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Quarterly Review of Economic Policy

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Stability and Security.

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Opinions expressed by the authors of studies do not necessarily reflect the official viewpoint of the Oesterreichische Nationalbank or of the Eurosystem.

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 post-doc) who work in the fields of macroeconomics, international economics or financial economics and/or pursue a regional focus on Central, Eastern and Southeastern 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 2016 should be e-mailed to *eva.gehringer-wasserbauer@oenb.at* by May 1, 2016.

Applicants will be notified of the jury's decision by mid-June. The following round of applications will close on November 1, 2016.

Analyses

Austrian economy to grow at same pace as euro area economy in 2016 and 2017

Economic outlook for Austria from 2015 to 2017 (December 2015)

Gerhard Fenz,
Martin Schneider[1]

1 Executive summary

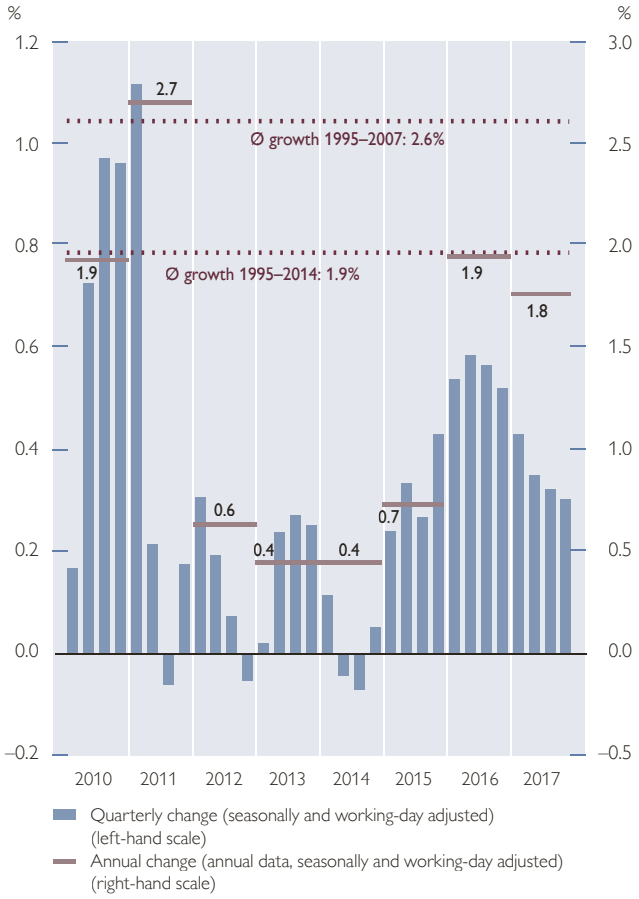
In its December 2015 economic outlook, the Oesterreichische Nationalbank (OeNB) expects the Austrian economy to pick up moderately. While GDP growth will still be weak at 0.7% in 2015, it is set to accelerate to 1.9% in 2016 on the back of three one-off factors: the tax reform taking effect in January 2016, expenditure on asylum-seekers and recognized refugees and a government housing stimulus package. In 2017, growth is expected to come in at 1.8%. This means that the outlook remains unchanged compared with the June 2015 outlook.

The growth outlook for the global economy deteriorated in the course of

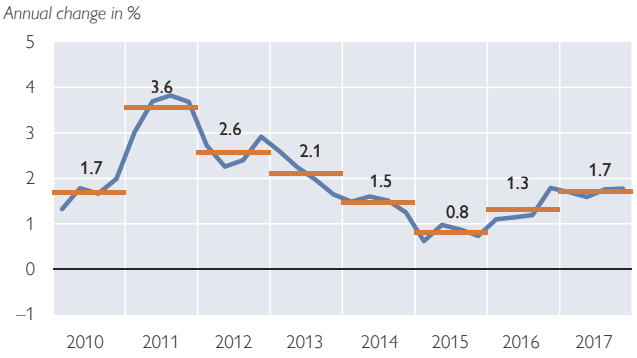
Chart 1

OeNB December 2015 outlook for Austria – key results

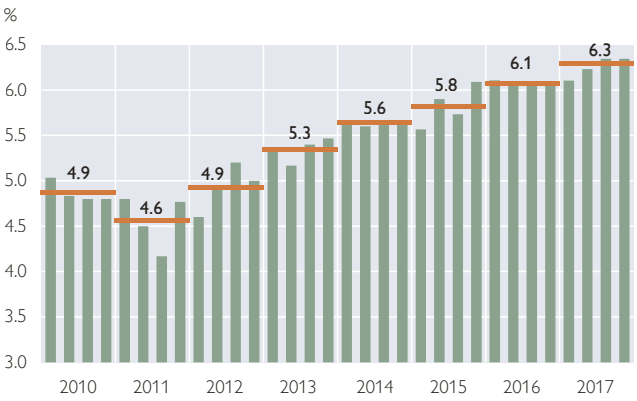
Real GDP growth (seasonally and working-day adjusted)



Harmonised Index of Consumer Prices



Unemployment rate



Source: Statistics Austria, WIFO, OeNB outlook (December 2015).

Cutoff date for data: November 19, 2015

[1] *Oesterreichische Nationalbank, Economic Analysis Division, gerhard.fenz@oenb.at, martin.schneider@oenb.at. With contributions from Ernest Gnan, Walpurga Köhler-Töglhofer, Doris Prammer, Christian Ragacs, Lukas Reiss, Doris Ritzberger-Grünwald and Alfred Stiglbauer.*

2015. While developed economies were on a path of recovery, the pace of growth declined in a number of emerging economies. Brazil and Russia are deep in recession, and China saw a marked slowdown in growth. Global trade slumped in 2015. In addition to cyclical factors, this decline was mainly attributable to stagnation in the expansion of global production chains and to structural change in the Chinese economy toward a consumption- and services-led growth model. The developed economies, by contrast, consistently experienced a robust upswing, which remains subdued, however, in light of a great number of concurrent stimuli.

As the outlook for the world economy has become cloudier, Austrian exporters are expected to see slightly weaker growth rates in 2016 and 2017 compared with the June 2015 outlook. Although export growth gained momentum in the course of 2015 and is set to accelerate noticeably from 2.3% in 2015 to 4.5% in 2017, it will remain muted compared with previous upswings. Investment growth has been very weak over the past few years on the back of businesses' pessimistic sales expectations and decreasing investment in construction. In particular, the sluggishness in residential construction comes as quite a surprise given that housing demand is high, real estate prices have risen sharply and financing conditions have been benign. The housing stimulus package adopted by the federal government is set to provide important stimuli and support investment in residential construction, however. Growth in investment in equipment turned positive in 2015. Thanks to rising demand for replacement and expansion investment, businesses will considerably step up investment in equipment also in 2016 and 2017.

