to-assets ratio (median), %	7.9	23.6	33.8
Debt-to-gross income ratio (median), %	49.8	155.4	230.3
Debt service-to-gross income ratio (median), %	5.0	10.1	10.5

Source: HFCS Austria 2014, OeNB.

Note: HMR=household main residence; LTV ratio=loan-to-value ratio.

⁷ Less than 2% have an outstanding mortgage for real estate other than their HMR.

Table 2

Share of vulnerable households, EAD and LGD for homeowners with HMR mortgages by year of HMR acquisition

Household group	DSTI>40% % of households	EAD % of debt	LGD % of debt
Homeowners before 2000	1.5	3.7	0.0
Homeowners between 2000 and 2007	3.1	8.9	0.6
Homeowners since 2008	4.4	6.5	1.2
All homeowners	2.7	6.5	0.7

Source: HFCS Austria 2014, OeNB.

Note: EAD=exposure at default; LGD=loss given default; HMR=household main residence; DSTI=debt service-to-income ratio.

loans. Subjective risk measures show no clear patterns across time, and debt-related median ratios show – as expected – increasing actual loan-to-value, debt-to-assets and debt-to-income ratios. Debt service-to-gross income ratios are lower for households that purchased their home prior to 2000 and rather stable (at about 10% to 11%) for those who bought their home after 2000.

Table 2 shows the results for EADs and LGDs when using the DSTI>40% vulnerability measure. This can be regarded as a baseline describing the status quo and characterizing the types of vulnerable households across time. There are more vulnerable households among those homeowners who bought their house in 2000 or later. The group of homeowners who bought their house in 2008 or later, who – as we have seen in the previous section – experienced an extraordinary high increase of the value of their HMR, has average EAD and above-average LGD ratios; this means that those who are vulnerable have as much debt as the others in relative terms but less gross wealth to cover their debt. However, we can see that the estimated LGDs are generally very low, especially as the LGDs presented here must be seen as an upper bound of the actual LGD because our estimates are based on the DSTI>40% vulnerability measure, which is not equal to

default (see Albacete and Lindner, 2013). Therefore, the crucial part of the analysis are the observed differences between resulting LGDs of different scenarios and not the level of the LGDs per se. Note, however, that these analyses are all static and do not include any second- or higher-order effects, but are designed to descriptively illustrate approximate relative differences in LGDs.

We now concentrate on the impact of possible adverse house price developments on the LGD of the group of vulnerable households. We use different definitions of vulnerable households, such as a current debt service-to-gross income (DSTI) ratio higher than 40%, a current debt-to-income (DTI) ratio higher than 300%, a current debt-to-assets (DTA) ratio higher than 100%, as well as a combination (the intersecting set) of all three to get an idea of the robustness of the results.

To explore the impact of adverse real estate price developments on our measure of LGD, we simulate various scenarios. Table 3 reports these changes of LGD related to a decrease in the value of HMRs and HMOPs. The first scenario takes into account the extraordinary high increase in the value of HMRs and HMOPs purchased since 2008 and simulates a price shock of the house of those homeowners that leads

Table 3

Loss given default for homeowners with HMR mortgages by house price decrease scenarios

House price decrease scenario	(1) DSTI>40% of debt	(2) DTI>300% of debt	(3) DTA>100% of debt	(4) All combined
Baseline (status quo)	0.66	3.24	3.25	0.66
Decrease of the current value of all HMRs and HMOPs acquired in 2008 or later to a value corresponding to the same acquisition value quintile in 2008	0.77	6.01	3.99	0.67
Decrease of the current value of all HMRs and HMOPs by 20%	0.74	4.27	4.12	0.74
Decrease of the current value of all HMRs and HMOPs by 30%	0.79	5.21	4.56	0.78
Decrease of the current value of all below-the-mean HMRs and HMOPs by 30% and of those above the mean by 50%	0.84	6.56	5.22	0.83

Source: HFCS Austria 2014, OeNB.

Note: DSTI=debt service-to-income ratio; DTI=debt-to-income ratio; DTA=debt-to-assets ratio.

to a decrease in value to the level of 2007 depending on their position in the house acquisition value distribution. This is useful as it is a scenario which returns house prices to lower levels than those considered by banks when deciding on LTVs. In the next two scenarios, a decrease by 20% and 30% in the value of all HMRs and HMOPs is simulated. The last and more severe scenario simulates a decrease by 30% in the value of the HMRs and HMOPs below the mean current house price value and a decrease by 50% in the value of the HMRs and HMOPs above the mean current house price value to reflect the fact that recent house price increases were mainly driven by the upper tail of the distribution (see charts 4 and 5).

The last and most severe scenario increases households' LGD by 26%, from 0.66% to 0.84% according to the DSTI vulnerability measure. This impact is even higher according to the other vulnerability measures (according to the DTI vulnerability measure, the LGD doubles, and according to the DTA measure, it increases by 60%).

However, when combining all three definitions of vulnerability and therefore coming closer to a measure of default even for the last and most severe adverse scenario, LGD stays well below

1% of debt. So even a fall in the house value by between 30% and 50% yields an increase in the potential LGD by only about 0.17 percentage points from 0.66% to 0.83%. These results point toward relatively small risks for financial stability stemming from recent house price increases.

4 Concluding remarks

Findings

The two available house price indices in Austria – the TU/OeNB index and Statistics Austria's – show strong house price increases in recent years. We used HFCS data to construct a set of house price indices and find that the most comparable one yields similar increases like the existing indices. The TU/OeNB index shows an increase of about 27%, followed by Statistics Austria's HPI (24%) and the HFCS ATI (16%) and Statistics Austria's OOH PI (13%). The HFCS ATI index matches the available property price indices rather well; the index best comparable with the HFCS ATI index is most likely the index of Statistics Austria, which, like the HFCS ATI, also covers only owner-occupied housing (OOH PI).

Analyzing the distribution of house price changes beyond the mean, we then show that:

1. House prices and house price changes are very heterogeneous, and mean indices alone do not adequately represent the market. Strong increases in available house price indices are likely driven by the upper part of the house price distribution (see charts 2, 3 and 4).
2. The upper part of the house price distribution is also the part with the highest price increases, leading to house price indices which do not represent median house prices well (see chart 2).
3. The average as well as the median long-term increases of owner-occupied housing were remarkably stable – between 3.5% and 4.5% per year in nominal terms – over the past decades and measured by the existing stock of owner-occupied housing (see chart 5 and chart A1 in the annex).
4. Recent increases in average housing prices are also driven by home purchases without a mortgage and especially by the acquisitions of properties other than the household main residence, which are likely to be attributable also to buyers living abroad (see chart 5 and chart A1).
5. Roughly 80% of the average yearly price increases of individual properties are below the mean price increases (see chart 4). The distribution of house price changes of properties bought since 2008 is more skewed to the right. However, it almost resembles the long-term distribution up to the 60th percentile.
6. Even in adverse scenarios assuming house price decreases, we find that the effects on the losses given default of vulnerable households are rather limited (see table 3). This is mainly due to the fact that the overlap of the set of those who experi-

enced high price increases, i.e. bought in the upper market segment, and the set of those who are vulnerable is fairly limited.

These findings underline that indices trimmed toward representing developments at the mean (average or total) are of limited use for assessing underlying risks to financial stability. Instead, the full distribution of price changes, debt, assets, income or any other relevant criteria, and combinations thereof, have to be considered. Those risk indicators that are defined at the borrower level are relevant (ESRB, 2014).

General interpretation

The connection of real estate price developments and household debt sustainability is of particular relevance for financial stability. Developments in the U.S.A. and Spain have shown that trend reversals in the real estate market may adversely affect risks stemming from the household sector. It is crucial to understand that only once the debt-servicing capacity of households is endangered and households default, house price developments will become a risk to financial stability. As long as households are able to service their debt, actual (fictional) house prices do not matter for financial stability. They do matter, however, to buyers who purchase houses in a booming market. They may get higher mortgage loans in absolute terms because the value of the house they purchase is considered higher, even though these buyers' LTVs might be similar to other periods. In a crisis, when vulnerability may increase due to increased unemployment, stagnating wages and other adverse economic developments, the share of vulnerable households is also likely to increase. However, this is not the result of changing house prices, which mainly

affect financial stability with regard to the EADs and LGDs of vulnerable households.

Due to the large share of tenants (about half of all households) and the relatively low share of mortgage holders (roughly one-third of all owner-occupiers) in Austria, the risks to financial stability in the household sector that are related to recent house price developments are rather limited in Austria. Most low-wealth, low-income households (actually almost all households below median wealth levels) benefit from the highly subsidized and regulated rental market, which prevents these households from engaging in highly leveraged real estate investments in owner-occupied housing. This allows them to consume more. At the same time, it remains rather difficult for lower-income households to build the necessary capital needed to invest in owner-occupied housing. Furthermore, owner-occupied housing is also subsidized directly (“Wohnbauförderung”) and indirectly (through the non-taxation of imputed rents) in Austria. The large rental market, especially in Vienna, also leads to a large number of young single-person households who could not afford to buy a home at an early stage in life. Austria has almost double the share of one-person households than – for instance – Spain. In Vienna owner-occupied housing among households is below 20%, and owner-occupiers are predominantly higher-income and higher-wealth households. Therefore, the risks from possible trend reversals in house prices are rather low in Austria and especially in the rallying Viennese real estate market. The low share of owner-occupied

housing and the low share of mortgage holders in Austria and Germany can be regarded as one important reason for the resilience of these two countries in the economic and financial crisis (see Deutsche Bundesbank, 2016; Fessler et al., 2016). Countries with a booming housing market driven by mortgages allocate risks to households in the lower part of the income and wealth distribution that these households may not be able to bear. At the same time, these households are also more likely to be affected by negative shocks such as illness or unemployment.

Future research

Further topics deserving additional research include the extension of the simulation with a stronger focus on the differences in volatility of real estate prices across regions or subgroups of households. It would also be interesting to analyze regional differences in more depth and to put a special focus on foreign currency loan holders. In this context it is also relevant to investigate the potential impact of macroprudential policy measures on house price changes and potential indirect implication for the risk-bearing capacity of households. Furthermore, besides taking into account potential LGDs resulting from the default of households, banks have to adjust collateral values on a regular basis. They mostly do so by using simple models instead of object-based evaluations. Nevertheless, banks’ risk-taking behavior will likely be influenced well before defaults and regardless of their number. An evaluation of such collateral pricing behavior could also provide insights into future credit supply and banks’ risk-taking behavior.

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Annex

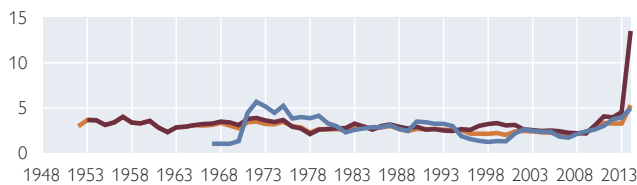
Chart A1

Unit average price changes by year

Main residence

Housing transactions

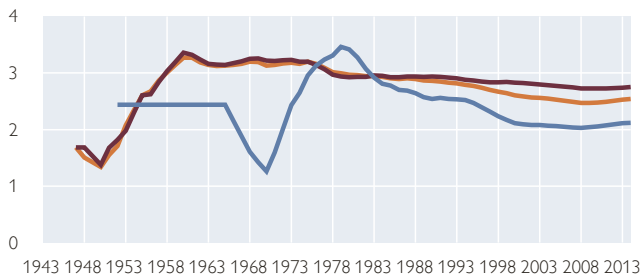
Median unit average price change of residences acquired in year x in % (5-year moving average)



Main residence

Housing stock

Median annual house price change of residences acquired until year x in % (5-year moving average)



— Homeowners with HMR mortgage
— Homeowners without HMR mortgage
— All homeowners

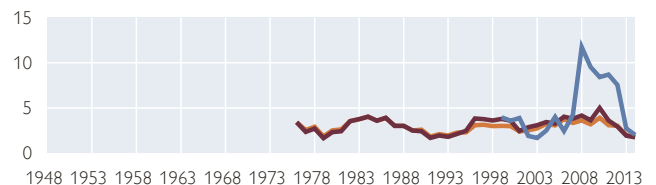
Source: HFCS Austria 2014, OeNB.

Note: HMR=household main residence; HMOP=household main other property.

Main other property

Housing transactions

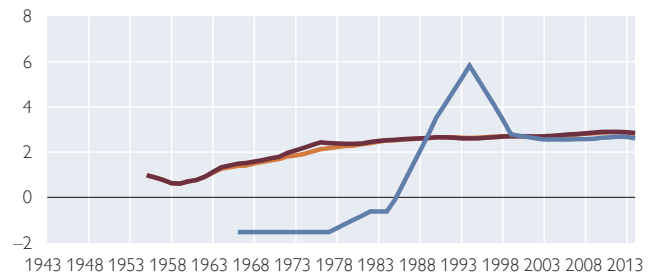
Median unit average price change of properties acquired in year x in % (5-year moving average)



Main other property

Housing stock

Median annual house price change of properties acquired until year x in % (5-year moving average)



— Other property owners with HMOP mortgage
— Other property owners without HMOP mortgage
— All other property owners

Minimum requirement for own funds and eligible liabilities (MREL) – initial assessment for Austrian banks and selected subsidiaries in the EU

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The minimum requirement for own funds and eligible liabilities (MREL) is a key element in bank resolution planning. It is particularly important for the effective application of the bail-in resolution tool which was introduced into EU law, together with MREL, with the Bank Recovery and Resolution Directive (BRRD) in 2014 and enacted in Austrian law in 2015. The purpose of MREL is to ensure that banks have adequate loss absorption and recapitalization resources in case of resolution. Given the narrow time schedule for implementing this new requirement, it is important to gain an understanding of the current situation for Austrian credit institutions and their EU subsidiaries in Central, Eastern and Southeastern Europe (CESEE). Therefore, the Austrian national resolution authority, i.e. the Financial Market Authority (FMA), together with the Oesterreichische Nationalbank conducted a survey among a selected sample of Austrian banks with the aim of assessing their MREL-eligible resources. The surveyed institutions were asked to provide data on the composition of their own funds and liabilities as per year-end 2014. The survey was designed to elicit answers to the most important questions arising from the implementation of MREL: How high is the current amount of MREL-eligible resources in the Austrian banking sector? How high is the amount that is available for bail-in in case of resolution? What is the current composition of MREL-eligible resources? Are there differences between different types of institutions? Are there enough MREL-eligible resources or are there any shortfalls? The supervisory and in particular the resolution authorities will need this information when setting MREL levels in order to assess impacts on major banking groups, to increase market transparency and to contribute to a stable regulatory environment in general.

JEL classification: G21, G28, G31, G32, G33

Keywords: minimum requirement for own funds and eligible liabilities (MREL), total loss-absorbing capacity (TLAC), BRRD, resolution, bail-in, Austrian banks, CESEE

When Lehman Brothers had to file for bankruptcy in September 2008, financial markets worldwide were hit by plunging asset prices that spread contagion throughout the financial industry. To prevent more banks from failing, significant use was made of public funds to rescue struggling institutions that were deemed “too big to fail” – a phrase that, while ubiquitous since then, has actually been around since the mid-1970s (Farber, 2012). After all those

years, the authorities were still lacking effective tools for the orderly resolution of systemically important banks. Yet, a lot of efforts have been undertaken since then, both at a national and at an international level, to develop a toolkit to address these problems.

One of the main objectives of the new regulatory regime was to develop a comprehensive recovery and resolution regime in order to provide strategies and tools for handling national and

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cross-border bank failures. In October 2011, the Financial Stability Board (FSB) published a paper on “Key Attributes of Effective Resolution Regimes for Financial Institutions” to define international standards for recovery and resolution frameworks (FSB, 2014). In November 2015, the FSB (2015) issued an international standard for total loss-absorbing capacity (TLAC) requirements for global systemically important banks (G-SIBs).² This standard is to ensure sufficient loss-absorbing and recapitalization capacity in resolution to minimize impacts on financial stability, maintain the continuity of critical functions, and avoid exposing public funds to loss. As will be shown below, the EU concept of a minimum requirement for own funds and eligible liabilities (MREL) – though ultimately having the same goal as TLAC – differs somewhat from TLAC in its details so that discussions on the implementation of TLAC in the EU are currently ongoing, which might result in a unification of these two concepts. In other words, the definition of MREL may change in future years, which might alter the results and conclusions of this study.

As for the regulatory and legal background of MREL in its current definition: In June 2014, the Bank Recovery and Resolution Directive (BRRD) was finalized and published in the Official Journal of the EU, creating a harmonized framework across the EU Member States for dealing with the problem of “too big to fail.” One key element of this directive is the “bail-in” tool that gives the competent resolution authorities the power to impose losses on

equity holders and bondholders instead of using public funds.

In order to ensure that banks hold sufficient funds to absorb losses in case of a failure, the BRRD introduced MREL as a new requirement for institutions. The BRRD had to be implemented by national legislation by January 2015³ – in Austria, it was implemented by the Bank Recovery and Resolution Act (Bundesgesetz über die Sanierung und Abwicklung von Banken – BaSAG). The BRRD mandated the European Banking Authority (EBA) to develop regulatory technical standards to further specify the criteria on the basis of which the national resolution authorities should determine bank-specific MREL. The draft regulatory technical standards (EBA, 2015), which the EBA published in July 2015 for adoption by the European Commission, define five main criteria for this purpose:

1. *Loss absorption amount (LAA)*: Resolution authorities must determine the amount of capital an institution is likely to need to absorb occurring losses. The basis for calibrating this amount are the own funds requirements set by the supervisors.
2. *Recapitalization amount (RA)*: Resolution authorities must determine the amount of capital an institution is likely to need after resolution to meet the own funds requirements for it to be authorized to continue business. The calibration of this amount is based on the underlying resolution plan. The sum of these two amounts constitutes an institution’s MREL.