Private consumption will benefit from two supporting factors over the forecast horizon: The 2016 tax reform will result in substantially higher net incomes, and public expenditure on asylum-seekers and recognized refugees in the form of transfer payments will raise nominal household incomes. Although rising inflation is set to dampen real income growth, private consumption growth will accelerate to 1.6% and 1.4% in 2016 and 2017, respectively. At the same time, the saving ratio, which had been falling in recent years, will edge up by 1 percentage point to 8.1% in 2016.

The three one-off factors mentioned above will contribute a total of 0.8 percentage points (tax reform: 0.4 percentage points, expenditure on refugees: 0.3 percentage points; housing stimulus package: 0.1 percentage points) to GDP growth in 2016. Underlying cyclical GDP growth alone, i.e. excluding these one-off factors, would be only 1.1%. In 2017, the one-off factors will contribute 0.4 percentage points to growth.

The strong increase in labor supply in recent years will continue to shape the labor market over the entire forecast horizon. It is attributable not only to the recognition of refugees and other migrants, which gives them the right to work, but also to rising labor participation rates among older people and women. The unemployment rate is set to mount further in 2015 (+5.8%), mostly because of faltering economic momentum and the increase in overall labor supply. In 2016 and 2017, the jobless rate will be 6.1% and 6.3%, respectively, despite strong economic and employment growth.

HICP inflation is projected to accelerate from 0.8% in 2015 to 1.3% and 1.7% in 2016 and 2017, respectively. The rise in inflation can be

traced first and foremost to external cost factors. The prices of both commodity and goods imports have been pointing upward. Domestic factors, on the other hand, have been playing a less important role in the uptrend in the in-

Table 1

OeNB December 2015 outlook for Austria – key results[1]

	2014	2015	2016	2017
Economic activity	*Annual change in % (real)*			
Gross domestic product	0.4	0.7	1.9	1.8
Private consumption	0.1	0.2	1.6	1.4
Government consumption	0.8	0.8	1.3	1.1
Gross fixed capital formation	–0.1	0.5	2.3	2.2
Exports of goods and services	2.2	2.3	3.9	4.5
Imports of goods and services	1.1	1.8	3.6	4.3
	% of nominal GDP			
Current account balance	2.0	2.7	2.8	3.1
Contribution to real GDP growth	*Percentage points*			
Private consumption	0.0	0.1	0.9	0.7
Government consumption	0.2	0.2	0.3	0.2
Gross fixed capital formation	0.0	0.1	0.5	0.5
Domestic demand (excluding changes in inventories)	0.2	0.4	1.6	1.4
Net exports	0.6	0.4	0.3	0.3
Changes in inventories (including statistical discrepancy)	–0.3	0.0	0.0	0.0
Prices	*Annual change in %*			
Harmonised Index of Consumer Prices	1.5	0.8	1.3	1.7
Private consumption expenditure (PCE) deflator	2.0	1.1	1.4	1.8
GDP deflator	1.6	1.6	1.6	1.6
Unit labor costs in the total economy	2.2	1.8	0.4	0.8
Compensation per employee (at current prices)	1.8	1.8	1.3	1.6
Compensation per hour worked (at current prices)	2.0	2.4	1.6	1.8
Import prices	–0.8	–0.1	1.0	1.6
Export prices	–0.1	1.1	1.3	1.7
Terms of trade	0.7	1.2	0.3	0.0
Income and savings				
Real disposable household income	0.6	–0.4	2.8	1.0
	% of nominal disposable household income			
Saving ratio	7.8	7.1	8.1	7.7
Labor market	*Annual change in %*			
Payroll employment	0.9	1.0	1.2	1.1
Hours worked (payroll employees)	0.6	0.4	0.9	0.9
	% of labor supply			
Unemployment rate (Eurostat definition)	5.6	5.8	6.1	6.3
Public finances	*% of nominal GDP*			
Budget balance (Maastricht definition)	–2.7	–1.6	–2.0	–1.7
Government debt	84.2	84.9	83.3	81.7

Source: 2014: Eurostat, Statistics Austria; 2015 to 2017: OeNB December 2015 outlook.

[1] *The outlook was drawn up on the basis of seasonally and working-day adjusted national accounts data (trend-cycle component). The data differ, in the method of seasonal adjustment, from the quarterly data series published by Eurostat since fall 2014 following the switch to the ESA 2010. The data published by Eurostat are much more volatile and can in part not be interpreted from an economic perspective. The values for 2014 deviate also from the nonadjusted data released by Statistics Austria. Real GDP figures are based on a flash estimate of the national accounts for the third quarter of 2015, while the expenditure-side GDP components are partly based on the full set of national accounts data released for the second quarter of 2015.*

flation rate. The VAT hike that is part of the tax reform package will contribute a cumulated 0.2 percentage points to headline inflation in 2016 and 2017.

The general government budget balance is set to improve considerably to –1.6% of GDP in 2015 (after –2.7% of GDP in 2014). A decline in capital transfers to banks is one of the reasons for the narrowing of the deficit. Also, an unexpected rise in tax revenues compensated for additional expenditure related to refugees. The latter plus the 2016 tax reform will cause the deficit to widen in 2016. It must be noted in this context that the measures to fight tax evasion and social welfare fraud that will be part of the tax reform package must not be included in the economic outlook according to ESCB rules. An improvement in the general government balance can be expected for 2017 on the back of relatively strong economic growth and a further decline in capital transfers to banks. The government debt ratio is forecast to fall below 82% of GDP by 2017. After amounting to about ½% of GDP in 2015, the structural deficit will deteriorate significantly – to a little above 1% of GDP in both 2016 and 2017 – as a result of the tax reform and additional expenditure related to asylum-seekers and recognized refugees.

2 Technical Assumptions

This forecast for the Austrian economy is the OeNB's contribution to the December 2015 Eurosystem staff macroeconomic projections. The forecast horizon ranges from the fourth quarter of 2015 to the fourth quarter of 2017. The cutoff date for all assumptions on the performance of the global economy, interest rates, exchange rates and crude oil prices was November 19, 2015. The OeNB used its macroeconomic quarterly model to prepare these projections, which are based on national accounts data adjusted for seasonal and working-day effects (trend-cycle component) provided by the Austrian Institute of Economic Research (WIFO). These data differ from the quarterly series published by Eurostat since the changeover to the European System of Accounts (ESA 2010) in fall 2014 in that the latter are solely seasonal and working-day adjusted and therefore include irregular fluctuations that – in part – cannot be mapped to specific economic fundamentals. The values for 2014 deviate also from the nonadjusted data released by Statistics Austria. National accounts data were fully available up to the second quarter of 2015. The data for the third quarter of 2015 are based on the GDP flash estimate, which covers only part of the national accounts aggregates, however. The short-term interest rate used for the forecast horizon is based on market expectations for the three-month EURIBOR: 0.0 %, –0.2 % and –0.1 % for the years 2015 to 2017, respectively. Long-term interest rates reflect market expectations for ten-year government bonds, and have been set at 0.8% (2015), 1.0% (2016) and 1.3% (2017). The exchange rate of the euro vis-à-vis the U.S. dollar is assumed to remain at a constant USD/EUR 1.09. The projected path of crude oil prices is based on futures prices. For the years 2015 to 2017, an oil price of USD 53.8, 52.2 and 57.5, respectively, per barrel Brent is assumed. The prices of commodities excluding energy are also based on futures prices over the forecast horizon.

3 Global economic outlook deteriorates

The global economic outlook deteriorated in the course of 2015. While the developed economies were on a path of

recovery, the pace of growth slowed in a number of emerging economies.

The slump in energy prices has stimulated growth in industrialized countries but poses a great challenge to energy-exporting countries. Brazil and Russia are deep in recession, and China saw a marked slowdown in growth. The developed economies, by contrast, consistently experienced a robust upswing. Yet growth remained subdued in light of a great number of concurrent stimuli (low energy prices, a very expansive monetary policy, in part supportive exchange rate effects).

Global output grew only moderately, and world trade slumped, with Brazil and Russia in recession and the Chinese economy moving toward a consumption- and services-led growth model. In addition, the expansion of global production chains – a key driver of global trade – has come to a standstill in recent years.

The world economy is currently affected by a host of uncertainties. The upcoming tapering of the U.S. Federal Reserve's expansive monetary policy entails the risk of massive capital outflows from many emerging economies and disruptions in the global exchange rate system. The war in Syria and IS terrorism have unleashed a wave of refugees and caused uncertainty all over the world. The Paris terrorist attacks and the intensification of the campaign against IS are additional factors contributing to uncertainty.

The *U.S.* economy is on a robust growth path, with private consumption acting as the key driver. Private consumption, in turn, has been stimulated by rising employment, capital accumulation and low inflation, helped, in particular, by low energy prices and the appreciation of the U.S. dollar. Net exports, by contrast, have been a drag on growth. Public debt is high by historical standards, and the fiscal stance is currently considered to be neutral. The Fed's monetary policy remains very expansive, but a majority of observers expect a gradual hike in key interest rates starting toward end-2015. After a weak first quarter in 2015 due to one-off factors (weather, port strike), the U.S. economy gathered considerable momentum in the second quarter of the year. The upswing slowed down somewhat in the third quarter, as private consumption remained the sole driver of growth. Investment and net exports restrained growth. Despite these fluctuations, the U.S. economy is expected to continue to grow more strongly than most other developed economies. U.S. GDP growth is projected to be around 2½% each year over the forecast horizon.

In *China*, economic growth is losing its steam. The first half of 2015 saw the Chinese economy expand by 7% year on year. In the summer, a crash in stock prices triggered uncertainty. However, in view of the small share of stocks in households' wealth, the effects of the slump on the real economy can be expected to be limited. Against the background of a real-effective appreciation of the Chinese currency, export growth has been steadily slowing down for the past few years. In fact, exports contracted over recent months, as did imports because of the high import content of exports. The Chinese economy is currently undergoing a structural change from investment toward strengthening private consumption, a shift supported by the government. High production capacities and a high share of vacant housing have rendered investment increasingly unprofitable. This change has depressed import demand even further, as consumer spending has a considerably smaller import content than investment.

Japan has slipped into recession. After a strong expansion in the first quarter of 2015, the Japanese economy contracted somewhat in the succeeding two quarters. In the second quarter of 2015, the faltering economies of Japan's trading partners caused exports to decline. In addition, private consumption shrank slightly due to one-off factors. In the third quarter of 2015, gross fixed capital formation and destocking in the automotive industry induced a contraction in output. Given capacity bottlenecks, however, Japanese businesses can be expected to step up investment. At the same time, fiscal policies will be rather restrictive on account of the country's extraordinarily high public debt level. The VAT hike scheduled for 2017 will curb consumption.

Russia entered a deep recession in 2015 on the back of tumbling oil prices and the West's sanctions as well as the counter-sanctions imposed by the government in response. Both private consumption and investment have been hit by the sanctions, the former because of import restrictions on European food products and the latter because of restrictions on Russian businesses' access to European capital markets. These developments and a strong depreciation of the ruble caused imports to slump in 2015. Current structural problems such as the country's heavy dependence on energy exports and a low investment ratio, in conjunction with an extension of the sanctions, are the reasons why the Russian economy will continue to grow only very modestly in the coming years.

The countries of *Central and Eastern Europe* are on a path of strong growth, expanding by slightly more than 3% annually. Growth is being driven particularly by private consumption, but all demand components have made a positive contribution.

The *euro area* economy has benefited from a number of factors fueling growth. Historically low key interest rates and the Eurosystem's expanded asset purchase program are aimed at stimulating lending and firmly anchoring long-term inflation expectations in line with the Eurosystem's inflation target. This very expansionary monetary policy stance has stimulated private consumption and investment. As deleveraging in the private sector continues, growth has become increasingly less affected by indebtedness. Tumbling energy prices are increasing real disposable household incomes and supporting consumption. At the same time, the euro's depreciation has helped businesses' price competitiveness and stimulated exports. The large number of refugees entering, in particular, Germany and Austria is set to raise government spending, which in turn will drive growth. On the other hand, the slowdown in emerging economies has hampered euro area exports. Taken together, however, these factors are inducing a moderate upturn in the euro area. In the first three quarters of 2015, real GDP growth averaged 0.4% (quarter on quarter). In 2015, growth is expected to come in at 1.5%, clearly above the 2014 rate (+0.9%). Afterwards, the pace of expansion will pick up only slightly (2016: +1.7%, 2017: +1.9%). Consumer price growth will remain stagnant in 2015 (+0.1%), but as energy prices are set to rise (albeit from a low level), the depreciation of the euro will show its lagged effects and wages will increase on the back of the economic recovery, HICP inflation is expected to accelerate to 1.0% and 1.6% in 2016 and 2017, respectively.

The pace of the upswing has been very varied across the euro area economies. While the former program countries Ireland and Spain reached pre-cri-

sis growth rates already in early 2015, other countries are still struggling with structural problems that prevent them from achieving higher rates of expansion. In *Germany*, the upswing has continued, driven by benign labor market conditions and ensuing private consumption growth. In addition to an expansion in employment, strong real wage rises have supported consumers' purchasing power. In 2016 and 2017, private consumption will be fueled by cuts in the tax burden, pension hikes and the intake of refugees. Exports are further expanding strongly despite the slowdown in world trade. Investment activity, by contrast, has been very muted and is also expected to remain subdued in the near future, as there are currently no signs of an underutilization of production capacity.