² TLAC is not legally binding by itself but G-20 member states which are home to G-SIBs are bound to adopt its rules into domestic legislation. Of the banks covered by TLAC, 13 are domiciled in the EU, among them UniCredit (Stiefmüller, 2016).

³ Except for the bail-in tool, which had to be implemented by January 2016.

3. *Sufficiency*: Resolution authorities need to ensure that MREL levels are sufficient even if certain liabilities are excluded from bail-in under the resolution plan.
4. *Deposit guarantee scheme (DGS) contributions*: Resolution authorities may reduce an institution's MREL, taking into account funds that deposit guarantee schemes are expected to contribute in case of resolution.
5. *Other bank-specific factors*: In setting MREL, resolution authorities have to take into account the size, business model, funding model and risk profile of the bank.

MREL is expressed as a percentage of the total liabilities and own funds of an institution.⁴ This is a similar figure to balance sheet size, but own funds are considered according to their regulatory – not their accounting – definition.⁵

MREL levels are set individually for each bank in banks' resolution plans and therefore differ across banks. Requiring banks to meet, as a minimum, MREL targets aims to ensure that enough bail-in volume is available in the case of resolution.

In order to be MREL-eligible, liability instruments have to satisfy specific criteria. In particular, liabilities with a remaining maturity of less than

one year may not be counted toward MREL (so that it is ensured that the instrument is available for bail-in should a crisis happen before the next yearly update of the resolution plan). The same holds true for preferred deposits, i.e. deposits from natural persons, micro and small and medium-sized enterprises (SMEs).⁶ Moreover, liabilities that are explicitly excluded from bail-in may not be counted toward MREL either. These exemptions aim to preserve customer confidence and market stability and comprise in particular deposits with a remaining maturity of less than seven days and covered deposits.⁷

Note that bail-in-able liabilities comprise not just liabilities eligible for MREL but also other instruments such as senior unsecured and subordinated debt with remaining maturities of less than one year and preferred deposits and liabilities arising from derivatives. Thus, in case of resolution, the volume of liabilities available for bail-in will in general exceed the volume of liabilities that count toward fulfilling the MREL target.⁸

Once TLAC is in place, the differences between TLAC and MREL would imply that European global systemically important institutions (G-SIIs) have to follow two similar loss absorption metrics at the same time. Therefore,

⁴ See recital 80 and Article 45 (1) BRRD and Article 100 BaSAG.

⁵ E.g. treatment of minorities, off balance sheet exposures, phase-in requirements.

⁶ More specifically, according to Article 45 (4) BRRD and Article 100 para. 2 BaSAG these criteria are (i) the instrument is issued and fully paid in; (ii) the liability is not owed to, secured by or guaranteed by the institution itself; (iii) the purchase of the instrument was not funded directly or indirectly by the institution; (iv) the liability has a remaining maturity of at least one year; (v) the liability does not arise from a derivative; (vi) the liability does not arise from a deposit which is preferred in case of insolvency. Preferred deposits refer in particular to those from natural persons, micro, small and medium-sized enterprises (SMEs) exceeding the amount guaranteed by deposit guarantee schemes. For more details, see Article 108 (2) BRRD and Article 131 para. 1 BaSAG.

⁷ More specifically, according to Article 44 BRRD and Article 86 para. 2 BaSAG the following liabilities are excluded from bail-in: (i) covered deposits; (ii) secured liabilities and instruments held for hedging purposes; (iii) liabilities arising from fund management activities; (iv) liabilities arising from fiduciary activities; (v) liabilities to institutions and corporations with an original or a remaining maturity of less than seven days; (vi) selected liabilities to employees, trade creditors and tax and social authorities.

⁸ However, it should be noted that under certain conditions the national regulatory authority may exclude some liabilities from bail-in; for details refer to Article 86 para. 4 BaSAG and Article 44 (3) BRRD.

Table 1

MREL and TLAC – an overview

	MREL	TLAC
Objective	The objective is to ensure a sufficient level of loss-absorbing and recapitalization capacity at the entities covered to guarantee that, in and immediately following resolution, critical functions can be continued without taxpayer (public) funding and without the risk of jeopardizing financial stability.	
Scope	Credit institutions and investment firms	Global systemically important banks (G-SIBs) ¹
Eligible instruments	Equity, junior, subordinated debt and senior unsecured debt, other unsecured liabilities with a residual maturity > 1 year; exemptions according to Article 86 para. 2 BaSAG; Article 44 (2) BRRD, see footnote 7.	Equity, junior debt, subordinated debt and part of senior unsecured debt which is pari passu with excluded liabilities (to be determined in consultation with the Crisis Management Group of the FSB; limited to a range of 2.5% to 3.5% of risk-weighted assets (RWA), depending on minimum TLAC requirement).
Calculation	MREL = eligible instruments as a percentage of total liabilities and own funds.	TLAC = eligible instruments as a percentage of RWA or of leverage ratio denominator.
Methodological approach	Case-by-case approach (Pillar 2) for each institution, based on specific criteria like size, business model, funding structure, complexity and risk profile.	Minimum TLAC set by the FSB (Pillar 1); additional TLAC requirements (Pillar 2) can be applied by the resolution authorities.
Calibration	MREL is calculated based on capital requirements including capital buffers and the recapitalization amount. Additionally, adjustments may be applied, taking into account, risk profile, resolution strategy, etc.	Minimum requirement of 16% of RWA, rising to 18% by 2022. 6% of the Basel III leverage ratio denominator, rising to 6.75% by 2022.
Time schedule	MREL is anchored in the BRRD. On May 23, 2016, the European Commission adopted a Delegated Regulation based on (amended) EBA draft regulatory technical standards. The European Council and the European Parliament have three months for potential objections.	To take effect on January 1, 2019, with a phase-in period until 2022. G-SIBs in emerging markets will be granted a longer phase-in period, until 2028.

Source: Authors' compilation.

¹ The equivalent of global systemically important institutions (G-SIBs) under the Basel III framework.

Note: MREL may be regarded as the European version of TLAC; it was established by the Financial Stability Board (FSB). MREL extended the scope from global systemically important institutions (G-SIBs) to all financial institutions within the EU. Yet, despite having the same purpose, MREL and TLAC differ in their details.

there are preliminary discussions at the EU level on how to harmonize these two different approaches. In this regard, integrating both concepts would be desirable. The above table is a simplified presentation of the main characteristics of the two concepts.

1 MREL implementation in Austria

The BRRD established a common resolution regime within the EU that allows resolution authorities to deal with failing institutions. This new regime allows also for the resolution of cross-border banking groups by clearly defining the necessary cooperation agreements between home and host authorities.

On January 1, 2015, the Austrian Financial Market Authority (FMA) took over the additional role of national resolution authority for Austria, on top of its mandate as the integrated supervisory authority for Austria.

In accordance with BaSAG, the FMA received far-reaching powers in the case of a failure or impending failure of an institution to carry out an orderly resolution and to safeguard financial stability. Moreover, the FMA can elicit expert opinions on predefined specific economic topics from the OeNB. By orderly winding down an institution, the national resolution authorities strive to ensure that the continuity of critical functions of the institution is guaranteed, that significant adverse effects on financial stabil-

ity are avoided, and that public funds and consumers' secured deposits are protected, whenever these objectives could not be met by normal regular insolvency proceedings.

At the same time, the newly established Single Resolution Board (SRB) in Brussels – the decision-making body of the Single Resolution Mechanism (SRM), the second pillar of the banking union within the euro area – became fully operational on January 1, 2016.

The SRB is responsible for banks that are (1) subject to direct supervision by the ECB under the Single Supervisory Mechanism (SSM) – the so-called significant institutions (SIs) – and (2) all cross-border banking groups within the euro area. According to this definition, a total of 10 banking groups in Austria fall under the direct responsibility of the SRB.⁹

In Austria, resolution planning started already in 2012/13 for the top 3 banks. In 2014, the scope was extended, under the predecessor of BaSAG, the *Bankeninterventions- und Restrukturierungsgesetz* (BIRG), to include the top 6 banks. Banks were required to develop resolution plans and to discuss them with the authorities. To this end, the FMA and the OeNB issued an explanatory note that ensured that banks' resolution plans have a harmonized structure and follow a common approach. In the course of 2015, both the FMA and the SRB began to draw up first transitional resolution plans for selected priority banking groups.

According to BRRD/BaSAG provisions, MREL must be fulfilled individually by each banking group and each individual bank based on individual resolution plans. Hence, within a banking group, MREL has to be fulfilled at the

group level as well as at the solo level by each individual institution within the group. The national resolution authorities may waive the solo level MREL for individual group members, but only if group members are located within the same Member State and if it can be ensured that funds are adequately distributed among the parent and the subsidiary (i.e. if there is already an own funds waiver in place, according to Article 7 CRR¹⁰).

MREL must be set and updated as part of the resolution planning process by the national resolution authority, following a consultation of the competent authority (supervisor) for each institution individually. Resolution plans must be updated at least annually, taking into account the principle of proportionality. By the end of 2015, none of the resolution authorities in the EU, including the FMA and the SRB, had yet set MREL.

As communicated earlier this year (SRB, 2016), the SRB intends to prescribe MREL in 2016 only at the consolidated level for all major banking groups established in the banking union. The SRB plans to interact closely with banking groups on the basis of a detailed implementation timeline and to monitor their progress toward reaching their MREL targets. The SRB also indicated that these decisions may include requirements on the quality of the entire or part of the MREL (e.g. a subordination requirement). MREL decisions for subsidiaries will be taken at a later stage. They will be based on the MREL determined at the consolidated level, individual characteristics of the respective institution, and the consideration of certain waiver options.

⁹ Compared with 8 institutions under direct supervision by the ECB.

¹⁰ Regulation (EU) No 575/2013 (*Capital Requirements Regulation*).

When an institution enters resolution, under Article 44 (5a) BRRD, it can only access funds from the resolution fund after at least 8% of its total liabilities including own funds have been used for loss absorption and recapitalization. In that respect the SRB announcement includes the commitment that the MREL decisions will as a general rule require not less than 8% of total assets (as a proxy for total liabilities and own funds) under the remit of the SRB.

2 Assessment of Austrian banks and their subsidiaries in Central, Eastern and South-eastern European EU Member States (EU CESEE)

2.1 Scope of the study

In the fourth quarter of 2015, the SRB, the FMA and the OeNB conducted a survey among a sample of Austrian credit institutions in order to assess MREL-eligible resources. The institutions were asked to provide data on their year-end composition of liabilities and own funds for 2014. The data request was sent to two groups of Austrian banks: the significant institutions excluding UniCredit Bank Austria¹¹ and a sample of less significant institutions (LSIs).¹²

The objective of the survey was to receive answers to the following three main questions:

- How high is the current amount of MREL-eligible resources and bail-in instruments Austrian banks hold on their balance sheets?
- What is the current composition of Austrian banks' MREL-eligible resources?

- Are the available MREL resources sufficient or are there any shortfalls? If yes, in which subsegments of the banking sector do they show up?

2.2 Data description and assumptions

The survey covered data at the consolidated level and also at the solo level for Austrian credit institutions and material subsidiaries as per year-end 2014. Templates were collected for institutions on a consolidated basis (cbd-logic¹³) and for their material subsidiaries at a solo level. The sample represents the bulk of total assets of the Austrian banking sector. In 2016, there will be a follow-up survey based on a revised template; at the time of writing, data collection was still in progress. To our knowledge, so far no comparable study has been conducted in Europe for one particular EU country that investigates the effects of MREL on such a broad sample comprising international banking groups as well as local institutions.

Since it was the first exercise and the goal was to get an overall picture for the Austrian banking sector, the templates were not granular enough to answer each and every aspect related to MREL. Moreover, some banks seem to have faced challenges in providing the requested information.

In particular, the data reported on total liabilities and own funds showed severe inconsistencies. Therefore, total assets were used as a proxy for total liabilities and own funds throughout the sample.

The calculations of own funds are done on a “fully loaded” basis, i.e. based on the rules that will apply at the end of

¹¹ Bank Austria is part of UniCredit Group (Italy) and therefore under the responsibility of the SRB together with the Italian Resolution Authority (Banca d'Italia).

¹² Representing the larger share of less significant institutions in Austria in terms of total assets.

¹³ According to “cbd-logic,” consolidated banking data (cbd) refers to a dataset that consists of consolidated data for all banks that are part of a banking group and data at a solo level for those which are not.

the transition periods that apply under the CRR. Overall capital requirements comprise Pillar 1, Pillar 2¹⁴ and the fully phased-in capital buffers as published by competent authorities by the first quarter of 2016.

2.3 Assessment of institutions' current MREL-eligible resources

The composition of MREL-eligible resources available within banks varies significantly within the sample. In the following, liabilities that are eligible for MREL are subsumed in the categories (1) own funds (common equity tier 1 (CET1), additional tier 1 (AT1) and tier 2 (T2) capital), (2) subordinated debt securities with a remaining maturity of over one year, (3) senior unsecured debt securities with a remaining maturity of over one year, and (4) any other MREL-eligible liabilities, such as certain corporate deposits with a remaining maturity of over one year, which may be excluded by the resolution authority.

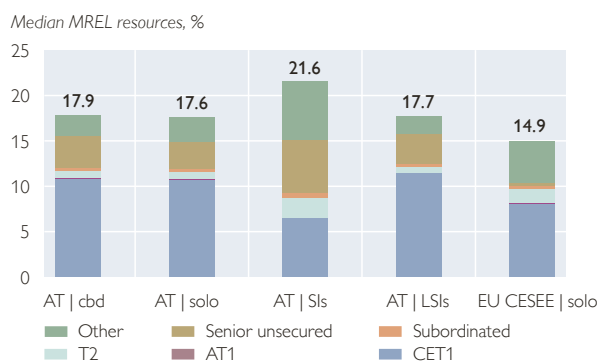
On a consolidated basis, the median Austrian institution was found to record an MREL ratio of 17.9% of total liabilities and own funds (chart 1). Roughly two-thirds (66%) of all MREL resources held by a typical Austrian bank¹⁵ are own funds, followed by senior unsecured debt securities (20%), while only minor amounts stem from other MREL-eligible liabilities (13%) and subordinated debt securities (2%).

On a solo basis, the MREL ratio of the median Austrian institution is slightly lower, namely 17.6%, with only minor differences in composition compared with the consolidated view. The median significant Austrian institution reaches a substantially higher MREL ratio (21.6%) than less significant institutions (17.7%). Most interestingly, also the composition of MREL resources varies substantially between significant and less significant institutions: around one-third (30%) of MREL resources in significant institutions is CET1, whereas CET1 constitutes almost two-thirds (65%) of the MREL resources of less significant institutions. The share of T2 capital is higher in significant institutions (10%) than in less significant institutions (4%). Also the share of senior unsecured debt in MREL resources is substantially higher for significant institutions (27%) than for less significant institutions (19%).

The median subsidiary of an Austrian banking group in EU CESEE¹⁶ shows an MREL ratio of 14.9% on a solo basis, which is approximately 3 percentage points lower than the comparable MREL ratio of Austrian credit institutions on a solo basis (17.6%).

Chart 1

Current amount of MREL-eligible resources in % of total liabilities and own funds



Source: OeNB, FMA.

Note: SIs = significant institutions; LSIs = less significant institutions.

¹⁴ Based on Supervisory Review and Evaluation Process (SREP) 2015 decisions for 2016 requirements.

¹⁵ Chart 1 shows the median of the MREL-eligible resources. The individual components are split according to unweighted average resources.

¹⁶ Only at the solo level.

Also, the composition of MREL-eligible liabilities diverges significantly between Austrian banks and their EU CESEE subsidiaries. For the latter, debt market instruments (senior unsecured or subordinated debt securities) constitute on average only 4% of the MREL resources within the sample, compared with 19% for Austrian credit institutions on a solo basis. Indeed, most of the Austrian banks' subsidiaries in EU CESEE are not active on capital markets and hence do not issue debt market instruments that would be eligible for MREL. Instead, they rely on debt market funding by the parent institution in Austria rather than in the respective EU CESEE country, which has a direct negative effect on the amount of MREL-eligible liabilities available at these banks. EU CESEE subsidiaries are strongly reliant on funding via local deposits or, at least in some cases, direct funding lines from the parent institution in Austria. In particular, this is also reflected by the high proportion of "other MREL-eligible liabilities" that include deposits above EUR 100,000 of corporates and financial institutions (31% for EU CESEE compared with 15% for Austrian solo institutions). Any exclusion of these liabilities from MREL by the respective resolution authorities in charge could therefore significantly impact the ability of these banks to meet a future MREL.

As noted above, the volume of bail-in-able liabilities¹⁷ will in general exceed the volume of MREL-eligible liabilities. Rough back-of-the-envelope calculations suggest that at a consolidated level, for the median bank, the amount of bail-in-able liabilities is significantly higher than the amount of MREL-eligible liabilities – assuming

that no instruments are excluded from bail-in by the national resolution authorities. The ratio between bail-in-able and MREL-eligible liabilities is similar for the median consolidated bank, solo institutions as well as for EU CESEE subsidiaries. However, there is a notable difference between significant and less significant institutions, with less significant institutions typically having significantly more bail-in-able liabilities in relation to their MREL-eligible liabilities.

2.4 Assessment of institutions' possible MREL targets

According to the BRRD, MREL levels are determined for each institution individually based on their resolution plans. Since no resolution plans have been finalized so far, we have made some stylized assumptions along the above-mentioned EBA criteria:

- MREL targets do not deviate between institutions (i.e. do not reflect institution-specific differences).
- MREL targets are calculated based on the "fully loaded" levels of capital requirements (including fully phased-in capital buffers and Pillar 2 requirements based on 2015 decisions). The assumption of "fully loaded" requirements is supported by the fact that the initial MREL levels might be set together with a transitional period for implementation.
- Potential contributions from deposit guarantee schemes have not been included.
- All liabilities that may, as a rule, be bailed in are accounted for (no exemptions made by the resolution authority). In particular, it is as-

¹⁷ For a definition of bail-in, refer to Article 85 BaSAG and Article 43 BRRD. For a definition of liabilities that are eligible for bail-in, refer to Article 86 BaSAG and Article 44 (2) BRRD, and see also footnote 7.

sumed that the resolution authority does not exempt any “other MREL-eligible liabilities” (e.g. deposits > EUR 100,000 of corporates and financial institutions).