Economic recovery in *Italy* is gradually gaining momentum on the back of improving export growth. Investment has been depressed by a contraction in lending, a high level of underutilized production capacity and weak public investment. As a result, growth remains weak, a slip back into recession does not appear to be likely, however. In *France*, growth was very volatile throughout 2015. While business investment bounced back, construction investment continued to contract on the back of falling real estate prices. *Spain* has recovered well from the repercussions of the financial and economic crisis. Following a period of consolidation, the fiscal stance has been expansive and supportive of economic growth; this expansion is based above all on domestic demand but also on strong export growth. Even though growth will lose some momentum in 2016 and 2017, it will remain high enough to reduce unemployment,

Table 2

Underlying global economic conditions

	2014	2015	2016	2017
	Annual change in % (real)			
Gross domestic product				
World excluding the euro area	3.7	3.1	3.6	3.9
U.S.A.	2.4	2.4	2.7	2.6
Japan	–0.1	0.5	0.8	0.6
Asia excluding Japan	6.3	6.0	6.2	6.1
Latin America	1.3	0.1	0.5	2.3
United Kingdom	2.9	2.4	2.4	2.4
CESEE EU Member States[1]	2.9	3.3	3.0	3.1
Switzerland	1.9	0.9	1.3	1.8
Euro area[2]	0.9	1.5	1.7	1.9
World trade (imports of goods and services)				
World	3.5	1.5	3.5	4.2
World excluding the euro area	3.2	0.5	2.9	3.8
Growth of euro area export markets (real)	3.3	–0.1	2.7	3.8
Growth of Austrian export markets (real)	3.7	2.9	3.8	4.6
Prices				
Oil price in USD/barrel (Brent)	98.9	53.8	52.2	57.5
Three-month interest rate in %	0.2	0.0	–0.2	–0.1
Long-term interest rate in %	1.5	0.8	1.0	1.3
USD/EUR exchange rate	1.33	1.11	1.09	1.09
Nominal effective exchange rate of the euro (euro area index)	101.82	92.32	91.71	91.71

Source: Eurosystem.

[1] *Bulgaria, the Czech Republic, Hungary, Lithuania (until 2014), Poland and Romania.*
[2] *2015 to 2017: Results of the Eurosystem's December 2015 projections.*

which is very high by international standards. Greece slipped back into recession in 2015 owing to protracted negotiations with its creditors, temporary bank closures and a high level of uncertainty.

4 Austria: One-off factors support growth in 2016

4.1 Upswing in exports since mid-2015

Austrian export growth was very lacklustre at around 1½% (in real terms) between 2012 and 2014, mainly owing to weak demand from Austria's main trading partners, in particular euro area countries. Austrian exporters even saw their market share shrink by 2.9% in 2013 and 2014. This loss in market share went hand in hand with losses in price competitiveness (–2.7%) in this period, which to some extent offset the gains achieved in the three previous years (+7.1%).

In the course of 2015, however, exports gathered considerable momentum, expanding by 1.4% (in real terms, on the previous quarter) in the third quarter. This was the highest growth rate since mid-2010. The slump in exports to Russia was more than compensated for by exports to the U.S.A., Eastern Europe and a number of EU countries. This favorable trend is likely to continue – albeit at a slightly slower pace – in the next few quarters. Austrian exports are thus increasingly benefiting from the upturn in Europe, with export growth accelerating gradually to 4.5% by 2017. Compared to past upswings, export growth will still be muted, however.

Austria's current account improved in 2013 and 2014, mostly thanks to the balance on goods, which in 2014 posted a positive result for the first time since 2008. In 2015, an excellent performance in tourism is set to contribute to another improvement in the current account surplus, which will gradually expand further until 2017 in line with the anticipated acceleration in export growth.

Table 3

Growth and price developments in Austria's foreign trade

	2014	2015	2016	2017
Exports	*Annual change in %*			
Competitor prices in Austria's export markets	–1.1	2.5	0.8	2.2
Export deflator	–0.1	1.1	1.3	1.7
Changes in price competitiveness	–1.0	1.4	–0.5	0.5
Import demand in Austria's export markets (real)	3.7	2.9	3.8	4.6
Austrian exports of goods and services (real)	2.2	2.3	3.9	4.5
Austrian market share	–1.6	–0.6	0.1	–0.2
Imports				
International competitor prices in the Austrian market	–0.8	2.7	0.8	1.9
Import deflator	–0.8	–0.1	1.0	1.6
Austrian imports of goods and services (real)	1.1	1.8	3.6	4.3
Terms of trade	0.7	1.2	0.3	0.0
	Percentage points of real GDP			
Contribution of net exports to GDP growth	0.6	0.4	0.3	0.3
	% of nominal GDP			
Export ratio	53.3	53.8	54.7	56.1
Import ratio	49.4	49.1	49.6	50.8

Source: 2014: Eurostat, Statistics Austria; 2015 to 2017: OeNB December 2015 outlook, Eurosystem.

Table 4

Austria's current account

	2014	2015	2016	2017
	% of nominal GDP			
Balance of trade	3.7	4.5	4.6	4.8
Balance of goods	0.5	1.1	1.2	1.3
Balance of services	3.2	3.4	3.4	3.5
Balance of primary income	–0.7	–0.7	–0.7	–0.6
Balance of secondary income	–1.0	–1.2	–1.1	–1.1
Current account	2.0	2.7	2.8	3.1

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

4.2 Investment growth mirrors moderate upswing

Investment growth returned to positive territory in early 2015 after two years of stagnant business investment activity. In the first quarter, gross fixed capital formation expanded by 0.3% (in real terms) on the previous quarter; in the two ensuing quarters, the growth rate was 0.5%. The historical growth rates for the past few quarters were – in some cases, significantly – revised upward. All in all, investment in the first three quarters of 2015 was 0.1% higher than in the same period of the previous year.

The recovery has not been even across all components of investment. In the first three quarters, investment in equipment, a cyclically responsive component, and investment in research and development expanded most markedly by 1.9% and 0.9% (year on year), respectively, whereas investment in residential construction (–2.1%) and non-residential construction (–1.0%) contracted.

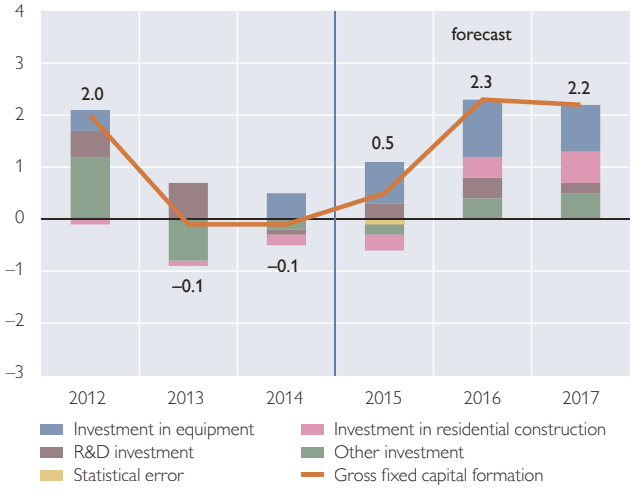
The path of investment growth mirrors a moderate upswing. This picture is confirmed by the recovery of a number of leading indicators (order

Chart 2

Investment

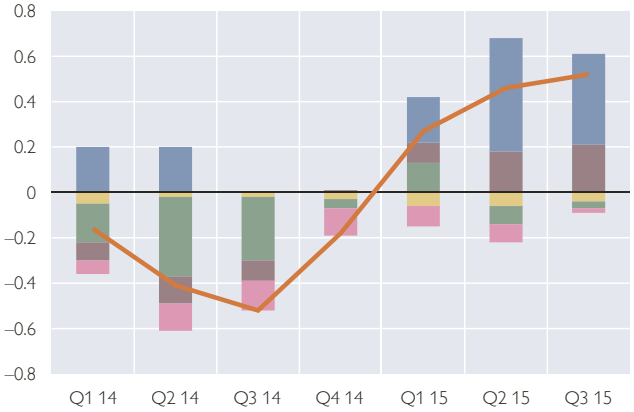
Contributions to investment growth

Annual change in %; contributions to growth in percentage points



Quarterly change in investment growth

Quarterly change in %; contributions to growth in percentage points



Source: Eurostat, OeNB.

books, confidence indicators); at the same time, the still-below-average level of these indicators signal protracted uncertainty regarding future developments.