For the setting of the loss absorption amount and the recapitalization amount, we consider two scenarios:

- *Scenario 1: Loss absorption amount = overall capital requirements; recapitalization amount = 0:* MREL targets in the (lower bound) scenario 1 are equal to the capital requirements on a “fully loaded” basis (including buffers); i.e. the assumption is that the resolution authority does not require any institution to hold a recapitalization amount beyond the current requirements for own funds as defined by supervisors. This would imply that no resolution plan accounts for bail-in (e.g. because the institution would be liquidated rather than sent into resolution). Though this will clearly not be the case for all resolution plans, it gives a reasonable lower bound for MREL targets. Note that a shortfall in scenario 1 is equivalent to a shortfall with respect to the “fully loaded” capital requirements.
- *Scenario 2: Loss absorption amount = recapitalization amount = overall capital requirements:* MREL targets in the (upper bound) scenario 2 are based on twice the amount of scenario 1, i.e. the implicit assumption

is that each institution will be fully recapitalized¹⁸ during resolution by using the bail-in tool (i.e. no use of the asset separation tool or the sale of business tool). This gives a reasonable upper bound for MREL targets, though for specific institutions, resolution authorities might even go beyond this doubling approach.

The median MREL target is slightly higher at the consolidated level than at the solo level (12.8% vs. 11.4% for scenario 2) due to the higher capital requirements (in particular, since significant institutions have to fulfill their Pillar 2 requirements and systemic risk buffers only on a consolidated/subconsolidated basis). Moreover, we find significant institutions to have a higher MREL target (median of 17.7%) than less significant institutions (median of 12.2% in scenario 2). At the same time, the spread in MREL targets for less significant institutions is much wider due to the diversity of their business models, which results in highly different ratios of risk-weighted assets to total liabilities and own funds that translate into varying MREL targets. For EU CESEE subsidiaries, the median MREL target is substantially higher (15.3% for scenario 2) since these subsidiaries of Austrian credit institutions tend to have higher capital requirements (e.g. Pillar 2 on a solo basis, capital buffers).

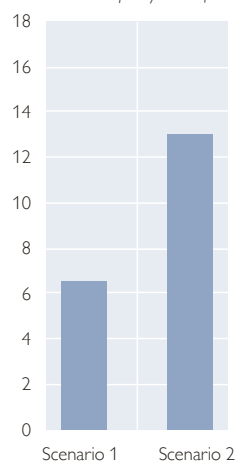
¹⁸ Without prejudice that any liabilities might be exempted from bail-in or to other factors that might further increase the recapitalization amount.

Chart 2

Scenarios for target MREL levels

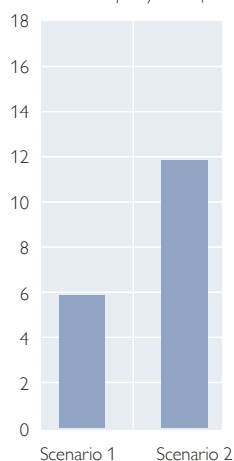
Austrian credit institutions (consolidated)

Median MREL proxy in % of TLOF



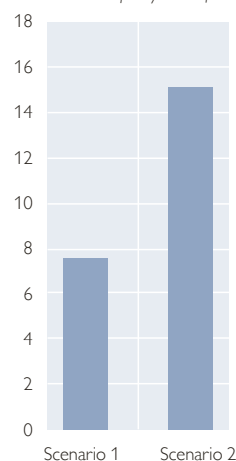
Austrian credit institutions (solo basis)

Median MREL proxy in % of TLOF



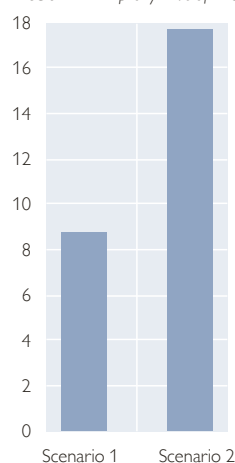
EU CESEE subsidiaries (solo basis)

Median MREL proxy in % of TLOF



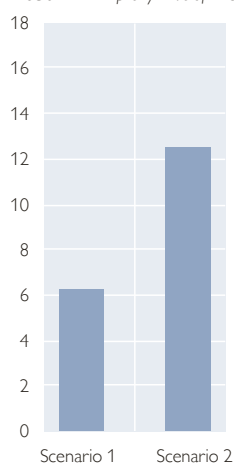
Austrian SIs (consolidated)

Median MREL proxy in % of TLOF



Austrian LSIs (consolidated)

Median MREL proxy in % of TLOF



Source: OeNB, FMA.

Note: TLOF = total liabilities and own funds. Scenario 1: Loss absorption amount = overall capital requirements; recapitalization amount = 0.

Scenario 2: Loss absorption amount = recapitalization amount = overall capital requirements. SIs = significant institutions; LSIs = less significant institutions.

2.5 Range of possible shortfalls

One of the most important questions for banks and policymakers alike is the question of how many MREL-eligible resources banks would have to build up¹⁹ in order to meet their MREL targets.

In addition to the assumptions made above in the assessment of MREL targets (calculation based on overall capital requirements, no contributions from deposit guarantee schemes, no exemptions), the following analyses assume a static balance sheet (i.e. asset

¹⁹ On the assumption that banks replace non-MREL-eligible with MREL-eligible resources, rather than issue new capital.

and liability side do not change – in particular, all liabilities are rolled over).

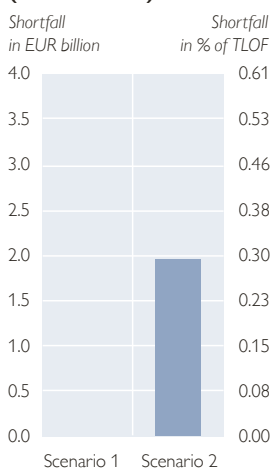
The cumulated shortfall over all banks in EUR billion (chart 3) is negligible in the lower bound scenario and merely driven by the fact that not every institution fulfilled its “fully loaded” requirements for own funds already at year-end 2014. In the following, we will therefore focus on the upper bound shortfall (scenario 2) and compare these levels between different sectors and consolidation levels.

Note that the shortfall strongly depends on the assumptions and that chart 3 hence needs to be interpreted with care: On the one hand, the calculations do not take into account potential additional mitigating effects such as (1) banks’ regular rollover of (longer-term) liabilities that would naturally increase their amounts of MREL-eligible liabilities available, (2) that banks have to build up additional own funds over the course of the coming years due to the phasing-in of CRR

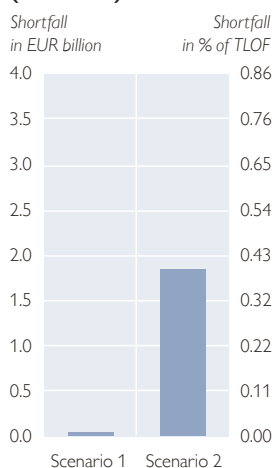
Chart 3

Possible aggregate MREL shortfalls

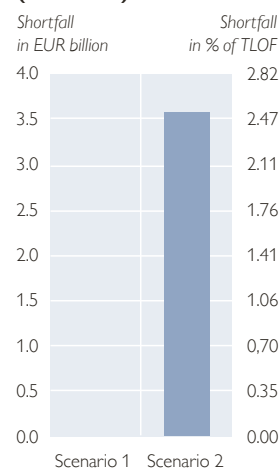
Austrian credit institutions (consolidated)



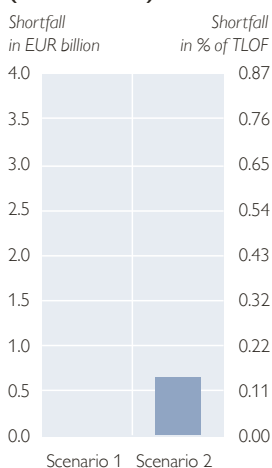
Austrian credit institutions (solo basis)



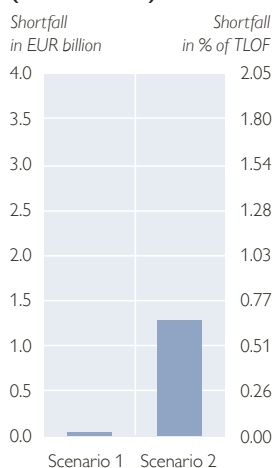
EU CESEE subsidiaries (solo basis)



Austrian SIs (consolidated)



Austrian LSIs (consolidated)



Source: OeNB, FMA.

Note: TLOF = total liabilities and own funds. Scenario 1: Loss absorption amount = overall capital requirements; recapitalization amount = 0. Scenario 2: Loss absorption amount = recapitalization amount = overall capital requirements. SIs = significant institutions; LSIs = less significant institutions.

own funds requirements, which again would naturally reduce shortfalls in scenario 2 with fully phased-in capital assumptions, or (3) the resolution authority can take potential contributions from deposit guarantee schemes into account when setting MREL. On the other hand, shortfalls might be higher if the resolution authorities decide to exempt certain components of MREL (in particular from the category “other MREL-eligible liabilities”). Most importantly, the factor of twice the overall capital requirements for MREL in the “upper bound” scenario is not set in stone but might vary with the specifics of the institution and its resolution plan.

According to our estimates, the total shortfall of Austrian banks in the cbd-logic is higher than the total shortfall at the solo level in absolute terms, but lower in relative terms, due to the different composition of the two subsamples (shortfall in the cbd-logic: around EUR 1.9 billion or 0.3% of total liabilities and own funds; shortfall at the solo level: around EUR 1.8 billion or 0.4% of total liabilities and own funds). EU CESEE subsidiaries have – given our assumptions – the highest shortfall (EUR 3.6 billion or 2.5% of total liabilities and own funds) due to their prevailing business model of strong deposit funding in combination with high overall capital requirements and thus the absence of MREL-eligible resources other than own funds. The significant gap between Austrian banks at a consolidated level and EU CESEE institutions at the solo level is due to consolidation effects. Note however that for CESEE subsidiaries – as for all other subsamples – MREL targets and therefore also the shortfall amounts will de-

pend crucially on the resolution plans, so that these figures need to be interpreted with adequate care. The sensitivity of the shortfall is investigated in more detail in the next section.

2.6 Sensitivity analysis of the shortfall

Sensitivity analyses show that even slight changes in the above-mentioned assumptions result in a huge spread of predicted shortfalls. Two assumptions that can be easily tackled quantitatively are

- the factor by which overall capital requirements are multiplied when setting MREL targets and
 - the fraction of “other MREL-eligible liabilities” (i.e. in particular corporate and financial deposits > EUR 100,000) that are deemed eligible by the resolution authority.
- Table 2 shows for several combinations of these two assumptions the resulting shortfall both in EUR billion and as a percentage of total liabilities and own funds of the observed sample.

The figures in bold indicate our base case that we analyzed above. In general, table 2 shows that the shortfall is highly nonlinear in the two driving assumptions. Note however that not all scenarios should be considered equally probable. In particular, the lower two right-hand figures of the subtables are rather unlikely (i.e. the resolution authority setting a factor of 2.3 for each and every institution while at the same time excluding all “other MREL-eligible instruments”). Another way of putting the shortfall into perspective is to compare the table’s figures with the volume of MREL-eligible bonds of significant Austrian banks²⁰ that come due and will need to be replenished: EUR

²⁰ Including AT1, T2 and subordinated and senior unsecured bonds.

Table 2

Aggregate shortfall across all banks (cbd) for different scenarios

	%	Factor of overall capital requirements set by national resolution authority		
		x1.7	x2.0	x2.3
		EUR billion		
Percentage of "other MREL-eligible instruments" accepted by national resolution authority	100	0.89	1.95	5.42
	50	1.61	3.98	13.16
	0	7.18	13.64	24.21
		% of total liabilities and own funds ¹		
Percentage of "other MREL-eligible instruments" accepted by national resolution authority	100	0.14	0.29	0.82
	50	0.25	0.60	2.00
	0	1.09	2.07	3.68

Source: OeNB, FMA.

¹ Sum of total assets of all institutions of the sample, based on consolidated data ("cbd") for all banks that are part of a banking group and data at the solo level for those which are not.

25 billion of MREL-eligible funds will need to be issued until 2019 and as much as EUR 45 billion until 2024.²¹ However, challenges will certainly occur if the market for MREL-eligible bonds dries up – e.g. if too many institutions approach the market at the same time.

3 Conclusions and next steps

MREL is one of the key elements in resolution planning and a major tool for removing impediments to the effective resolution of banks. Most importantly, it allows for the effective application of the bail-in tool. Nonetheless, MREL can have direct effects on the going concern of banks, since banks will need to adjust their funding structure to some extent to comply with these new requirements.

In our base case (for which we assume that no "other MREL-eligible liabilities" are exempted by the resolution authority, that MREL equals twice the overall capital requirements, and that no funds are contributed from

deposit guarantee schemes), the shortfall is only a fraction of the necessary rollover amount. Since some banks will, at any rate, have to build up additional own funds over the next years (due to the phasing-in of CRR own funds requirements), part of the shortfall will naturally even be covered by that. Moreover, the fact that overall bail-in-able resources are more than twice the amount of MREL-eligible resources provides an additional safety cushion in times of crises. However, as we have seen above (table 2), the shortfall is highly sensitive to case-by-case decisions of the resolution authority and can therefore only be seen as a first rough ballpark figure.

Given our assumptions, challenges might occur in some cases at Austrian banks' subsidiaries based in EU CESEE, which essentially lack senior unsecured or subordinated debt. However, the situation is highly dependent on the resolution plans of these institutions. Moreover, there are still considerable uncertainties about the maximum shortfall

²¹ Source: Bloomberg (January 27, 2016).

because EU CESEE subsidiaries' own funds requirements are relatively high and it is yet unknown to which extent the host national resolution authorities will exhaust their options in setting MREL.

At the current stage, the methodology for setting MREL is not yet final. Furthermore, the European Commission is required to come up with a review of the current MREL design, which might lead to adaptations (also in light of the necessity to implement

TLAC requirements for global systemically important institutions in EU legislation). As we have seen above, the sensitivity and impact of the calibration of MREL on banks is substantial. Despite the uncertainties described above, this study (and similar efforts throughout Europe) provides essential support for public authorities in their decision making, thus contributing to a stable regulatory environment that helps banks plan ahead properly.

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Corporate financing in Austria in the run-up to capital markets union

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In this study, we examine the financing of Austrian companies through the lens of the measures proposed in the European Commission's action plan on building a capital markets union. The Austrian corporate sector has not been faced with major financing problems in recent years. Nevertheless, there is clearly room for improvement in the area of equity financing, in particular with regard to funding start-ups and innovations. It is safe to assume, however, that banks will continue to play a key role in corporate funding in Austria. This is especially true for smaller and medium-sized companies, whose borrowing needs are low in absolute terms, tend to be highly volatile over time or require tailor-made collateralization. Here, banks will continue to have a comparative advantage over standardized funding options available on the capital market. Still, a diversification of funding options proposed by the capital markets union project would enable the Austrian corporate sector to tap into complementary financing sources. The measures envisaged in the action plan to minimize the information gap between potential investors and companies in need of financing may help reduce the cost of funding and, more importantly, enable the completion of transactions in the first place. This way, capital markets will play a more active role in spreading the risks and opportunities inherent in investment projects among a wider circle of investors.

JEL classification: F15, F36, G23, G3

Keywords: European integration, capital markets union, corporate financing, disintermediation, risk capital

Since the outbreak of the financial crisis, bank lending to the corporate sector has clearly flattened both in Europe as a whole and in Austria. At the same time, corporate financial investment and public infrastructure investment have slowed down as well. The European Commission responded to this development by proposing to build a capital markets union with a view to complementing bank financing with stronger capital markets and thus mobilizing capital and channeling more capital from savers to companies.

The capital markets union project is not a closed system; instead, it comprises most diverse aspects and measures, which the European Commis-

sion (2015c) encapsulated in an action plan. More integrated capital markets are expected to improve the long-term funding of Europe's corporate sector. The idea is to enable companies to choose from a more diverse range of funding options and to gradually bring down barriers to cross-border investment. Some of the proposals go beyond Europe-wide harmonization and include farther-reaching positions, such as same tax treatment of debt and equity capital or restructuring insolvency procedures to give entrepreneurs a "second chance."

The cornerstone of the capital markets union project – developing an EU-wide capital market by bringing down

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national barriers – is not a new idea. As a matter of fact, the free flow of capital was one of the fundamental principles on which the EU was built, and this idea has fed into many EU initiatives and projects. These undertakings ranged from the 1988 deregulation of capital movements in the EU (European Commission, 1989) to the 1999 Financial Services Action Plan, to the proposals set forth by the Giovannini Group (from 2001) for removing obstacles to the cross-border clearing and settlement of securities transactions. Also, creating more efficient capital markets was named as an explicit goal of monetary union. Capital markets union is a further step toward the completion of a single European capital market.

In addition to the banking union project, the European Commission will assign top priority to the capital markets union project in the years to come. While both are being called “unions,” capital markets union differs substantially from banking union. In contrast to banking union, which harmonizes supervision and resolution and restricts the scope of banks’ activities further (through enhanced capital and liquidity requirements and refinancing rules), the capital markets union project encompasses a program for actively developing and strengthening capital markets. Furthermore, capital markets union does not entail a consolidation of the supervision of the respective instruments and institutions at the EU level, whereas banking union rests on a centralized supervisory framework. The measures outlined in the action plan on building a capital markets union

are rather diverse and, hence, not as closely intertwined as the building blocs of banking union. Also, capital markets union is – in contrast to banking union – an EU-wide project.