In any case, the conditions for a sustained pick-up in investment growth are there. Businesses have a high level of financial assets, their internal financing capacity has improved, and external financing conditions are exceptionally benign by historical standards. Also, credit constraints are not expected to play a key role. Sales prospects should continue to improve with Austria's export markets and domestic demand both picking up.

Against this background and given the mixed signals from leading indicators, the investment cycle is anticipated to be moderate over the forecast horizon. Gross fixed capital formation growth will accelerate from 0.5% in 2015 to 2.3% and 2.2% in 2016 and 2017, respectively. Hence, investment activity will be only slightly brisker than overall economic growth. The ratio of investment to GDP will stabilize at slightly more than 22% over the forecast horizon.

Investment in equipment (machinery and vehicles) will contribute the largest share to investment growth in this entire period, with replacement and expansion being equally important reasons for investment. Civil engineering investment (accounting for the largest share of other investment, see chart 2) is set to expand comparatively hesitantly in light of strained public finances.

A trend reversal is likely for investment in residential construction. To date, residential construction has been unexpectedly muted despite rising real estate prices, benign financing conditions and an increased demand for

Table 5

Investment activity in Austria

		2014	2015	2016	2017
		Annual change in %			
Total gross fixed capital formation (real)		–0.1	0.5	2.3	2.2
of which:	*Investment in equipment*	*1.5*	*2.4*	*3.2*	*2.5*
	Investment in residential construction	*–1.1*	*–1.8*	*2.1*	*3.4*
	Nonresidential construction investment and other investment	*–0.7*	*–0.6*	*1.5*	*1.7*
	Investment in research and development	*–0.7*	*1.5*	*1.9*	*1.0*
	Public-sector investment	*–3.5*	*0.9*	*0.9*	*1.1*
	Private-sector investment	*0.4*	*0.5*	*2.5*	*2.3*
		Contribution to the growth of real total gross fixed capital formation in percentage points			
Investment in equipment		0.5	0.8	1.1	0.9
Investment in residential construction		–0.2	–0.3	0.4	0.6
Nonresidential construction investment and other investment		–0.2	–0.2	0.4	0.5
Investment in research and development		–0.1	0.3	0.4	0.2
Public-sector investment		–0.5	0.1	0.1	0.1
Private-sector investment		0.4	0.4	2.1	2.0
		Contribution to real GDP growth in percentage points			
Total gross fixed capital formation		0.0	0.1	0.5	0.5
Changes in inventories		–0.4	–0.3	0.2	0.0
		% of nominal GDP			
Investment ratio		22.4	22.2	22.1	22.2

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

housing. Due to the long cycle of residential construction investment, however, it is difficult to predict exactly when this trend reversal will take place. A major stimulus can nevertheless be expected from the housing package adopted by the federal government. While the housing stimulus package will show its effects only gradually and not generate the full amount of additional investment envisaged due to deadweight losses, it will contribute an additional 1½% to 2% a year to the growth of residential construction investment in 2016 and 2017. The effects on GPD growth will amount to just below 0.1 percentage points a year. In 2017, investment in residential construction will expand by more than 3%, i.e. faster than any other component of investment.

4.3 Tax reform and transfer payments for high number of asylum-seekers support private consumption

In 2015, private consumption entered its fourth consecutive year of weak growth. Real private consumption on a cumulated basis expanded by less than 1% in the period from 2012 to 2015, owing to several factors: First, inflation in Austria was 0.7 percentage points higher than the euro area average and 0.6% higher than in Germany in the past four years. Second, the number of full-time jobs in industry has been trending down, whereas job creation was largely limited to part-time jobs in the services sector, which has resulted in a sustained negative wage drift. Finally, the growth of employment seen in recent years was almost entirely attributable to foreign workers, whose domestic propensity to consume is lower; this is also due to the share of cross-border commuters having increased sharply.

Against this background, real disposable household income is expected to fall somewhat (–0.4%) in 2015. Consumer spending will increase only marginally, at +0.2%.

Employment will expand somewhat more strongly in 2016 and 2017 on the back of more vigorous economic growth, but wages per employee will grow at a more moderate rate in light of a relatively high unemployment rate and pay hikes that compensate for past inflation. All in all, the growth rates of the nominal compensation of employees will remain just below their 2015 value. Property income and self-employment income, by contrast, will rise far more strongly in 2016 and 2017 in line with the overall growth of the economy.

Two one-off effects will contribute to an above-average growth of nominal household income in 2016 and 2017: First, the tax reform entering into force in 2016 will result in higher net incomes, and second, public expenditure transfer payments for asylum-seekers and recognized refugees will increase nominal household incomes.

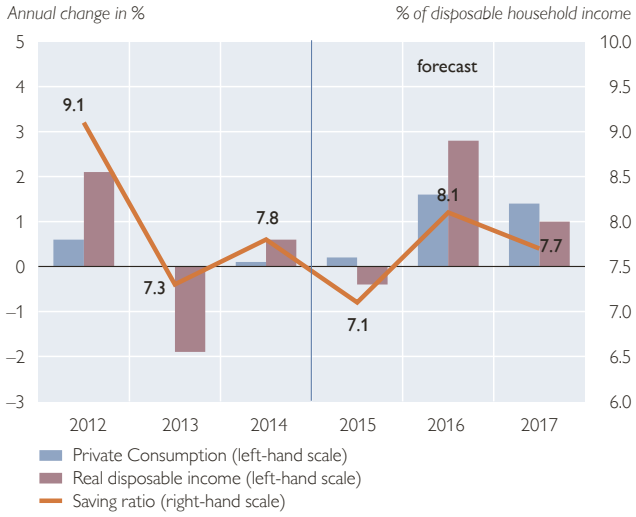
Inflation is expected to accelerate over the forecast horizon, depressing disposable household incomes in 2016 and 2017 more notably than in 2015. Overall, household income is set to rise considerably over the next two years. Growth in real disposable household income will turn positive in 2016 (+2.8%) and reach its average of the past ten years at +1.0% in 2017. The growth pattern of private consumption follows that of household income with a small lag; after four years of stagnation, private consumption will expand by 1.6% and 1.4% in 2016 and 2017, respectively.

After the outbreak of the financial crisis in 2008, household's propensity to save started to decline. The saving

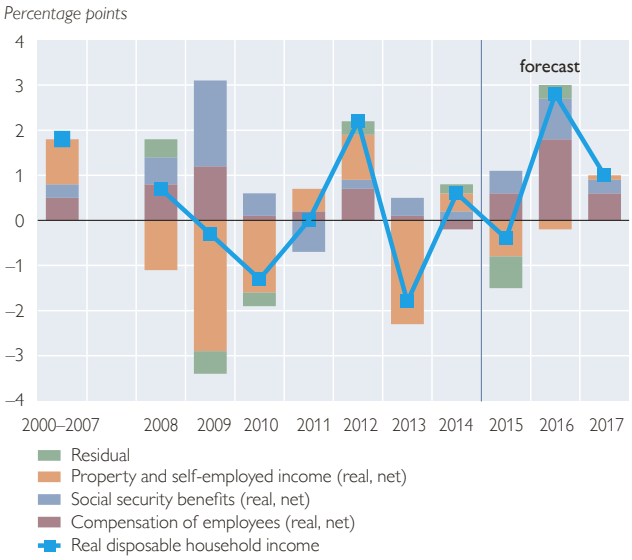
Chart 3

Private Consumption

Disposable household income, private consumption and saving ratio



Contributions to the growth of real disposable household income



Source: Eurostat, Statistik Austria, OeNB.

Note: Explanatory note and data sources relating to the right-hand panel of chart 3: "Compensation of employees (real, net):" compensation of employees less social security contributions (actual and imputed, to government and private entities) of employers and employees and other wage-related taxes payable by employees (Statistics Austria data up to and including 2014, from 2015 onward update based on the OeNB outlook. "Social security benefits (real, net):" Social security benefits other than in kind received by households (including transfers from the private sector) less wage tax and social security contributions on pensions (data for wage tax and social security contributions on pensions based on wage tax statistics, combined with the OeNB outlook). "Property and self-employment income (real, net):" sum of property income (including interest) and mixed income of the self-employed less withholding taxes on households' property income, assessed income tax and social security contributions of self-employed households (the latter based on OeNB estimates). "Residual:" primarily net contribution of other current transfers (e.g. nonlife insurance premiums and benefits, membership contributions, government grants to NPOs) as well as social security contributions and current direct taxes that were not taken into consideration above (in particular, motor vehicle taxes and parafiscal charges paid by households).

ratio fell by more than 4 percentage points to just above 7% in 2013 and has stabilized between 7% and 8% since then. This trend has been determined essentially by the composition of disposable household income. Property income, which has a higher marginal saving ratio than labor income, became

Table 6

Private consumption in Austria

	2014	2015	2016	2017
	Annual change in %			
Disposable household income (nominal)	2.6	0.7	4.2	2.8
Consumption deflator	2.0	1.1	1.4	1.8
Disposable household income (real)	0.6	–0.4	2.8	1.0
Private consumption (real)	0.1	0.2	1.6	1.4
	Contribution to real GDP growth in percentage points			
Private consumption	0.0	0.1	0.9	0.7
	% of nominal disposable household income			
Saving ratio	7.8	7.1	8.1	7.7
	% of nominal GDP			
Consumption ratio	53.8	53.2	53.0	52.9

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

Box 1

Economic impact of the current wave of refugees on Austria

Austria is currently faced with high numbers of asylum-seekers entering the country. The large number of people seeking shelter can be expected to have a substantial impact on the labor market, public finances and value added. An analysis of the impact of the current wave of refugees on Austria over the forecast horizon is subject to a high degree of uncertainty, however, and can be conducted only on the basis of a series of assumptions. In the analysis at hand, it is assumed that the number of asylum seekers will amount to 80,000, 85,000 and 50,000 in the years from 2015, 2016 and 2017, respectively. All related public expenditure is assumed to be deficit-funded. From an economic perspective, the effects on the Austrian real economy are similar to those of a deficit-funded, expansionary discretionary fiscal policy.

All other assumptions are based on Austria's and other countries' historical experience with flows of migrants and refugees and the current legal framework. The GDP multiplier for calculating effects on the real economy is 0.9. The budget sensitivity underlying the estimate of budgetary net costs (public expenditure adjusted for induced public revenues) is 0.4. Assuming that 47% of asylum applications are accepted and that the average length of the application procedure is 5.9 months, it can be expected that the number of recognized refugees in Austria will reach 99,300 by 2017. Additionally, 60,300 persons are assumed to arrive in the course of family unification by that time. In total, this amounts to 159,600 persons. 77% of asylum-seekers are of working age. All working-age persons who have been granted asylum increase the labor supply based on the eligibility criteria for the Austrian social security system. International experience shows that only a small percentage of recognized refugees succeed in the labor market in the first few years. On the basis of experiences in Sweden and Germany, it can be expected that just below 10% of newly arrived recognized refugees will be in employment in 2017.

The increase in labor supply raises the Austrian economy's growth potential; the extent of this rise depends on people's successful integration into the labor market. Persons finding jobs will partly crowd out resident (Austrian and foreign) workers from the labor market. Overall, however, induced higher economic growth results in an increase in both total employment and the employment rate among the resident population. Moreover, it boosts revenues from taxes and social security contributions, which to some extent offsets the government's original expenditure. According to simulations, GDP will be 0.7% higher and per-capita GDP will be 0.5% lower than in a scenario excluding the high number of asylum-seekers. The unemployment rate (national definition) is forecast to climb by a total of 1.0 percentage point, with joblessness among the resident population falling by 0.3 percentage points. Employment will rise by 21,600 persons (recognized refugees: +10,700; resident employees: +10,900). Fiscal costs will accumulate to EUR 2.7 billion by 2017.

less important. The path of the saving ratio over the forecast horizon is influenced by the impact of the tax reform. Past experience shows that households do not immediately spend for consumer purposes the entire part of additional income gained through the reform of the personal income tax regime. A part of this additional income is usually saved initially, i.e. the saving ratio increases temporarily. The saving ratio is thus expected to climb to 7.1% and 8.1% in 2015 and 2016, respectively. Only in 2017 will the saving ratio fall slightly (7.7%), as households increasingly start to perceive their additional income to be permanent.