This study provides an analysis of the Austrian corporate sector specifically with regard to the domestic take-up of the instruments² listed in the action plan. It also examines in what way the measures proposed in this plan might help Austrian companies catch up where they may be lagging behind. After highlighting the main characteristics of these financing instruments, we will, depending on data availability, compare the relative importance of these instruments for corporate finance in Austria with peer countries in Europe. This study focuses on economic aspects and does not touch on any legal issues.

In this study, Austria is compared with countries that display similar economic structures. As the countries whose economic structures and financial systems are most similar to those of Austria are the other “western European” countries, the countries in transition in Central, Eastern and South-eastern Europe (CESEE) are not part of the peer group. While CESEE is of crucial importance for the Austrian economy, the region’s economic structure – and especially financial market structures – still differ substantially from western European countries in general and Austria in particular. This is why a comparison vis-à-vis the CESEE region did not seem opportune in this case. Nor did we account for those smaller EU Member States in which the financial sector makes a disproportion-

² For this reason, important types of corporate financing, such as trade credits, factoring or leasing are not covered. For more information on the financing of small and medium-sized enterprises (SMEs), see, for instance, Nassr and Wehinger (2014) and OECD (2014 and 2015).

ately high contribution to GDP. This left us with the larger western EU Member States to include in our sample.

This paper is organized as follows: It starts with a brief overview of the corporate structure in Austria and analyzes whether there are any pointers to specific requirements with regard to the measures proposed in the action

plan on building a capital markets union. Sections 2 and 3 examine the effects capital markets union is likely to have on individual debt and equity financing instruments that are defined in the action plan as the main funding sources and which are meant to complement corporate finance in the medium and long term. Section 4 presents the main conclusions.

Box 1

Key aspects of the capital markets union initiative

*The European Commission has bundled its activities aimed at unlocking long-term finance under the **capital markets union** initiative, which is aimed above all at reinforcing measures in two areas: mobilizing funding for **infrastructure projects** and funding for small and **medium-sized enterprises (SMEs)**.*

In implementing its strategy, the Commission is taking the following action:

- *Prospectus requirements: The Prospectus Directive is to be modernized with a view to reducing the fixed costs associated with the issuance of bonds.*
- *Assessment of creditworthiness: Standardized quantitative methods are to be developed that enable nonexperts and nonbank lenders, such as insurers and asset managers, to assess the creditworthiness of SMEs to facilitate loans to SMEs.*
- *Review of securitizations: The European Commission is drafting regulatory requirements and quality criteria to allow for a simple and transparent classification of securitizations for nonexperts.*
- *Promotion of the development of European long-term investment funds: This initiative aims to encourage insurance companies and pension funds to make longer-term investments in private infrastructure projects and undertakings.*
- *Development of a European market for private placements: Such placements take place outside of a stock exchange, i.e. a public trading venue. In other words, securities are directly placed with a small group of investors (individuals or institutions). The European Commission is currently harmonizing the legal framework to align national insolvency and disclosure laws.*

1 State of play of the Austrian corporate sector

This section examines how the measures envisaged by capital markets union may affect the Austrian corporate sector in a positive or negative manner. First, as to the structure of the corporate sector: Do key indicators on company demographics point to strengths and weaknesses that might entail specific effects from capital mar-

kets union? Second, given that capital markets union is meant to improve corporates' funding situation, how do Austrian companies rate financing problems? Third, we compare Austrian companies' financing structure with international peers, in particular with regard to the two aspects tackled by capital markets union: equity levels and the role of bank loans in corporate finance.

1.1 Company demographics in Austria

In Austria, the share of SMEs³ in the number of employees (68%) and value added (60.4%) broadly corresponds to the figures recorded by other smaller western European countries (see table 1). A more granular SME breakdown by size shows that, above all, very small companies (with up to 9 employees) contribute relatively little to employment and value added, while medium-sized companies (with 20 to 49 and 50 to 249 employees) make above-average contributions compared with the EU-14 peer group examined here. Given that alternatives to bank funding tend to be a more viable option for larger companies, one might assume that Austrian businesses could derive disproportionately high benefits from capital markets union.

The relatively minor share of very small companies could result from the low start-up ratio. At 5.9 start-ups per 1,000 existing businesses, the number of business births in Austria trails behind the “birth rate” of most other countries examined in this study. The small share of private equity might indicate that the low start-up ratio is attributable to financing deficits, even if a more thorough analysis of the private equity volume shows a mixed picture (see section 3.1). Should financing bottlenecks put a brake on business start-ups in Austria, then the fact that large countries record higher start-up ratios could imply that capital markets union

would have a positive impact on Austria’s number of business births.

Another aspect that might explain the comparatively little share of very small businesses is the substantial portion of foreign-controlled companies in Austria. In 2012, one-third of Austria’s value added was delivered by foreign-controlled companies, which accounted for one-fifth of overall employment. Both relative to the number of employees and to value added, this share exceeds the average of the peer group of countries examined in table 1.⁴ Not surprisingly, foreign-controlled companies play a more important role in smaller countries than in larger countries. With regard to capital markets union, this could, on the one hand, imply rather minor direct effects in Austria, because in foreign-owned businesses, strategic financing decisions tend to be taken abroad. Yet, on the other hand, integrating individual national capital markets toward a single European financial market could promote cross-border investments in businesses.

And finally, table 1 shows that the legal form of corporation is notably less widespread in Austria than in many other countries. Only one in five Austrian companies adopted the legal form of limited liability company or stock corporation, while this is, on balance, the case with one in three companies in the country peer group used in this study. In countries with more market-based financial systems, over two-

³ The definition generally used for SMEs in Europe comes from the EU, which has laid down three size-related criteria for classifying companies. Hence, SMEs are businesses with fewer than 250 employees and whose sales do not exceed EUR 50 million per year or whose balance sheet amounts to no more than EUR 43 million. The international Eurostat and OECD tables on which table 1 is based use employee figures for breaking down the results.

⁴ In part, the differences in the shares in the number of employees and value added posted by foreign-controlled companies might relate to the fact that some countries offer considerable profit-based tax incentives. Hence, the profit and value added of many multinational corporations are recorded in those countries.

Table 1

Company demographics

2012 or last year available, %

	Share of SMEs in		Business births per	Share of foreign-controlled companies in		Share of corporations in
	number of employees	value added	1,000 companies	number of employees	value added	number of companies
AT	68.0	60.4	5.9	19.3	25.0	20.6
DE	62.5	54.0	7.9	11.6	24.0	17.9
UK	53.0	50.9	11.5	19.5	30.1	68.7
FR	63.5	58.0	10.4	10.5	15.8	39.0
IT	79.9	67.3	7.1	7.5	14.1	17.9
ES	73.8	62.9	8.2	11.5	19.8	38.0
NL	66.9	63.8	7.3	16.0	26.8	20.4
SE	65.5	59.1	7.7	21.8	27.8	42.6
BE	70.4	62.4	5.1	17.1	28.0	59.9
DK	64.9	60.5	..	20.3	23.9	..
FI	62.5	57.9	9.3	15.5	20.7	41.5
IE	72.4	51.8	..	23.3	57.1	..
GR	87.3	75.7	..	5.0	10.9	..
PT	78.9	66.1	11.8	11.2	20.2	32.9
EU-14	65.5	58.3	8.4	14.1	23.2	36.1
AT/EU-14, %	104	104	70	136	108	57

Source: OECD, Eurostat, authors' calculations.

thirds (United Kingdom) or some 60% (Belgium) of companies opted for these legal forms. The legal form of corporation makes a difference when it comes to issuing equity securities, because access to organized capital markets is usually limited to corporations. Even in cases where companies do not necessarily have to be incorporated, agency problems and reduced fungibility of shares present obstacles that are more pronounced than with corporations, especially in the case of third-party investments in partnerships.

Overall, company demographics suggest that Austria might, indeed, benefit from the measures introduced by capital markets union, provided the weakness in investment of recent years reflects restrictions on the funding side.

1.2 Sizing up companies' funding problems

Apart from the structure of the corporate environment, the extent to which the measures envisaged in the action plan may boost the funding volume (and hence investment activity) of Austria's corporate sector also depends on whether if and to what extent funding issues dampen entrepreneurship in Austria.

To answer this question, we draw on the responses to the Survey on the Access to Finance of Enterprises (SAFE) that is carried out in a harmonized manner throughout the EU.⁵ This survey comprises questions on funding options as well as on business performance and development. Respondents are asked, among other things, to rate various problems they are faced with

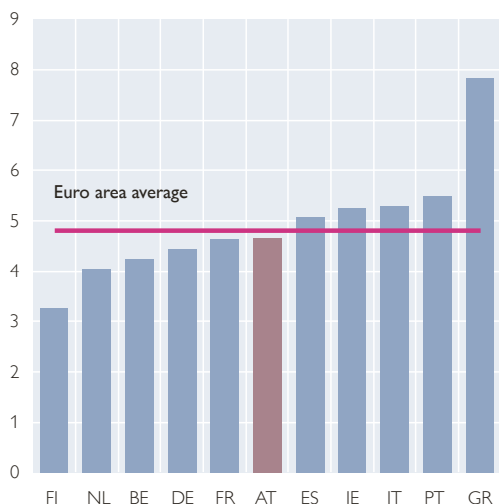
⁵ SAFE is a joint project of the European Commission and the European Central Bank, which targets mainly small and medium-sized enterprises; yet, the survey also includes several large companies. However, in light of the small number of surveyed large companies, only SME results are published for Austria.

Chart 1

Assessment of SME financing

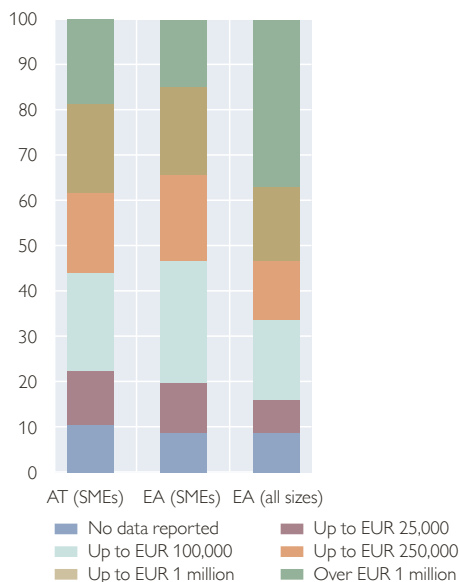
Access to finance for SMEs

1 (easy) to 10 (difficult), self-assessment of the surveyed companies, Q2–Q3 2015



Financing needs by amount

Share in responses in %, Q2–Q3 2014



Source: ECB (Survey on the Access to Finance of Enterprises – SAFE).

as entrepreneurs on a scale from 1 to 10. With the exception of the first SAFE survey in 2009 carried out at the height of the crisis, the factor “access to finance” has always been rated as the least pressing problem, with the score invariably remaining below the euro area average (see chart 1, left panel). Given that, according to this survey, access to finance is considered to be a relatively small impediment by SMEs in Austria – and lately also in the euro area in general –, this would imply that capital markets union measures will entail below-average benefits for Austrian businesses. The authors of a recent OeNB study examining the causes of declining investment activity in Austria (Fenz et al., 2015) arrived at a similar conclusion, arguing that funding restrictions did not seem to have dampened moderate investment activity.

The survey is also indicative of the amount of funding needed by companies. At greater intervals (most recently in 2014), companies are asked to quantify their funding needs for expanding their business. Close to two-thirds of the Austrian SMEs surveyed (no figures are published for the Austrian corporate sector as a whole, as mentioned above) stated that they needed less than EUR 250,000 to this end, while almost 20% had funding needs exceeding EUR 1 million (slightly more than in the euro area as a whole). When we include large companies, more than one-third of the respondents in the euro area indicated funding needs of more than EUR 1 million (see chart 1, right panel). As to the financing needs of SMEs, they tend to be smaller than the amounts necessary to gain access to financing instruments in the action plan that are geared toward institutional investors.

1.3 Financing structure of Austrian companies

To assess the relevance of capital markets union for funding behavior in Austria's corporate sector, we must also take a look at the structure of corporate finance, apart from the corporate environment and businesses' financing needs. By international standards, equity funding plays a relatively minor role for Austrian companies.⁶ At 44.9% of total liabilities at end-2014,

the share of equity in Austria stood at the lower end of the range compared with the country peer group under survey here (see table 2).⁷ This relatively low equity ratio contrasts with a disproportionately high share of bank loans, even though the latter have become less important in past years (Beer and Waschiczek, 2012).⁸ Yet, although the share of bank funding nearly halved from almost 40% in the mid-1990s to slightly more than 20% recently, it was

Table 2

Company funding structure in Austria and in selected European countries

Outstanding volume, 2014 (or last year available), %

	Equity		Bank loans		Bonds		Other debt ¹	
	% of total assets	% of total assets	% of debt capital	% of total assets	% of debt capital	% of total assets	% of debt capital	
AT	44.9	20.4	37.0	6.4	11.6	28.3	51.4	
DE	46.6	14.4	27.0	2.8	5.2	36.2	67.8	
UK	51.7	8.2	17.1	8.6	17.7	31.5	65.2	
FR	58.4	9.9	23.9	6.9	16.6	24.7	59.5	
IT	43.9	23.3	41.5	4.5	8.0	28.3	50.5	
ES	52.3	16.2	33.9	0.7	1.4	30.9	64.8	
NL	47.1	18.3	34.7	5.1	9.6	29.4	55.7	
SE	69.7	8.9	29.5	3.7	12.1	17.7	58.4	
BE	54.5	5.5	12.1	2.5	5.5	37.4	82.3	
DK	65.0	14.6	41.8	2.6	7.5	17.8	50.7	
FI	51.4	12.1	24.8	5.8	12.0	30.7	63.1	
IE	54.4	5.4	11.9	1.2	2.6	38.9	85.4	
GR	41.0	42.1	71.2	0.0	0.0	17.0	28.7	
PT	38.3	15.6	25.3	6.3	10.2	39.8	64.4	
EU-14	51.9	12.5	26.0	5.4	11.2	30.2	62.7	
AT/EU-14, %	86	163	142	118	103	94	82	

Source: OeNB, ECB, Eurostat, authors' calculations.

¹ Loans from nonbanks, trade credit, pension fund reserves, other liabilities.

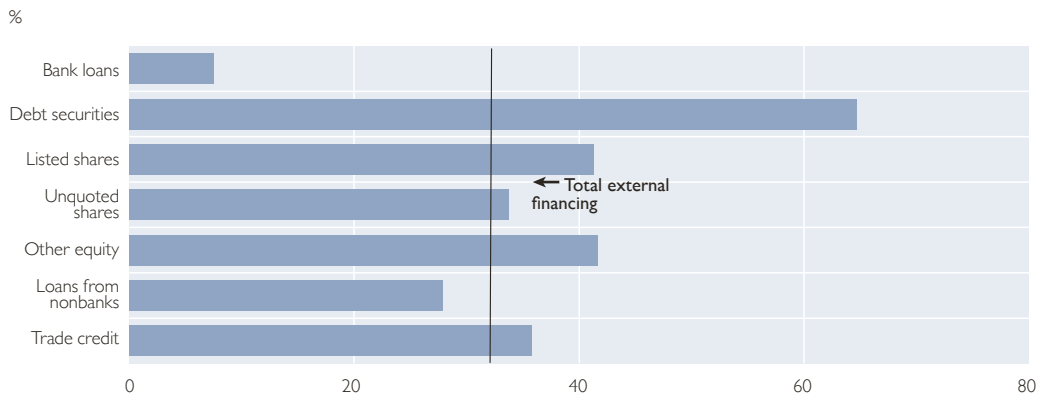
⁶ On the issue of Austrian companies' capitalization, see also ECB (2002), Dirschmid and Waschiczek (2005) and Raidl (2013).

⁷ Table 2 refers to financial accounts data, which contain a financial balance sheet of the corporate sector (and of the other economic sectors). These data, which are part of the national accounts, are comparable with other economic measures and become available for all EU countries after a relatively short time lag. At the same time, the financial accounts data do not allow for a breakdown by economic sector or size. Such information may be gleaned from the BACH database, which is based on corporate balance sheets. Yet due to considerable methodological and conceptual differences, the BACH data diverge markedly in absolute terms from the national financial accounts data. Moreover, BACH data are not available for all EU countries and are released with a larger time lag since they are based on audited balance sheets. For an analysis of Austrian companies' equity ratios based on BACH data, see e.g. Dirschmid and Waschiczek (2005).

⁸ In addition to extending loans to companies, banks hold corporate bonds and stocks. At end-2014, the entire volume of fixed-income securities and stocks (both listed and unlisted) ran to EUR 7.8 billion or 1.1% of companies' total liabilities.

Chart 2

Foreign share in external financing in the corporate sector



Source: OeNB.

still the third largest in the group of countries under review.⁹

One key objective of capital markets union is to expand cross-border financing options for the corporate sector – both within and beyond the EU. Because international databases do not contain comparable data on the share of cross-border funding of the corporate sector in other countries, we only portray the situation in Austria. The cross-border share is lowest for bank loans, while almost two-thirds of Austrian corporate bonds are placed abroad, which may be ascribable to the relatively small domestic bond market. The sizable foreign share in equity instruments and in other loans reflects the relatively high share of inward direct investment in the Austrian corporate sector.

2 Debt instruments

This section discusses the funding options that the European Commission's action plan addressed as debt funding alternatives to bank loans, taking the

different degrees of disintermediation as a starting point: In the case of loan securitization, credit intermediation occurs in the banking system; it is only after the process of intermediation has been completed that the loans are transferred from the bank balance sheet to another intermediary (which may be yet another bank). In the case of loans extended by institutional investors, borrowers and lenders are still matched by intermediaries, but intermediaries other than banks. In the case of funds that companies raise directly in capital markets by issuing bonds, banks (above all banks operating in universal banking systems) may often act as a go-between in the issuance process. Yet, the funds as such are raised from the markets, on which banks may likewise invest in corporate bonds.