5 Unemployment continues to rise

Despite a faltering economy, employment continued to grow at a surprisingly healthy pace in 2015, as in previous years. The number of employees is set to rise by +0.7% on 2014. Analyzing the number of hours worked, which

Table 7

Determinants of nominal household income in Austria

	2014	2015	2016	2017
	Annual change in %			
Payroll employment	0.9	1.0	1.2	1.1
Wages and salaries per employee	1.8	1.8	1.3	1.6
Compensation of employees	2.6	2.8	2.5	2.7
Property income	4.7	–2.4	1.6	2.7
Self-employment income and operating surplus (net)	3.7	0.1	1.9	2.2
	Contribution to disposable household income growth in percentage points			
Compensation of employees	2.2	2.4	2.1	2.2
Property income	0.6	–0.3	0.2	0.3
Self-employment income and operating surplus (net)	0.6	0.0	0.3	0.4
Net transfers minus direct taxes[1]	–0.8	–0.7	1.6	–0.1
Disposable household income (nominal)	2.6	0.7	4.2	2.8

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

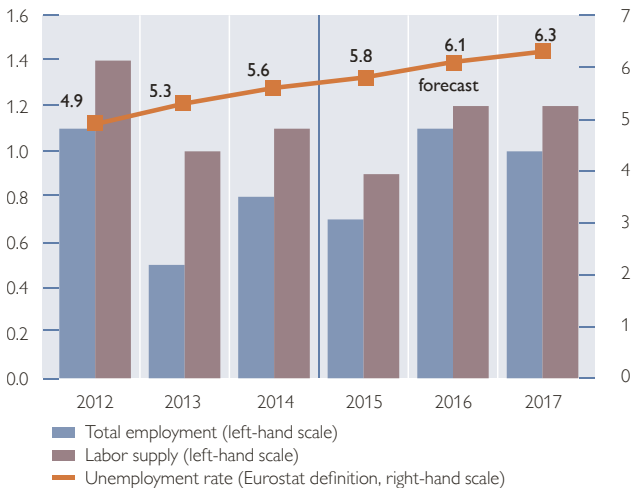
[1] Negative values indicate an increase in (negative) net transfers minus direct taxes; positive values indicate a decrease.

will almost stagnate in 2015 (+0.1%), is more compelling from an economic perspective, however. The difference between these two measures of employment is attributable primarily to the sharp increase in the share of part-time employment, which at 27.6% reached a new high in the second quarter of 2015. At the same time, full-time employment has been receding slightly. With the economy recovering as expected, employment growth will also continue to edge up. This assessment is confirmed by the number of reported vacancies, which has been rising steeply recently. The share of new jobs to be created in 2016 and 2017 will be 1.1% and 1.0%, respectively, annual hours worked will increase at a slightly slower pace (+0.9%).

Chart 4

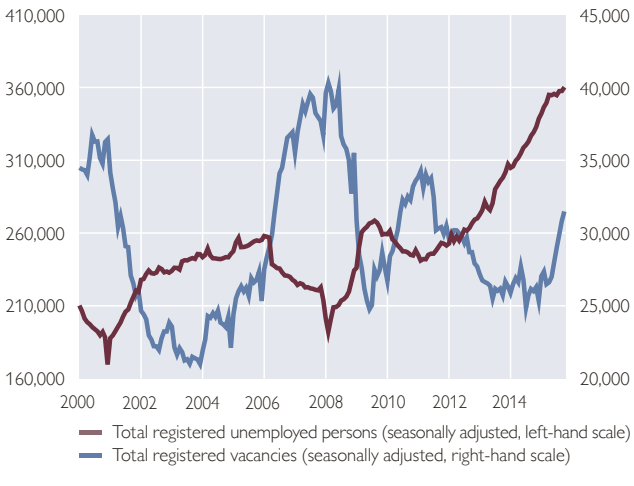
Labor market

Employment, labor supply and unemployment rate



Source: Eurostat, Statistics Austria, OeNB.

Unemployed persons and vacancies



Source: AMS, OeNB.

Table 8

Labor market developments in Austria

	2014	2015	2016	2017
	Annual change in %			
Total employment (persons)	0.8	0.7	1.1	1.0
Payroll employees	*0.9*	*1.0*	*1.2*	*1.1*
of which: Public-sector employees	*–0.3*	*0.0*	*0.1*	*0.0*
Self-employed	*0.8*	*–1.4*	*–0.1*	*0.5*
Total hours worked	*0.3*	*0.1*	*0.9*	*0.9*
Payroll employees	*0.6*	*0.4*	*0.9*	*0.9*
Self-employed	*–1.0*	*–1.2*	*0.7*	*0.8*
Labor supply	1.1	0.9	1.2	1.2
Registered unemployed	5.7	4.6	3.8	5.0
	% of labor supply			
Unemployment rate (Eurostat definition)	5.6	5.8	6.1	6.3

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

Labor supply will continue to expand at a strong rate in the coming years. The increase by some 50,000 until 2017 is attributable to several factors: First, Austria can expect to see a sustained net inflow of foreign workers as a part of "regular" migration movements. The majority of foreign workers come from the younger EU Member States in CESEE; for them, the Austrian labor market has been fully open since 2011 and 2014, respectively. Net migration is set to decrease from 35,000 persons in 2014 to just below 20,000 in 2017. Second, the increasing employment ratio among older employees arising from previous reforms of the pension system and women's growing labor participation rate will boost labor supply by some 15,000 persons each year. Third, the high number of new asylum-seekers will translate into almost 10,000 additional workers in the Austrian labor market in 2015; in 2016 and 2017, this figure is expected to rise to more than 30,000. That said, demographic trends among the Austrian population would reduce labor supply by some 15,000 per year.

The unemployment rate will rise further in 2015 (5.8%), mainly because of the faltering economy and the increase in overall labor supply. Despite healthy economic growth, the unemployment rate will continue to climb also in 2016 and 2017 – to 6.1% and 6.3%, respectively – on the back of high net migration.[2]

6 External cost factors push up inflation from 0.8% in 2015 to 1.7% in 2017

HICP inflation rose from 0.6% in the first quarter of 2015 to 1.0% in the second quarter, before slowing down to 0.9% in the third quarter. In October 2015, inflation stood at 0.7%. Price growth was mostly determined by crude oil prices, which increased sharply in the first five months of the

[2] *Given that Eurostat's compilation of unemployment figures is survey-based, it is difficult to predict how quickly and to what extent unemployment among recognized asylum-seekers will actually be reflected in Eurostat's unemployment rate. The national unemployment rate is based on data provided by the Austrian Public Employment Service (AMS), reflecting the number of registered unemployed people. This implies that the unemployment rate according to the national definition (which is not taken into account in this outlook) will increase more than the unemployment rate according to Eurostat.*

Table 9

Price, cost, productivity and profit indicators

	2014	2015	2016	2017
	Annual change in %			
HICP	1.5	0.8	1.3	1.7
HICP energy	–2.2	–7.5	–3.2	0.8
HICP (excluding energy)	1.8	1.7	1.7	1.8
Private consumption expenditure deflator	2.0	1.1	1.4	1.8
Investment deflator	1.5	0.9	1.2	1.5
Import deflator	–0.8	–0.1	1.0	1.6
Export deflator	–0.1	1.1	1.3	1.7
Terms of trade	0.7	1.2	0.3	0.0
GDP deflator at factor cost	1.7	1.6	1.6	1.7
Collective wage agreements	2.4	2.2	1.5	1.7
Compensation per employee	1.8	1.8	1.3	1.6
Compensation per hour	2.0	2.4	1.6	1.8
Labor productivity per employee	–0.4	0.1	0.9	0.8
Labor productivity per hour	0.1	0.6	1.1	0.9
Unit labour costs	2.2	1.8	0.4	0.8
Profit margins[1]	–0.5	–0.2	1.2	0.9

Source: 2014: Eurostat, Statistics Austria; 2015 to 2017: OeNB December 2015 outlook.