2.1 Securitization of corporate loans

Securitization serves to provide long-term funding for the real economy, such as SMEs, from institutional and private investors.

⁹ For a detailed analysis of the development of financing structures in the corporate sector over the past 20 years based on financial accounts data, see Andreasch et al. (2015).

Table 3

Outstanding SME securitization

As at 2014

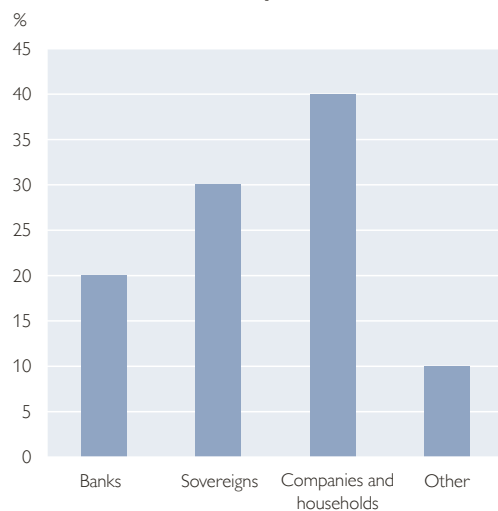
	EUR million	% of company liabilities	% of debt capital	% of bank loans	Annual change from 2010 to 2014, %
AT	0	0	0	0	
DE	1,889	0.03	0.06	0.24	-37.3
UK	8,724	0.14	0.30	1.74	24.6
FR	1,016	0.01	0.03	0.12	-14.1
IT	23,946	0.69	1.23	2.96	51.6
ES	29,934	0.89	1.86	5.50	-23.1
NL	9,563	0.51	0.97	2.81	-10.8
SE	0	0	0	0	
BE	18,479	1.07	2.35	19.33	6.1
DK	0	0	0	0	
FI	0	0	0	0	
IE	0	0	0	0	
GR	6,731	2.97	5.04	7.07	-14.7
PT	5,588	1.02	1.65	6.50	-3.7
EU-14	106,819	0.32	0.67	2.42	-10.1

Source: Association for Financial Markets in Europe (AFME), ECB, Eurostat.

Europe is characterized by a heterogeneous securitization market (see table 3). The peripheral EU countries Italy, Spain, Greece and Portugal ac-

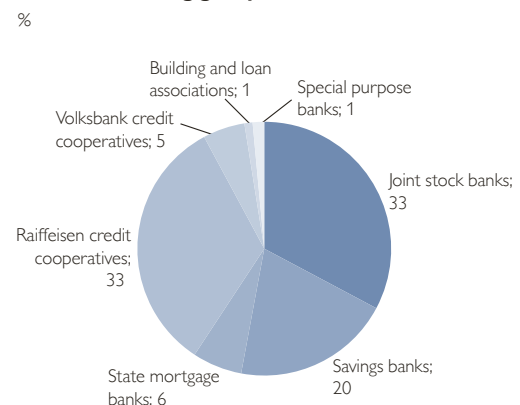
count for the highest stocks of securitized loans to SMEs. While in Italy the stock of outstanding SME securitization jumped by somewhat more than

Chart 3

Austrian banks' claims**Austrian banks' claims by debtor**

Source: OeNB.

Note: Based on June 2015 data.

Austrian banking groups' claims on nonbanks

50% in the period from 2010 to 2014, in other peripheral countries major securitization projects had already been implemented before 2010. Among the core countries, Belgium stands out with a relatively large securitization market: In Belgium, almost 20% of all bank loans to SMEs have been securitized.

The European securitization market cannot be compared with the U.S. subprime market. While the default rate for U.S. papers has been close to 20% since 2007, it has been markedly below ½% for European papers according to data compiled by the Association of German Banks (Bundesverband deutscher Banken, 2014).

By European standards, the volume of securitized products issued by Austrian intermediaries was rather small before the onset of the crisis and has remained rather small ever since. Yet the potential for larger-scale securitization exists (see chart 3, left panel): by the end of June 2015, companies (including SMEs) and households accounted for some 40% of the aggregate claims of Austrian banks (EUR 651 billion).

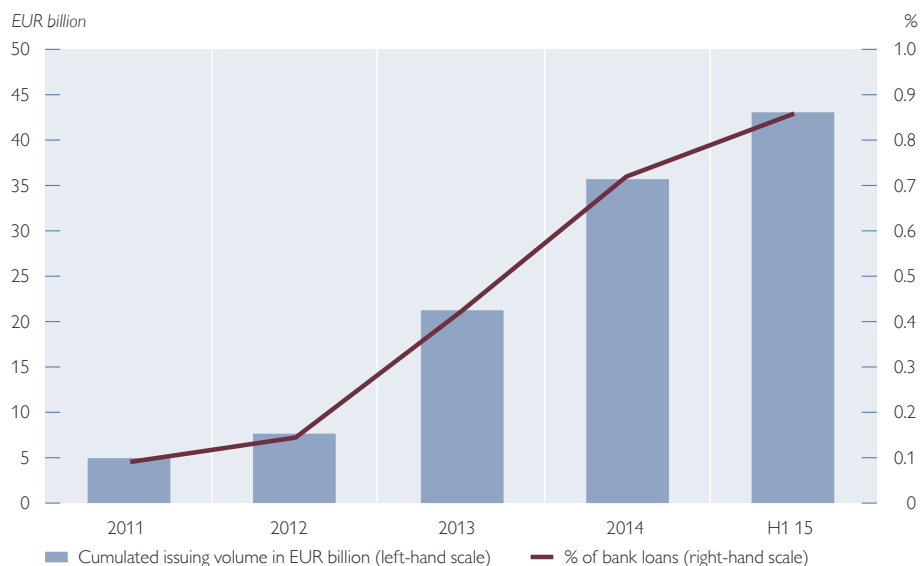
Joint stock banks and Raiffeisen credit cooperatives had a share of about one-third each in the claims of Austrian banking groups on nonbanks (see chart 3, right panel). The loan receivables of those two groups are characterized by a high share of individual loans with comparatively small amounts on average. The loan receivables of savings banks (share of around 20% in Austrian banking groups' claims on nonbanks), state mortgage banks (share of 6%) and Volksbank credit cooperatives (5%) are high enough in absolute terms to generate additional momentum for the Austrian securitization market.

2.2 Corporate finance provided by institutional investors: loan-originating funds

As an alternative to and in addition to securitization, where credit intermediation occurs in the banking system, the European Commission's action plan also envisages an enhanced role of funds for the provision of credit, i.e. loan-originating funds. European funds specializing in corporate lending already reported very high growth rates in recent years, as is evident from data compiled by Creditreform (2015), notwithstanding the rather small volumes in relation to loans originated by banks (see chart 4).¹⁰ Among other things, the high growth rates may reflect the current low level of interest rates, which has increased the incentive for institutional investors to expand into higher-yield, higher-risk assets. Furthermore, uncertainty about the regulatory framework for securitization may have contributed to the heightened relevance of loan-originating funds. The volumes indicated in chart 4 may include direct lending by funds – often through participation in syndicated loans – as well as the acquisition of loans originally extended by banks. To the extent that loans are bought by funds, the patterns and the issues are very much the same as those with securitization (see also Kraemer-Eis et al., 2014). In the event of direct lending, the funds perform the whole range of intermediation services otherwise provided by banks.

Analyses of data for the U.S.A., where loan-originating funds emerged earlier and have been used more widely, show that, at least before the onset of the crisis, institutional investors were providing higher-risk loans than banks,

¹⁰ Creditreform (2015) provides only data for Europe as a whole (without an exact definition); there is no country-by-country breakdown. Kraemer-Eis et al. (2014) report a strong expansion of such funds above all in the countries hardest hit by the crisis.

Direct lending funds in Europe

Source: Creditreform Rating, ECB.

such as leveraged financing, in the context of mergers and acquisitions (Nandy and Shao, 2007; Nini, 2013; Ivashina and Sun, 2011). Furthermore, these studies indicate that the stepped-up involvement of institutional investors also increased the overall supply of credit for the corporate sector – primarily in the form of securitized loans but also in the form of direct lending.¹¹ At the same time, the data highlight that loan-originating funds above all replaced bonds, whereas they are no substitute for revolving credit lines as provided by banks (Nini, 2013). With regard to the improved availability of corporate information targeted by capital markets union, the findings of Sufi (2009) may be of relevance, namely the fact that institutional investors began to embrace syndicated loans in the

mid-1990s when Moody's and Standard & Poor's started to publish ratings of bank loans.¹² In the context of capital markets union, this would imply that a higher degree of harmonization and standardization of borrower information would facilitate the risk monitoring for institutional investors, such as loan-originating funds. Notwithstanding easier access to information and a more straightforward assessment given data harmonization, another issue remains, namely the pronounced economies of scale involved in monitoring and risk analysis. Building adequate capacities may pay off only if funds intend to diversify into new markets permanently and on a large scale. It remains to be seen whether and to what extent this is true for loans to Austrian companies.

¹¹ It should be noted, though, that this evidence primarily relates to wholesale funding, and to syndicated loans in particular, and that it is based on a much broader definition of institutional investors.

¹² However, the enhanced availability of information came at a price. Nandy and Shao (2007) show that (before the onset of the crisis) syndicated loans granted by institutional investors generated a higher yield than comparable bank loans. They interpret the higher yield as compensation for the higher efforts needed to gather information.

Table 4

Bonds issued by nonfinancial companies

Outstanding volume, 2014 (or last year available), %

	% of company liabilities	% of other debt	% of bank loans	Annual change from 2010 to 2014
AT	6.4	11.6	31.2	8.9
DE	2.8	5.2	19.2	2.8
UK	8.6	17.7	103.6	7.8
FR	6.9	16.6	69.6	10.8
IT	4.5	8.0	19.3	12.1
ES	0.7	1.4	4.0	13.3
NL	5.1	9.6	27.7	1.1
SE	3.7	12.1	40.9	9.9
BE	2.5	5.5	45.7	17.4
DK	2.6	7.5	17.9	-0.5
FI	5.8	12.0	48.4	4.7
IE	1.2	2.6	22.0	-2.8
GR	0.0	0.0	0.1	-56.8
PT	6.3	10.2	40.5	0.5
EU-14	5.4	11.2	43.2	2.9
AT/EU-14, %	118	103	72	

Source: ECB, Eurostat, authors' calculations.

2.3 Corporate bonds

Two of the measures presented in the action plan specifically address steps to facilitate corporate bond financing: On the one hand, there is a proposal to modernize the Prospectus Directive with a view to reducing the prospectus requirements for the placement of bonds, by streamlining the prospectus disclosure and update requirements as well as the approval process. On the other hand, the European Commission intends to review possibilities for improving the liquidity of corporate bond markets and the voluntary standardization of offer documentation.

In recent years, the volume of corporate bond financing has already increased markedly in most European countries, including Austria. In 2014, capital raised through bond issuance accounted for more than 6% of Austrian' companies total external finance, which by European standards, was an

above-average result (see table 4). The issuance volume proved also high in relation to the volume of debt capital, whereas it was below average compared with the stock of bank loans, given the high relevance of loan-based financing. In this respect, it should be noted that agencies account for a comparatively high share of bond issuance in Austria, even following the transition of data compilation to the ESA 2010.

Raising capital through the issuance of bonds, above all in organized bond markets, differs from taking out a bank loan in a number of areas (see also Waschiczek, 2004). While the cost of taking out a bank loan increases in proportion to the loan volume, the cost of issuing bonds decreases progressively in line with the issuance volume. Such economies of scale reflect the fact that the issuance of bonds comes with a series of one-off costs, which are mostly unrelated to the credit volume.¹³ When

¹³ These costs include the syndication commission for syndicate banks, which underwrite the issuance and guarantee the placement of bonds; marketing costs, such as the cost of producing the issuance prospectus and conducting roadshows to inform institutional investors; and the cost of the stock market listing, consisting of the commission for initial public offering and the stock exchange listing fee.

we compare the minimum volume required for cost reasons with the corporate funding needs reported by companies under the SAFE survey (see section 1.2), we see that bond issuance will seldom be an option for smaller companies. SMEs which nonetheless fund themselves through bonds will have to establish liquidity management tools. While there is more to bonds than standard coupon bonds, tailor-made solutions are costly and tend to be illiquid (Demary et al., 2015).

A number of other factors may also put a limit to the share of loans that may be replaced by bonds. Bank loans are better suited to overcome the information gaps that exist between lenders and borrowers. Long-standing relationships give banks enhanced insights into the finances of their corporate customers, thus enabling them to arrive at a more informed assessment of their debtor's credit quality. The implicit relations that emerge over time between banks and their borrowers also facilitate negotiating services that cannot be agreed upon up front. However, such a close relationship between banks and their borrowers need not necessarily be an advantage. Haselmann et al. (2014) show that close personal ties between bank managers and corporate executives may also lead to lending inefficiencies. Improving and standardizing the public availability of SME-related credit data, which is one of the goals of capital markets union, may facilitate bond investment, but such measures address neither the higher flexibility of bank loans nor the smaller amounts in which loans may be taken out.

Subsidized loans will also be difficult to replace with bond financing

solutions, at least for the time being. According to data reported to the OeNB¹⁴ subsidized loans (excluding housing loans) to nonbanks totaled some EUR 42 billion in mid-2015, thus accounting for some 13% of total direct lending to nonbanks. Since the data do not allow for a sectoral breakdown of subsidized loans, it is not possible to single out the share of corporate loans. Bonds are poor substitutes also for overdraft facilities. While commercial papers are an option, even if only for large corporations, they are not very common in Austria. When we equate overdraft facilities with short-term loans (with a maturity of up to one year), in mid-2015, MFI loans to non-financial corporations would have accounted for a share of approximately 28% of lending.

According to the financial accounts, two-thirds of the bonds issued by Austrian companies (66% based on end-2014 data) are held by nonresident investors (see chart 5).¹⁵ International investors buy above all large liquid bonds externally rated by rating agencies. In Austria, this bond segment is dominated by public entities or by agencies. The share of bonds held by nonresident investors has increased by more than 10 percentage points since the onset of the crisis in 2008. At the same time, the share held by Austrian banks has halved, to close to 13%. Since 2011, the corporate bond portfolio of Austrian banks has even been decreasing slightly in nominal terms. Smaller bonds that are not externally rated and not included in any of the common indexes are unattractive for international institutional investors. Moreover, SMEs tend to be lesser known, which is one

¹⁴ Based on asset, income and risk statements.

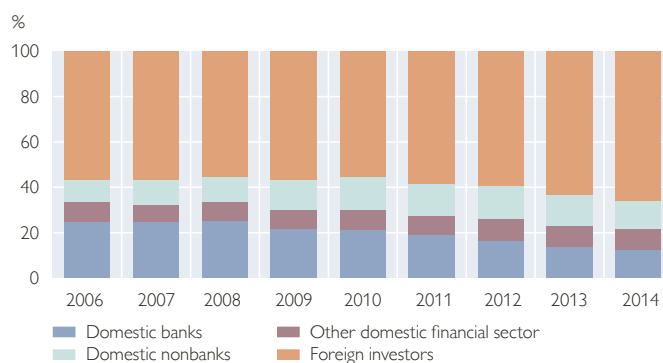
¹⁵ International databases do not contain comparable data for other countries.

more obstacle to raising capital in bond markets, above all from international investors. The extent to which the proposals of the action plan on building a capital markets union can effectively improve the risk assessment of smaller, lesser known companies depends on the design of the information requirements (Prospectus Directive, public access to company information). The same contingency applies to smaller bond issues that are meant to improve liquidity in bond markets.

2.3.1 Private placements

In addition to encouraging the placement of bonds in regulated markets, the action plan is also aimed at promoting the development of private placement markets across Europe. As a result, businesses whose financing needs are not big enough to allow them to tap regulated markets will have more funding choices. In this respect, the action plan is therefore supportive of private sector initiatives rather than having launched specific initiatives at the EU level. In some European countries, dedicated market segments have been developed for smaller businesses, with those segments essentially targeting the largest SMEs (Nassr and Wehinger, 2014). In those segments, the issuance requirements are less stringent, and ratings are not required. However, these initiatives have, in essence, remained national in their scope and have neither been able to overcome market fragmentation, which remains severe, nor able to attract much cross-border investment, which remains low (Nassr and Wehinger, 2014). A stronger harmonization of regulatory frameworks as proposed in the action plan on building a capital markets union, including

Chart 5
Investor structure of Austrian corporate bonds



Source: OeNB.

investor protection rules, might push up cross-border financing volumes.

According to data published by the rating agency Scope (2015), in Germany a total of 149 issuers placed 194 mid-cap bonds (“Mittelstandsanleihen”) with a volume of EUR 7 billion from 2010 to the first quarter of 2015. Rating requirements differ heavily across stock exchanges, ranging from exchanges which do not require ratings at all to exchanges which demand some kind of rating, to exchanges which have minimum rating requirements (Feiler and Kirstein, 2014). In the case of mid-cap bonds, the ratings are more likely to be provided by smaller rating companies, such as Euler Hermes, Creditreform or Scope rather than S&P, Moody’s or Fitch (Steinbach, 2013). The absence of major-agency ratings makes such instruments less attractive for many institutional investors, though.¹⁶ Therefore private investors tend to dominate. Despite the (good) ratings, the default rate was high for the mid-cap bonds. Out of the 149 issuers in Germany, a total of 30 companies with a cumulated issuing volume of EUR 1 billion had defaulted by the end of the first quar-

¹⁶ Another aspect that makes SME bond issuance less attractive is the fact that SMEs are not represented in indexes.

ter 2015, which translates into a default rate of 15% (Scope, 2015).¹⁷ Following the large defaults, the issuing volume declined in 2014, by 53% compared with 2013. Given the short maturities, this decline of investor interest implies a substantial refinancing risk for the companies involved (Scope, 2014).

In contrast, the German “Schuldscheine” market, to which the action plan specifically refers, is dominated by institutional investors. German Schuldscheine are financial instruments governed by German law that are used above all by German companies. The past few years have also seen an increase in nonresident issuers (Koller, 2014). The Schuldschein is legally not a security but a bilateral loan. As a rule, companies seeking to take out a Schuldschein will approach institutional investors directly.¹⁸ Therefore such instruments are not subject to disclosure requirements and come with fewer reporting obligations. The relevant documentation is typically lean and standardized; borrowers are not required to submit an issuance prospectus or an external rating. A small number of lenders notably increases flexibility, discretion and confidentiality (if a company wishes to keep the transaction confidential; many companies, above all larger ones, will make their Schuldschein issues public). As Schuldscheine qualify as receivables and not as securities, they do not lead to market-driven write-downs that will

be charged against profit (if they are part of the investment portfolio). For this reason, insurance companies are heavily invested in Schuldscheine, and they will typically hold them until maturity.^{19,20}

3 Risk-capital financing instruments

3.1 Private equity

Apart from seeking to foster financing flows outside the banking system, the action plan on building a capital markets union also aims to strengthen risk capital financing. In this context, private equity plays a prominent role in the action plan. The regulatory framework for private equity was reformed at the European level a few years ago with the implementation of AIFMD (Alternative Investment Fund Manager Directive) and EuVECA (Regulation on European Venture Capital Funds). Based on those rules, the European Commission’s action plan foresees a set of measures to support risk capital financing in the EU. The list of actions includes measures to revise the EuVECA and EuSEF²¹ regulations and a proposal for pan-European venture capital funds-of-funds as well as financial support from the EU budget for multi-country funds.

Private equity funds are intermediaries that collect capital from investors which they invest in the form of (minority) interests in companies seeking capital. Private equity funds invest in

¹⁷ Almost one half of the defaults were related to sector-specific developments in the renewable energy sector. There were also some incidences of suspected fraud.

¹⁸ In the case of smaller transactions, the conditions may also be tailored to the investment requirements of investors, in particular when structured bonded loans are involved.

¹⁹ See Koller, 2014; Institutional Money, 2012.

²⁰ The other side of the coin is the limited liquidity of Schuldscheine. When a Schuldschein is transferred to an investor, the promissory note is handed over and notice is given to the paying agent and the issuer. Schuldscheine are not exchange-traded, and no electronic settlement takes place through clearing systems. This makes such instruments particularly adequate for buy-and-hold investors.

²¹ Regulation on European Social Entrepreneurship Fund.

private companies for a given period and also monitor and provide expertise and support for the management of the companies in which they invest. Especially in the early stages of funding, e.g. in the start-up and expansion stage of companies, such expertise and support is a key aspect of private equity financing (known as venture capital financing in this stage). Since third parties tend to know little about the conditions and outlook of such companies, private equity funds serve as “delegated monitors” for their investors (Diamond and Dybvig, 1983).

Furthermore, private equity also plays a role in the restructuring of and during ownership changes at mature companies. In this respect, the motivation to invest for financial rather than for strategic business reasons is also seen critically.²² One point of criticism is that private equity funds are investors who look for short-term profits, dissolve reserves and dismantle the firms in which they invest, only to resell their stakes and leave the firms weaker off. Another point of criticism is that many of the acquisitions made by private equity funds are highly leveraged. The additional leverage placed on the companies taken over would put a high burden on them, or abundant dividends would weaken the company in its substance.

An annual survey on private equity activity in Europe (transactions but not stocks) is undertaken on behalf of Invest

Europe, formerly known as EVCA (European Private Equity & Venture Capital Association). According to this survey, which has been undertaken since 2007,²³ private equity volumes have declined considerably since the onset of the crisis. While SMEs accounted for close to 85% of all transactions across Europe in the period from 2007 to 2014, they only had a share of 26% in private equity financing. The average volume of SME financing was EUR 2.6 million, which pales beside the average figure for a large company: EUR 39.5 million, or 15 times as much.²⁴

In Austria, the volume of private equity financing is very low (see table 5). In the period from 2007 to 2014, Austrian companies raised EUR 3.6 billion in terms of gross private equity and venture capital financing. This sum corresponds to 0.13% of GDP, which is the lowest score for all countries under review here but Greece. The net equivalent, i.e. adjusted for disinvestment, was 0.07%. When we compare this amount with the overall volume of external finance or with the amount of equity capital raised from external sources according to the financial accounts, in order to take national patterns in corporate financing into account, Austria moves up somewhat in the ranking. However, the amount of private equity invested in Austrian companies is only about half the EU average. When we disregard the volume and look only at the number of

²² For a comprehensive review of the problems that arise with this financing instrument, with a strong focus on the U.S.A., see Applebaum and Batt (2014).

²³ The data after 2007 are not comparable with those before 2007 because of a substantial change in the survey method. Given the small financing volumes, the annual data are driven by large individual transactions especially in smaller countries and are thus highly volatile. Therefore, this section looks at the average for the period from 2007 to 2014 instead.

²⁴ The data provided by Invest Europe do not allow for breakdowns by stage of financing or country.

Table 5

Private equity¹

Funding volumes (total, 2007–2014)

	Funding volumes				Foreign share	Financing by foreign funds	Financing by domestic funds	Average transaction volume	Number of transactions	Share of high-tech	Venture capital	Initial funding for the company		
	Gross	Net position ²											Gross (including financial services)	
	% of GDP	% of GDP	% of company liabilities ³	% of equity capital ³	% of debt funding	% of GDP	% of equity capital ³	% of GDP	% of equity capital ³	EUR million	% of companies	% of debt funding	% of debt funding	% of debt funding
AT	0.13	0.07	1.3	3.4	86.7	0.06	2.9	0.01	0.4	4.0	0.30	10.0	14.4	57.9
DE	0.25	0.09	2.6	9.5	17.8	0.02	1.7	0.07	7.8	5.2	0.47	9.9	11.2	48.6
UK	0.50	0.22	6.6	17.3	12.7	0.03	2.2	0.19	15.1	15.2	0.35	8.7	8.3	54.3
FR	0.36	0.16	2.0	4.2	16.4	0.03	0.7	0.14	3.5	9.5	0.23	9.3	10.3	41.9
IT	0.14	0.07	2.7	5.7	37.5	0.03	2.1	0.04	3.5	17.8	0.03	5.3	3.2	54.1
ES	0.20	0.07	4.9	2.2	21.5	0.02	0.5	0.06	1.8	12.3	0.06	7.8	9.0	57.8
NL	0.39	0.15	4.2	14.4	45.3	0.07	6.5	0.08	7.9	8.0	0.30	7.1	8.0	54.2
SE	0.56	0.28	3.4	9.8	31.1	0.09	3.0	0.19	6.7	5.4	0.50	9.4	13.0	38.6
BE	0.32	0.15	1.0	2.2	74.6	0.11	1.6	0.04	0.6	7.1	0.24	9.2	9.7	44.0
DK	0.42	0.12	4.4	2.6	35.1	0.04	0.9	0.08	1.7	11.3	0.37	20.6	10.3	44.4
FI	0.38	0.39	6.7	21.4	25.7	0.10	5.3	0.30	16.1	3.2	0.83	11.1	14.4	40.9
IE	0.17	0.10	0.7	-7.0	82.9	0.08	-5.8	0.02	-1.2	5.3	0.44	25.8	19.4	41.9
GR	0.04	0.02	0.7	3.4	41.2	0.01	1.4	0.01	2.0	16.9	0.01	1.4	13.0	82.5
PT	0.17	0.12	1.7	6.4	11.0	0.01	0.7	0.11	5.7	2.8	0.11	6.8	15.2	60.7
EU-14	0.33	0.15	3.4	7.8	27.6	0.04	1.6	0.11	6.2	10.1	0.29	9.4	9.8	48.9
AT/EU-14, %	39	46	39	43	315	157	181	8	7	40	102	107	146	118

Source: EAVC/Invest Europe, Eurostat, authors' calculations.

¹ Excluding financial services.² Gross position minus disinvestment.³ According to financial accounts data.

transactions,²⁵ Austria moves up to a position that is even slightly above average. In absolute figures, Invest Europe registered 895 transactions in Austria in the period under review, which corresponds to 0.3% of all Austrian companies in 2012 and is in line with the average of the countries surveyed.

The comparatively high figure of companies receiving funding and the low amount of financing provided on balance imply that the underlying transactions are very small in the case

of Austria. On average, private equity transactions totaled approximately EUR 4 million, which is slightly less than half the average of the EU countries under review. This outcome may be related to the lack of very large enterprises in Austria; at the same time, the share of large companies in the Austrian corporate landscape – as outlined in section 1.1 – is not that small. To some extent, the outcome may also be related to the relatively high share of early-stage funding we

²⁵ Strictly speaking, the figures compiled by Invest Europe only provide evidence on the number of companies that received financing in a given year. If a company received funding from an investor more than once in a given year, these instances were counted only once.

find in Austria. In 2007–2014, venture capital in the narrow sense of the definition accounted for 14.4% of all equity financing, which is a comparatively large share. What might also play a role is that more than half of the funds raised was made up of initial investments. Finally, the share of funds that went into the high-tech sector²⁶ was disproportionately high at 10%.

What is striking about the data for Austria is the high share of capital invested by foreign funds. On average, foreign funds accounted for 87% of all private equity financing in the period under review, which was the highest share among all countries under review. In smaller countries, foreign funds will generally have a higher share in financing than in larger countries. At the same time, private equity plays a small role in corporate financing in the first place in the countries where the domestic share is small (apart from Austria: Belgium and Ireland).

In the case of Austrian private equity funds, public agencies accounted for a very large share (33.5%) in the period from 2007 to 2012,²⁷ the European average being 5.1%. These figures no doubt reflect the fact that the Austrian authorities embrace public-private partnerships with a view to supporting venture capital. The development of innovative companies and the commercialization of new technologies are promoted by a dedicated agency, Austria Wirtschaftsservice (aws). Given the comprehensive support provided by aws, the comparative small volume of venture capital invested in Austria is unlikely to result

from too low a degree of support. At the same time, this pattern also reflects the virtual absence of institutional investors among the investors in domestic private equity funds. In the period from 2007 to 2012, only 14.7% of the capital raised stemmed from institutional investors, compared with an average of 51.3% for the 14 EU countries reviewed here. Hence, the main problem of private equity financing in Austria would appear to be the size of domestic funding rather than access to foreign sources of finance.²⁸ It would, without doubt, be a good thing if international funds were to invest even more money in Austrian firms. However, given the specific functions of private equity/venture capital, chances of a substantial further increase in the share of foreign investors are low, as private equity funds prefer to invest in companies closer to home (Lerner, 1995).

What appears to be even bigger than the need for specific regulation is the indirect impact of other measures identified in the action plan on private equity, above all the measures aimed at strengthening capital markets that are relevant for exits. Typically, private equity investments do not pay any dividends. Investors often commit money for longer periods of time, reaping the benefits when they sell their stake, for instance during a successful initial public offering. As the information relating to private equity financing tends to be highly proprietary, measures to standardize credit information and simplify accounting standards are unlikely to create additional momentum. After all, in contrast to standard credit assess-

²⁶ According to Invest Europe, which does not define the term “high-tech” in greater detail, though.

²⁷ Invest Europe has stopped publishing those data for individual countries.

²⁸ However, EVCA/Invest Europe (2015) considers even the European private equity funds too small in general to interest large institutional investors, given the high economies of scale involved in portfolio management and credit quality assessments.

ments, private equity financing requires substantial management skills and business acumen.

One factor that was not addressed in the action plan is a possibly low demand for risk capital because of structural factors. Recent evidence (such as Jud et al., 2013) shows that the use of risk capital is highly correlated with numerous national indicators of education and innovation intensity, i.e. the number of university graduates, the share of technology-intensive industries, the size of public and private R&D budgets.

3.2 Crowdfunding

With a view to offering European companies, SMEs in particular, more choices of funding, the action plan also specifically mentioned the goal of promoting crowdfunding across Europe. Based on an analysis of crowdfunding markets in Europe, the Commission will decide on the best means to enable the development of this new funding channel across the EU.

“Crowdfunding”²⁹ is a generic term for a host of (mostly) online-based funding instruments. Crowdfunding builds on crowdsourcing, which is based on the idea of turning to a large and heterogeneous but otherwise unspecified group of people over the Internet for the implementation of certain tasks or projects. The evolution of the crowdfunding market has been largely driven by the Internet. In all forms of crowdfunding discussed here, online market places serve to pool funds committed by many individual investors. Those funds are then paid out to capital seekers, in the form of crowdlending, crowdfunding or reward-based crowdfunding.

Given the relatively early stages of development, the available evidence on international crowdfunding markets is as yet inconclusive. The biggest data pool is that of Wardrop et al. (2015), who collected data from 255 European platforms for the years 2012 to 2014 in a dedicated European online survey (see table 6). Even if these financing in-

Table 6

Crowdfunding

Funding flows, 2012–2014

	Crowdlending	Reward-based crowdfunding and crowdfunding	Total	Annual change from 2012 to 2014	
	EUR million			% of liabilities	%
AT ¹	..	..	3.6	..	..
DE	78.1	6.1	84.2	0.002	115.0
UK	218.0	1,332.0	1,550.0	0.026	174.6
FR	94.1	8.3	102.4	0.001	111.7
ES	80.6	17.1	97.7	0.003	112.3
NL	29.5	57.0	86.5	0.005	102.2
Total (excluding AT)	500.3	1,420.5	1,920.8	0.008	127.7

Source: Wardrop et al. (2015).

¹ Including other types of crowdfunding.

²⁹ For a comprehensive overview, see e.g. Beck (2014) or Sixt (2014).

struments have been characterized by very high growth rates, their contribution to corporate financing is as yet very low. In Europe, market volumes have been highest by far in the United Kingdom, both in absolute terms and in relation to total corporate liabilities. Austria, in contrast, reports very low crowdfunding volumes.³⁰ What is important with regard to capital markets union is that to date crowdfunding markets have been highly fragmented along national lines. Almost 50% of the platforms surveyed by Wardrop et al. (2015) did not report any nonresident investments, 35% reported shares between 1% and 10%, and 10% reported shares between 11% and 30%.

To what extent crowdfunding instruments will provide companies with long-term access to financing depends on the tradeoff between investor protection and the cost burden resulting from disclosure requirements. Moral hazard and adverse selection problems, which are central problems in any financing decision, are particularly relevant for crowdfunding, given the myriad of information asymmetries that exist between investors, platforms and firms. These problems may lead to the creation of a “lemons” market, meaning that there is the risk that only firms unable to raise money in any other market may be left on the crowdfunding market (Dorfleitner et al., 2014; Wilson and Testoni, 2014). The adverse selection problems are often aggravated by the fact that crowd investors/lenders tend to contribute rather small amounts. Hence they will have less of an incentive or often limited means to meticulously analyze the firm in ques-

tion, which may weaken the hoped-for “wisdom of the crowd” effect considerably. At the same time, crowdfunding investors are found to seldom offset this risk by adequately diversifying their portfolio (Dorfleitner et al., 2014; Wilson and Testoni, 2014). This will have implications not only for the financial assets of households, but may even deprive capital-seeking companies of this financing option in the event of large defaults. A number of platform providers have already begun to react to these problems by taking the initiative to conduct credit quality checks or implementing management systems that represent investor interests vis-à-vis the firms. In addition there are platforms which are open to investors only once they have proven adequate expertise in their field of operations or who are liquid enough to exceed high minimum investment thresholds (Wilson and Testoni, 2014). In other words, those platforms have been taking on more and more intermediary functions.

4 Summary

The action plan on building a capital markets union is aimed at supporting all forms of financing that are not directly linked to banks’ balance sheets, by measures to improve market infrastructures and to strengthen the role of nonbank intermediaries. One priority of the capital markets union project are measures to encourage corporate risk capital financing, which is a valuable contribution to reinforcing financial stability also from an Austrian perspective, given the comparatively low capital ratio of Austrian firms. The idea is to facilitate access to equity

³⁰ An alternative source for recent data is CrowdfundingHub (2016); the data run up to 2015, but the country breakdown is less systematic. With regard to Austria, we find a total of EUR 11.1 million to have been raised for crowdinvesting purposes since 2013, of which EUR 8.1 million were raised in 2015 alone. These figures show that, while the momentum of crowdfunding has been increasing in Austria as well, its contribution to corporate financing has remained very small.

financing above all for highly innovative start-ups, which tend to be turned away from banks for moral hazard and adverse selection reasons. Such firms stand to benefit from simplified, harmonized and transparent capital market rules. Above all in the area of start-up financing and innovation funding, i.e. areas of financing which are typically not compatible with the risk profile of banks, there is definitely room for improvement in Austria, as is evidenced by the low rate of business births and the low volume of (domestic) private equity financing.

Another priority of the capital markets union project are measures to strengthen the role of nonbank intermediaries in the area of debt financing. Yet even if the relevance of loan financing declines further, banks will continue to play a major function in the overall financing process. After all, bank loans will remain the financing tool of choice especially for small and medium-sized enterprises, not least because of the discrepancy between the volumes typically needed by SMEs and the minimum deal sizes required for capital market financing. This barrier will remain in place even once the bar for the latter is lowered in line with the action plan for building a capital markets union. Recourse to the credit market will remain high also because firms' funding needs may fluctuate too much for them to tap the capital market or because collateralization requirements will be too complex. Furthermore, the shift toward capital market financing will help free up capacity on banks' balance sheets and increase their ability to lend to companies (including SMEs) which are not able or willing to raise capital in the capital markets.³¹

In Austria, a number of attempts have been made in the past to revive the capital market, yet any resulting effects have not been long lived. While measures to improve investor protection – such as rules enhancing the disclosure of company information or corporate governance rules for listed companies – have helped reduce information gaps, these measures have of course increased the cost burden from a company view. Above all for companies with smaller financing needs, these measures have not eased access to the capital market. Likewise, the attempt to spread the costs of raising capital more broadly by bundling individual issues failed to deliver in the end. Furthermore, measures to facilitate capital market funding by strengthening demand for Austrian shares – for instance with state-subsidized personal pension plans requiring a minimum share of stock exchange investments – were problematic from the perspective of risk diversification. From this perspective, measures as proposed in the action plan, which support cross-border investments, would appear to be more effective.

One way to combine the advantages of bank credit and capital market financing is the securitization of corporate loans by banks, which has so far played a lesser role in Austria. If or to what extent this may change in the future, depends on the actual design of securitized products, for instance on how securitizations are “tranching.” While securitization may increase the willingness and/or capacity of banks to extend credit, as seen from the firms' perspective, it does not reduce their dependency on banks. Vice versa, securitization increases the capital

³¹ Also, banking regulators have been taking action to facilitate equity backing of SME loans (by implementing lower risk weights than for large companies, an SME factor, etc.) in order to support credit financing of SMEs by banks.

market dependency of bank financing. To complete the picture, it is important to remember that securitized products, like bonds, make it considerably more difficult for banks to renegotiate the underlying contract in the event of payment difficulties.

A stronger involvement of institutional investors, such as loan-originating funds, may open up additional (or even new) financing options for projects with a high potential for growth and risk, given that funds tend to invest in higher-risk lending. At the same time, fluctuations in the risk tolerance of institutional investors may – contrary to the goals of capital markets union – add to the cyclicity of corporate financing facilities.

Even if the financing problems of companies in Austria have been rather limited, introducing greater financing choice, as envisaged by the action plan, may open up complementary financing sources for companies, thus reducing financing risks. Capital markets can contribute to stabilizing economic developments over the business cycle by making it easier or possible to spread the chances and risks of investment projects among a broader range of investors who are able and willing to shoulder the related risks. From a stability perspective, shifting funding responsibilities further away from the banking sector removes a layer of intermediation, even if a diversification of financing forms does not have a stabilizing effect per se. Generally speaking, a stronger capital market orientation will have major consequences for risk allocation within the financial system. While in bank-based financing systems, the financing risks are borne by the – increasingly regulated – banking system, capital markets union would redirect financing flows to other intermediaries or to private individuals. What

is crucial in this respect is the ability and capacity of such lenders to adequately evaluate and monitor risk-taking. Cases in point are, first, the risks arising from developments in the German mid-cap bond market, which may go hand in hand with a higher exposure of private individuals to such instruments and, second, the increasing requirements concerning the assessment of risks implied by the choice of financial products issued by other intermediaries or, possibly even more relevant, of risks related to non-intermediated investments. These developments may, among other things, increase the need for financial literacy measures.

Another goal of the action plan is to help companies, SMEs in particular, overcome the information barriers for fundraising. Given the reduced availability of transparent and credible information on the economic condition of smaller firms and start-ups, the action plan includes measures to investigate how to develop or support pan-European information systems. As information gaps between capital providers and capital-seeking companies increase the cost of external financing, a higher degree of transparency may contribute to lowering companies' financing costs, or may even make fundraising possible in the first place. Moreover, a higher degree of transparency may improve risk identification and pricing in the financing process, thus reducing the misallocation of capital. However, the direct contact with investors and the need to keep them thoroughly informed (in particular when raising funds on a regulated market) also have considerable repercussions on the corporate governance structures of a company. Especially owner- or family-run businesses, which play a major role in Austria, may not be very forthcoming about internal corporate information.

Last but not least, the action plan for building a capital markets union left un-addressed a number of obstacles which have hampered cross-border financing in the past. Apart from persistent legal and tax differences, these obstacles include language barriers and political risks.

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Cutoff date for data: June 13, 2016

Conventions used in the tables:

x = No data can be indicated for technical reasons

.. = Data not available at the reporting date

Revisions of data published in earlier volumes are not indicated.

Discrepancies may arise from rounding.

International financial market indicators

Table A1

Short-term interest rates¹

	2008	2009	2010	2011	2012	2013	2014	2015
<i>Three-month rates, period average, %</i>								
Euro area	4.63	1.23	0.81	1.39	0.57	0.22	0.21	-0.02
U.S.A.	2.91	0.69	0.34	0.34	0.43	0.27	0.23	0.32
Japan	0.85	0.59	0.39	0.34	0.33	0.24	0.21	0.17
United Kingdom	5.49	1.23	0.74	0.88	0.86	0.50	0.54	0.55
Switzerland	2.58	0.38	0.19	0.12	0.07	0.02	0.01	-0.75
Czech Republic	4.04	2.19	1.31	1.19	1.00	0.46	0.36	0.31
Hungary	8.87	8.64	5.51	6.19	6.98	4.31	2.41	1.61
Poland	6.36	4.42	3.92	4.54	4.91	3.02	2.52	1.75

Source: Bloomberg, Eurostat, Thomson Reuters.

¹ Average rate at which a prime bank is willing to lend funds to another prime bank for three months.

Table A2

Long-term interest rates¹

	2008	2009	2010	2011	2012	2013	2014	2015
<i>Ten-year rates, period average, %</i>								
Euro area	4.36	4.03	3.78	4.31	3.05	3.01	2.28	1.27
U.S.A.	3.65	3.24	3.20	2.77	1.79	2.34	2.53	2.13
Japan	1.49	1.34	1.17	1.12	0.85	0.71	0.55	0.36
United Kingdom	4.50	3.36	3.36	2.87	1.74	2.03	2.14	1.78
Switzerland	2.90	2.20	1.63	1.47	0.65	0.95	0.69	-0.07
Austria	4.36	3.94	3.23	3.32	2.37	2.01	1.49	0.75
Czech Republic	4.63	4.84	3.88	3.71	2.78	2.11	1.58	0.58
Hungary	8.24	9.12	7.28	7.64	7.89	5.92	4.81	3.43
Poland	6.07	6.12	5.78	5.96	5.00	4.03	3.52	2.70

Source: ECB, Eurostat, Thomson Reuters, national sources.

¹ Yields of long-term government bonds.

Table A3

Stock indices

	2008	2009	2010	2011	2012	2013	2014	2015
<i>Annual change in %, period average</i>								
Euro area: EURO STOXX	-24.68	-25.29	13.38	-3.60	-6.36	17.53	13.07	11.76
U.S.A.: S&P 500	-17.33	-22.35	20.24	11.27	8.74	19.14	17.58	6.70
Japan: Nikkei 225	-28.45	-23.07	7.22	-5.94	-3.37	48.80	14.22	23.83
United Kingdom: FTSE 100	-16.20	-14.86	19.76	3.90	0.96	12.75	3.24	-1.35
Switzerland: SMI	-22.88	-18.15	14.27	-6.96	4.88	24.14	9.26	4.28
Austria: ATX	-27.28	-36.45	19.85	-3.69	-14.79	16.94	-2.36	1.29
Czech Republic: PX 50	-23.50	-29.20	21.70	-5.10	-14.60	2.50	1.60	0.80
Hungary: BUX	-24.30	-18.70	40.10	-8.70	-12.00	3.30	-3.90	17.30
Poland: WIG	-31.00	-21.30	33.60	4.40	-6.70	16.10	8.10	-0.30

Source: Thomson Reuters.

Table A4

Corporate bond spreads¹

	2008	2009	2010	2011	2012	2013	2014	2015
<i>Percentage points, period average</i>								
Euro area								
AA	2.04	2.17	1.33	1.90	1.47	0.89	0.61	0.72
BBB	3.84	5.23	2.95	3.75	3.56	2.25	1.73	1.90
U.S.A.								
AA	3.03	2.57	1.32	1.68	1.50	1.12	0.88	1.04
BBB	4.16	4.51	2.21	2.34	2.59	2.17	1.76	2.13

Source: Thomson Reuters.

¹ Spreads of seven- to ten-year corporate bonds against ten-year government bonds (euro area: German government bonds).

Financial indicators of the Austrian corporate and household sectors

Table A5

Financial investment of households¹

	2008	2009	2010	2011	2012	2013	2014	2015
<i>EUR billion, four-quarter moving sum</i>								
Currency	0.7	0.9	1.0	1.1	0.6	1.2	0.8	0.9
Deposits	11.6	7.6	1.6	4.6	3.8	1.9	3.2	6.3
Debt securities ²	4.8	-0.4	1.5	1.8	0.2	-1.8	-4.2	-3.5
Shares and other equity ³	1.6	1.7	1.7	0.8	1.1	-0.1	1.8	-0.2
Mutual fund shares	-4.0	0.9	2.4	-1.4	0.9	2.7	3.5	4.1
Insurance technical reserves	3.7	4.6	3.7	2.1	2.7	2.4	2.4	0.8
Other accounts receivable	1.3	0.2	0.7	1.0	1.3	1.4	2.9	2.1
Total financial investment	19.7	15.5	12.6	10.0	10.6	7.7	10.4	10.5

Source: OeNB (financial accounts).

¹ Including nonprofit institutions serving households.

² Including financial derivatives.

³ Other than mutual fund shares.

Table A6

Household¹ income and savings

	2008	2009	2010	2011	2012	2013	2014	2015
<i>EUR billion, four-quarter moving sum</i>								
Net disposable income	171.6	171.9	172.9	177.9	185.8	185.9	190.7	191.4
Savings	20.7	19.5	16.2	14.1	17.3	13.8	15.0	13.4
Saving ratio in % ²	11.9	11.3	9.3	7.9	9.2	7.3	7.8	6.9

Source: Statistics Austria (national accounts broken down by sectors).

¹ Including nonprofit institutions serving households.

² Saving ratio = savings / (disposable income + increase in accrued occupational pension benefits).

Table A7

Financing of nonfinancial corporations

	2008	2009	2010	2011	2012	2013	2014	2015
<i>EUR billion, four-quarter moving sum</i>								
Debt securities ¹	1.8	4.3	1.4	4.2	2.8	1.7	-0.7	0.2
Loans	12.0	-10.1	5.8	6.4	4.5	1.6	0.8	5.1
Shares and other equity	8.0	2.9	0.4	9.6	1.6	4.5	8.2	7.6
Other accounts payable	-0.2	-5.8	5.9	3.4	0.2	3.1	-0.9	2.7
Total external financing	21.6	-8.7	13.5	23.6	9.1	10.9	7.4	15.6

Source: OeNB (financial accounts).

¹ Including financial derivatives.

Table A8

Insolvency indicators

	2008	2009	2010	2011	2012	2013	2014	2015
Default liabilities (EUR million)	2,969	4,035	4,700	2,775	3,206	6,255	2,899	2,430
Defaults (number)	3,270	3,741	3,522	3,260	3,505	3,266	3,275	3,115

Source: Kreditschutzverband von 1870.

Note: Default liabilities for 2013 include one large insolvency.

Table A9

Housing market indicators

	2008	2009	2010	2011	2012	2013	2014	2015
<i>2000=100</i>								
Residential property price index								
Vienna	125.5	133.5	143.9	156.1	180.7	196.3	204.6	209.2
Austria	115.4	119.8	127.3	132.7	149.1	156.0	161.4	168.1
Austria excluding Vienna	111.6	114.8	121.1	124.0	137.4	141.1	145.4	152.9
<i>2000=100</i>								
Rent prices¹								
Vienna: apartments	116.8	116.3	117.7	121.0	126.3	129.5	134.9	140.4
Austria excluding Vienna: apartments	122.7	144.7	145.9	148.2	144.1	162.5	158.9	158.3
Austria excluding Vienna: single-family houses	112.9	101.5	101.7	97.1	94.6	95.5	97.4	94.2
Rents of apartments excl. utilities, according to CPI	92.4	96.7	100.0	103.3	107.8	111.2	115.6	120.7
OeNB fundamentals indicator for residential property prices²								
Vienna	-3.1	-5.4	-1.3	4.8	13.6	18.0	19.1	19.2
Austria	-6.9	-12.2	-8.4	-5.1	0.2	-0.8	-0.9	1.0

Source: OeNB, TU Wien.

¹ Free and regulated rents.

² Deviation from fundamental price in %.

Austrian financial intermediaries¹

Table A10

Total assets and off-balance sheet operations

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Total assets on an unconsolidated basis	1,069,100	1,029,043	978,559	1,014,278	982,114	927,155	896,424	859,165
of which: total domestic assets	692,566	691,465	659,561	693,394	678,500	645,275	611,540	606,427
Total assets on a consolidated basis	1,175,646	1,139,961	1,130,853	1,166,313	1,163,595	1,089,713	1,078,155	1,056,705
Total assets of CESEE subsidiaries ¹	267,484	254,356	263,800	270,045	276,352	264,998	285,675	298,600
Leverage ratio (consolidated, %) ²	4.5	5.2	5.8	5.8	6.1	6.5	6.1	6.3

Source: OeNB.

¹ Including Yapı ve Kredi Bankası (not fully consolidated by parent bank UniCredit Bank Austria) since 2014.

² Definition up to 2013: tier 1 capital after deduction in % of total assets. Definition as of 2014 according to Basel III.

Table A11

Sectoral distribution of domestic loans

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
All currencies combined								
Banks	208,218	195,737	169,596	184,789	169,364	147,537	123,732	125,688
Nonbanks	314,399	311,794	321,524	329,912	330,385	326,820	328,324	333,970
of which: nonfinancial corporations	134,897	132,346	135,427	138,840	140,384	140,329	136,606	137,235
households ¹	127,828	128,178	135,215	138,353	139,056	139,052	140,946	146,432
general government	24,056	24,923	26,374	28,976	27,972	25,970	28,102	28,076
other financial intermediaries	27,213	26,063	24,324	23,586	22,806	21,244	22,578	22,127
Foreign currency								
Banks	54,977	42,780	25,851	25,288	19,422	16,013	14,939	12,724
Nonbanks	56,797	53,515	58,746	57,231	47,652	40,108	36,288	33,950
of which: nonfinancial corporations	12,441	11,473	12,550	12,111	9,156	6,985	6,379	5,293
households ¹	39,138	37,064	40,040	38,716	32,905	28,385	25,374	24,423
general government	1,673	1,628	2,627	3,267	2,827	2,478	2,777	2,858
other financial intermediaries	3,514	3,374	3,525	3,133	2,761	2,257	1,759	1,374

Source: OeNB.

¹ Including nonprofit institutions serving households.

Note: Figures are based on monetary statistics.

¹ Since 2007, the International Monetary Fund (IMF) has published Financial Soundness Indicators (FSIs) for Austria (see also www.imf.org). In contrast to some FSIs that take only domestically-owned banks into account, the OeNB's Financial Stability Report takes into account all banks operating in Austria. For this reason, some of the figures presented here may deviate from the figures published by the IMF.

Table A12

Loan quality

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, % of claims on nonbanks</i>								
Specific loan loss provisions for loans to nonbanks (unconsolidated)	2.2	2.8	3.2	3.2	3.4	3.5	3.3	3.0
Specific loan loss provisions for loans to nonbanks (consolidated)	2.4	3.5	4.1	4.3	4.6	4.8	4.5	4.2
Specific loan loss provisions for loans to nonbanks (Austrian banks' subsidiaries in CESEE)	2.9	5.3	6.5	7.3	7.6	8.0	7.3	7.0
Nonperforming loan ratio (unconsolidated) ¹	3.0	4.2	4.7	4.5	4.7	4.1	4.4	4.3
Nonperforming loan ratio (consolidated) ¹	x	6.7	8.0	8.3	8.7	8.6	7.0	6.4
Nonperforming loan ratio (Austrian banks' subsidiaries in CESEE)	x	9.6	12.7	14.2	13.9	14.0	11.8	11.5

Source: OeNB.

¹ Ratio for loans to corporates and households (introduced in Financial Stability Report 24 to better indicate the loan quality in retail business; not comparable with former ratios).

Table A13

Exposure to CESEE

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Total exposure according to BIS	199,227	203,975	209,352	216,086	209,818	201,768	184,768	186,397
Total indirect lending to nonbanks ¹	170,566	160,248	168,710	171,311	171,117	161,439	177,389	177,908
Total direct lending ²	49,724	50,665	49,460	52,010	51,539	52,926	43,144	40,986
Foreign currency loans of Austrian banks' subsidiaries in CESEE	84,090	77,396	84,601	88,282	85,382	79,047	76,736	69,317

Source: OeNB.

¹ Lending (net lending after risk provisions) to nonbanks by all fully consolidated subsidiaries in CESEE.² Cross-border lending to nonbanks and nonfinancial institutions in CESEE according to monetary statistics.

Table A14

Profitability on an unconsolidated basis

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Operating income	20,557	17,850	19,705	19,227	19,115	18,967	19,943	20,813
of which: net interest income	8,248	8,769	9,123	9,622	8,813	8,814	9,306	8,975
securities and investment earnings	7,193	3,328	4,026	3,662	3,670	3,018	3,550	3,443
fee and commission income	4,218	3,605	3,950	3,835	3,848	4,073	4,260	4,410
trading income	-812	486	664	325	631	495	368	516
other operating income	1,710	1,662	1,942	1,784	2,153	2,567	2,458	3,469
Operating expenses	11,416	11,080	11,547	11,714	12,193	12,835	13,906	13,769
of which: staff costs	5,776	5,697	5,802	5,998	6,243	6,507	7,384	6,918
other administrative expenses	3,952	3,766	3,940	4,028	4,124	4,301	4,459	4,582
other operating expenses	1,689	1,617	1,805	1,688	1,827	2,027	2,063	2,270
Operating profit/loss	9,141	6,770	8,159	7,513	6,922	6,132	6,037	7,043
Net profit after taxes	1,891	43	4,207	1,211	3,214	-935	-6,692	3,720
%								
Return on average assets ¹	0.2	0.0	0.4	0.1	0.3	-0.1	-0.7	0.4
Return on average equity ¹	3.0	0.1	5.8	1.6	4.31	-1.2	-9.9	5.9
Interest income to gross income	40.0	49.1	46.3	50.0	46.1	46.5	46.7	43.1
Cost-to-income ratio	56.0	62.1	58.6	60.9	63.79	67.7	69.7	66.2

Source: OeNB.

¹ Annual surplus in % of total assets and tier 1 capital, respectively.

Table A15

Profitability of Austrian subsidiaries¹ in CESEE

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Operating income	14,102	13,396	13,436	13,622	13,268	13,307	12,160	12,261
of which: net interest income	9,231	8,693	9,333	9,402	8,781	8,414	9,069	8,431
securities and investment earnings	103	50	47	70	61	63	27	49
fee and commission income	3,432	2,916	2,954	3,092	2,992	3,164	3,475	3,355
trading income	46	1,238	368	426	790	749	-139	733
other operating income ²	1,547	818	1,227	1,058	1,230	1,672	-273	-309
Operating expenses	6,961	6,267	6,678	6,814	6,950	7,009	4,892	5,477
of which: staff costs	3,200	2,739	2,870	2,997	2,992	2,922	2,979	2,896
other administrative expenses ³	2,809	2,502	2,557	2,641	2,606	2,580	2,752	2,744
Operating profit/loss	7,141	7,129	6,757	6,809	6,317	6,298	5,747	5,998
Net profit after taxes	4,219	1,775	2,063	1,757	2,093	2,216	747	2,048
%								
Return on average assets ³	2	1	1	1	1	1	0	1
Return on average equity ³	20.5	8.2	9.2	7.2	8.2	8.4	9.9	9.5
Interest income to gross income	65	65	69	69	66	63	75	69
Cost-to-income ratio ²	49	47	50	50	52	53	53	51

Source: OeNB.

¹ Since the first quarter of 2014, pro rata data of Yapi ve Kredi Bankasi, a joint venture of UniCredit Bank Austria in Turkey, have been included.² As from end-2014, other operating income and other operating expenses are netted under other operating income.³ End-of-period result expected for the full year after tax as a percentage of average total assets and total tier 1 capital, respectively.

Table A16

Profitability on a consolidated basis

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Operating income	33,642	37,850	37,508	37,207	37,673	35,271	28,717	28,064
of which: net interest income	19,308	19,451	20,390	20,426	19,259	18,598	19,345	18,336
net fee-based income	8,469	7,160	7,678	7,592	7,260	7,590	7,741	7,730
net profit/loss on financial operations	-2,135	2,560	997	845	1,137	670	426	-50
other operating income ¹	8,001	8,679	8,443	8,344	10,016	8,413	1,205	2,048
Operating expenses	25,788	22,230	24,030	26,839	25,582	27,318	19,833	17,612
of which: staff costs	10,166	9,522	9,941	10,279	10,391	10,378	9,543	8,959
other administrative expenses	6,364	5,979	6,262	6,316	6,410	6,628	6,569	6,830
other operating expenses ²	9,257	6,729	7,827	10,244	8,781	10,311	3,721	1,823
Operating profit/loss	7,855	15,620	13,478	10,369	12,090	7,953	8,884	10,452
Net profit after taxes	586	1,530	4,577	711	2,966	-1,035	685	5,244
%								
Return on average assets ³	0.1	0.2	0.5	0.1	0.3	0.0	0.1	0.6
Return on average equity ³	2.1	3.6	8.2	1.7	5.1	-0.7	0.9	9.5
Interest income to gross income	57.4	51.4	54.4	54.9	51.1	52.7	67.4	65.3
Cost-to-income ratio	71.9	52.7	57.9	66.4	61.7	73.0	69.1	62.8

Source: OeNB.

¹ As from end-2014, other operating income and other operating expenses are netted under other operating income.² As from end-2014, some positions of other operating expenses are netted under other operating income.³ End-of-period result expected for the full year before minority interests as a percentage of average total assets and average tier 1 capital, respectively.

Table A17

Solvency

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Own funds	74,707	80,574	86,228	88,071	88,204	88,994	87,584	87,123
Total risk exposure	678,163	633,313	653,313	649,613	621,925	578,425	562,790	538,754
<i>End of period, eligible capital and tier 1 capital, respectively, as a percentage of risk-weighted assets</i>								
Consolidated total capital adequacy ratio	11.0	12.8	13.2	13.6	14.2	15.4	15.6	16.2
Consolidated tier 1 capital ratio	7.7	9.3	10.0	10.3	11.0	11.9	11.8	12.7
Consolidated core tier 1 capital ratio (common equity tier 1 as from 2014)	6.9	8.5	9.4	9.8	10.7	11.6	11.7	12.7

Source: OeNB.

Note: As from 2014, figures are calculated according to CRD IV requirements. Therefore, comparability with previous figures is limited.

Table A18

Liquidity risk

	2008	2009	2010	2011	2012	2013	2014	2015
	<i>End of period, %</i>							
Short-term loans to short-term liabilities	67	73	64	66	66	59	62	60
Short-term loans and other liquid assets to short-term liabilities	109	125	119	118	121	109	117	113

Source: OeNB.

Table A19

Market indicators of selected Austrian financial instruments

	2009	2010	2011	2012	2013	2014	2015	mid-2016
	<i>% of mid-2006 prices, end of period</i>							
Share prices								
Erste Group Bank	62	85	33	57	60	46	69	51
Raiffeisen Bank International	58	63	31	46	37	19	21	17
EURO STOXX – Banks	57	42	26	29	36	35	33	25
Uniq	51	57	37	39	38	32	31	24
Vienna Insurance Group	77	85	69	87	78	80	54	39
EURO STOXX – Insurance	60	57	47	62	82	85	98	80
	<i>%, end of period</i>							
Relative valuation: share price-to-book value ratio								
Erste Group Bank	0.8	1.3	0.5	0.9	1.1	0.7	1.1	0.8
Raiffeisen Bank International	1.1	1.2	0.5	0.8	0.9	0.5	0.5	0.4
EURO STOXX – Banks	0.9	0.6	0.4	0.6	1.0	0.7	0.7	0.6
Uniq	1.4	2.3	1.2	1.1	1.1	0.9	0.8	0.7
Vienna Insurance Group	1.0	1.2	0.9	1.2	1.1	1.1	0.8	0.6
EURO STOXX – Insurance	1.0	0.9	0.7	0.8	0.9	1.2	1.0	0.9

Source: Thomson Reuters, Bloomberg.

Note: Mid-2016 refers to June 10, 2016, for EURO STOXX banks, and to May 30, 2016, for the price-to-book value ratio.

Table A20

Key indicators of Austrian insurance companies

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Business and profitability								
Premiums	16,180	16,381	16,652	16,537	16,341	16,608	17,077	17,342
Expenses for claims and insurance benefits	11,608	12,348	11,882	12,826	12,973	13,150	14,157	15,514
Underwriting results	-119	132	373	295	455	592	477	475
Profit from investments	2,370	2,729	3,203	2,964	3,391	3,354	3,211	3,216
Profit from ordinary activities	411	744	1,101	1,162	1,395	1,524	1,421	1,354
Acquisition and administrative expenses	3,315	3,241	3,382	3,541	3,499	3,528	3,573	3,697
Total assets	93,911	99,227	105,099	105,945	108,374	110,391	113,662	114,495
Investments								
Total investments	87,698	92,260	98,300	99,776	103,272	105,496	107,442	107,933
of which: debt securities	35,209	36,397	38,223	37,813	37,614	39,560	41,667	41,517
stocks and other equity securities ¹	12,531	12,811	12,559	12,363	12,505	12,464	12,619	12,522
real estate	5,138	5,246	5,703	5,236	5,371	5,689	5,858	5,912
Investments for unit-linked and index-linked life insurance	9,319	12,822	15,325	15,870	18,330	19,127	20,179	19,776
Claims on domestic banks	16,079	17,168	16,458	16,405	16,872	16,687	15,800	11,388
Reinsurance receivables	1,272	1,218	1,229	1,733	1,933	824	918	971
%								
Risk capacity (solvency ratio)	300	300	356	332	350	368	380	375

Source: FMA, OeNB.

¹ Contains shares, share certificates (listed and not listed) and all equity instruments held by mutual funds.

Table A21

Assets held by Austrian mutual funds

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Domestic securities	48,777	48,765	51,001	50,046	50,963	49,757	52,116	52,970
of which: debt securities	14,601	16,013	15,884	16,683	17,527	16,203	15,467	13,609
stocks and other equity securities	1,473	2,863	3,696	2,991	3,637	3,610	3,345	3,530
Foreign securities	78,655	89,845	96,684	87,458	96,854	99,647	110,397	114,833
of which: debt securities	57,598	61,961	61,744	58,695	63,661	62,972	69,642	70,326
stocks and other equity securities	8,899	12,663	15,540	12,097	14,208	16,278	17,910	18,521
Net asset value	127,432	138,610	147,684	137,504	147,817	149,404	162,513	167,802
of which: retail funds	82,804	85,537	88,313	78,299	84,158	83,238	89,163	91,626
institutional funds	44,628	53,073	59,372	59,205	63,659	66,167	73,350	76,177
Consolidated net asset value	105,620	115,337	123,794	116,747	126,831	128,444	138,642	143,249

Source: OeNB.

Table A22

Structure and profitability of Austrian fund management companies

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Total assets	504	642	699	661	644	670	725	745
Operating profit	89	106	142	125	111	131	158	184
Net commissions and fees earned	269	258	302	284	283	310	368	411
Administrative expenses ¹	196	185	199	195	205	219	246	266
Number of fund management companies	29	30	29	29	29	29	29	29
Number of reported funds	2,308	2,182	2,203	2,171	2,168	2,161	2,118	2,077

Source: OeNB.

¹ Administrative expenses are calculated as the sum of staff and material expenses.

Table A23

Assets held by Austrian pension funds

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Total assets	11,936	13,734	14,976	14,798	16,335	17,385	19,011	19,646
of which: direct investment	x	1,239	968	1,139	1,139	1,640	1,065	990
mutual funds	x	11,235	13,944	13,626	15,278	15,745	17,946	18,656
foreign currency (without derivatives)	x	x	x	x	5,714	5,964	7,578	7,279
stocks	x	x	x	x	4,805	5,472	6,250	6,200
debt	x	x	x	x	8,464	7,650	9,163	9,552
real estate	x	x	x	x	567	583	576	690
cash and deposits	x	x	1,181	1,624	1,488	2,033	1,598	1,850

Source: OeNB, FMA.

Table A24

Assets held by Austrian severance funds

	2008	2009	2010	2011	2012	2013	2014	2015
<i>End of period, EUR million</i>								
Total direct investment	1,062	884	1,004	1,393	1,442	1,528	1,415	1,565
of which: euro-denominated	1,043	866	985	1,363	1,415	1,507	1,299	1,502
foreign currency-denominated	19	17	19	30	27	21	x	63
accrued income claims from direct investment	17	15	16	19	22	21	15	14
Total indirect investment	1,076	1,946	2,569	2,891	3,834	4,701	5,912	6,741
of which: total of euro-denominated investment in mutual fund shares	1,039	1,858	2,379	2,741	3,540	4,220	5,190	5,790
total of foreign currency-denominated investment in mutual fund shares	38	88	190	151	294	481	722	951
Total assets assigned to investment groups	2,139	2,830	3,573	4,284	5,254	6,218	7,306	8,294

Source: OeNB.

Note: Due to special balance sheet operations, total assets assigned to investment groups deviate from the sum of total indirect investments.

Table A25

Transactions and system disturbances in payment and securities settlement systems

	2008	2009	2010	2011	2012	2013	2014	2015
<i>Number of transactions in million, value of transactions in EUR billion</i>								
HOAM.AT								
Number	1	1	1	1	1	1	1	1
Value	4,364	9,305	9,447	7,667	9,974	5,906	7,438	6,381
System disturbances	4	5	4	1	1	3	..	1
Securities settlement systems								
Number	1	2	2	2	2	2	2	2
Value	247	365	398	439	418	369	377	315
System disturbances	..	..	..	..	1	5	2	3
Card payment systems¹								
Number	505	540	583	591	633	673	1,006	1,045
Value	38	41	45	45	48	72	99	102
System disturbances	16	19	25	4	4	2	..	..
Participation in international payment systems								
Number	13	31	31	36	41	53	113	144
Value	998	1,225	1,164	1,306	1,820	1,643	2,463	2,420
System disturbances	..	..	..	..	..	..	..	..

Source: OeNB.

¹ On-us ATM transactions are not included in the figures for 2009–2013.

Notes

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German | annually
English | annually

This report informs readers about the Eurosystem's monetary policy and underlying economic conditions as well as about the OeNB's role in maintaining price stability and financial stability. It also provides a brief account of the key activities of the OeNB's core business areas. The OeNB's financial statements are an integral part of the report.

<http://www.oenb.at/en/Publications/Oesterreichische-Nationalbank/Annual-Report.html>

Inflation aktuell

German | quarterly

This publication presents the OeNB's analysis of recent inflation developments in Austria and its inflation outlook for Austria for the current and next year. In addition, it provides in-depth analyses of topical issues.

Konjunktur aktuell

German | seven times a year

This publication provides a concise assessment of current cyclical and financial developments in the global economy, the euro area, Central, Eastern and Southeastern European countries, and in Austria. The quarterly releases (March, June, September and December) also include short analyses of economic and monetary policy issues.

<http://www.oenb.at/Geldpolitik/Konjunktur/konjunktur-aktuell.html>

Monetary Policy & the Economy

English | quarterly

This publication assesses cyclical developments in Austria and presents the OeNB's regular macroeconomic forecasts for the Austrian economy. It contains economic analyses and studies with a particular relevance for central banking and summarizes findings from macroeconomic workshops and conferences organized by the OeNB.

<http://www.oenb.at/en/Publications/Economics/Monetary-Policy-and-the-Economy.html>

Fakten zu Österreich und seinen Banken Facts on Austria and Its Banks

German | twice a year
English | twice a year

This publication provides a snapshot of the Austrian economy based on a range of structural data and indicators for the real economy and the banking sector. Comparative international measures enable readers to put the information into perspective.

<http://www.oenb.at/en/Publications/Financial-Market/Facts-on-Austria-and-Its-Banks.html>

Financial Stability Report

English | twice a year

The reports section of this publication analyzes and assesses the stability of the Austrian financial system as well as developments that are relevant for financial stability in Austria and at the international level. The special topics section provides analyses and studies on specific financial stability-related issues.

<http://www.oenb.at/en/Publications/Financial-Market/Financial-Stability-Report.html>

Focus on European Economic Integration

English | quarterly

This publication presents economic analyses and outlooks as well as analytical studies on macroeconomic and macro-financial issues with a regional focus on Central, Eastern and Southeastern Europe.

<http://www.oenb.at/en/Publications/Economics/Focus-on-European-Economic-Integration.html>

Statistiken – Daten & Analysen

German | quarterly

This publication contains analyses of the balance sheets of Austrian financial institutions, flow-of-funds statistics as well as external statistics (English summaries are provided). A set of 14 tables (also available on the OeNB's website) provides information about key financial and macroeconomic indicators.

<http://www.oenb.at/Publikationen/Statistik/Statistiken---Daten-und-Analysen.html>

Statistiken – Daten & Analysen: Sonderhefte **Statistiken – Daten & Analysen: Special Issues**

German | irregularly
English | irregularly

In addition to the regular issues of the quarterly statistical series “Statistiken – Daten & Analysen,” the OeNB publishes a number of special issues on selected statistics topics (e.g. sector accounts, foreign direct investment and trade in services).

<http://www.oenb.at/en/Publications/Statistics/Special-Issues.html>

Research Update

English | quarterly

This newsletter informs international readers about selected research findings and activities of the OeNB’s Economic Analysis and Research Department. It offers information about current publications, research priorities, events, conferences, lectures and workshops. Subscribe to the newsletter at:

<http://www.oenb.at/en/Publications/Economics/research-update.html>

CESEE Research Update

English | quarterly

This online newsletter informs readers about research priorities, publications as well as past and upcoming events with a regional focus on Central, Eastern and Southeastern Europe. Subscribe to the newsletter at:

<http://www.oenb.at/en/Publications/Economics/CESEE-Research-Update.html>

OeNB Workshops Proceedings

German, English | irregularly

This series, launched in 2004, documents contributions to OeNB workshops with Austrian and international experts (policymakers, industry experts, academics and media representatives) on monetary and economic policymaking-related topics.

<http://www.oenb.at/en/Publications/Economics/Workshops.html>

Working Papers

English | irregularly

This series provides a platform for discussing and disseminating economic papers and research findings. All contributions are subject to international peer review.

<http://www.oenb.at/en/Publications/Economics/Working-Papers.html>

Proceedings of the Economics Conference

English | annually

The OeNB’s annual Economics Conference provides an international platform where central bankers, economic policymakers, financial market agents as well as scholars and academics exchange views and information on monetary, economic and financial policy issues. The proceedings serve to document the conference contributions.

<http://www.oenb.at/en/Publications/Economics/Economics-Conference.html>

Proceedings of the Conference on European Economic Integration

English | annually

The OeNB’s annual Conference on European Economic Integration (CEEI) deals with current issues with a particular relevance for central banking in the context of convergence in Central, Eastern and Southeastern Europe as well as the EU enlargement and integration process. For an overview see:

<http://www.oenb.at/en/Publications/Economics/Conference-on-European-Economic-Integration-CEEI.html>

The proceedings have been published with Edward Elgar Publishers, Cheltenham/UK, Northampton/MA, since the CEEI 2001 (www.e-elgar.com).

Publications on banking supervisory issues

German, English | irregularly

<http://www.oenb.at/en/Publications/Financial-Market/Publications-of-Banking-Supervision.html>

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