[1] GDP deflator divided by unit labor costs.

year but afterward dropped almost to the low level seen in early 2015. Overall, import prices were up, the impact of which was felt in particular in the industrial goods sector (excluding energy). Mainly as a result of the latter, core inflation (HICP excluding energy and unprocessed food) quickened from 1.6% in the first quarter of 2015 to 1.9% in the third quarter.

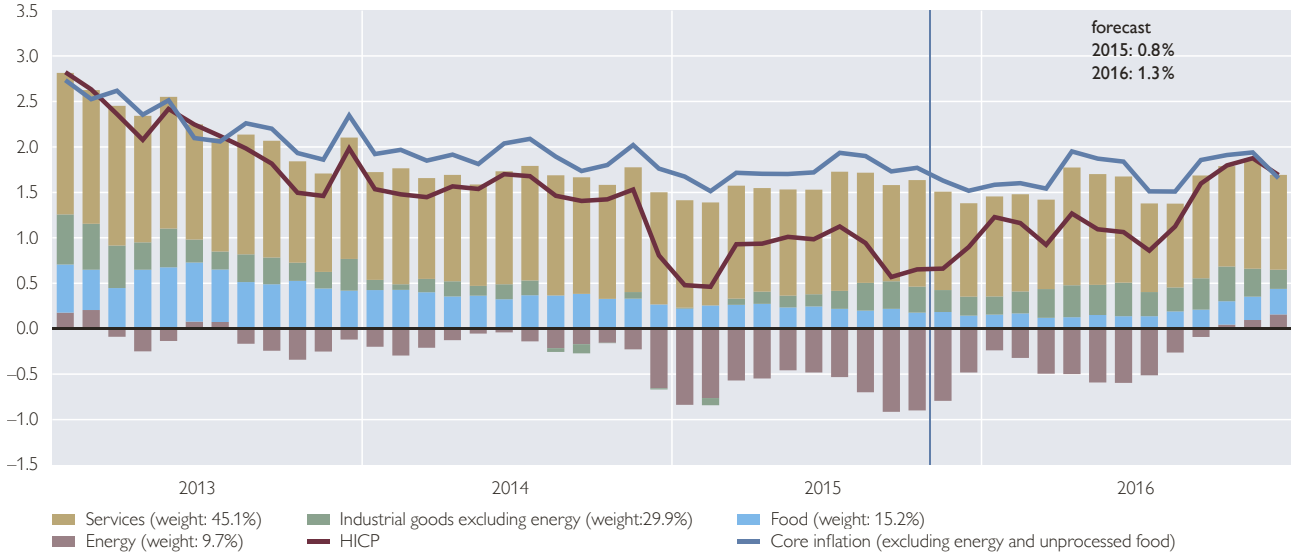
HICP inflation is projected to accelerate from an average 0.8% in 2015 to 1.3% and 1.7% in 2016 and 2017, respectively. The rise in inflation over the forecast horizon can be traced first and foremost to external cost factors. The prices of both commodity and goods imports have been pointing upward. Domestic factors, by contrast, have been playing a less important role. The VAT hike that is part of the tax reform package will contribute a cumulated 0.2 percentage points to headline inflation in 2016 and 2017. At the same time, the upward contribution to inflation from the demand side is small. The negative output gap and an underutilization of production factors reflect moderate aggregate demand. Accordingly, core inflation (excluding energy) will tick up only modestly, from 1.7% in both 2015 and 2016 to 1.8% in 2017.

Austrian HICP inflation is set to remain well above the euro area average of and also above inflation in Germany, Austria's major trading partner. In 2015, the Austrian economy's inflation differential vis-à-vis Germany and the euro area will average 0.7 and 0.8 percentage points, respectively. This discrepancy attributable primarily to divergent price movements in the services sector, which can, in turn, be traced to the public sector's contribution to inflation (through administered prices and indirect taxes) and to unit labor costs in the services sector. The inflation differentials are expected to narrow gradually over the forecast horizon. Wage growth predicted to be moderate compared with wage growth in Germany will be one factor contrib-

Chart 5

Austrian HICP inflation rate and contributions of subcomponents

Annual change in % (HICP and core inflation) and percentage points (contributions to inflation) *Latest observation: 0.7% (October 2015)*



Source: OeNB, Statistics Austria.

uting to this contraction. Austria's inflation rate will still be slightly higher than Germany's in 2016, but in 2017, it will be already lower.

The slowdown in inflation from 1.5% in 2014 to 0.8% in 2015 was the key determining factor in the wage settlements for 2016 that have been concluded so far (public sector: +1.3%; retail trade: +1.5 %, metal industry: +1.5%). These percentages suggest an average increase in collectively agreed wages of 1.5%, which would be clearly below the 2015 figure (+2.4%). Only a slight increase to 1.7% is expected for 2017, given that unemployment will remain high. Owing to sectoral shifts in employment toward low-wage jobs and an increasing share of part-time employment, the wage drift is negative. As a result, gross compensation per employee will rise by only 1.3% and 1.6% in nominal terms in 2016 and 2017, respectively, corresponding to a slight decrease in real terms.

Factoring in the effects of the tax reform generates on balance a sharp increase for 2016. Compensation per employee after taxes will rise by 2.5% in real terms in 2016, but edge up only slightly – by 0.1% – in 2017.

7 Risks to growth clearly on the downside

The effects of the tax reform that enters into force in 2016 represents the largest domestic downward risk to the outlook for 2016 and 2017. In line with an ESCB-wide directive on fiscal projections, this outlook does not take into account a number of compensatory measures planned to finance the tax reform (such as measures fighting tax evasion and social welfare fraud; cuts in public administration). If these measures take full effect, economic growth would be 0.2 percentage points lower in 2016 than projected. In addition, it may well be that, given the sharp drop in households' saving ratio in recent years, households will save a larger-than-anticipated part of the increase in household incomes brought about by the cuts in taxes on wages and income.

Table 10

Compensation of employees

	2014	2015	2016	2017
	Annual change in %			
Per person employed, nominal				
Collectively agreed wages and salaries[1]	2.4	2.2	1.5	1.7
Wage drift	–0.6	–0.3	–0.2	–0.1
Compensation of employees (gross)[2]	1.8	1.8	1.3	1.6
Compensation of employees (net)	0.8	1.4	3.9	1.9
Per person employed (real)				
Compensation of employees (gross)	–0.3	0.7	–0.1	–0.2
Compensation of employees (net)	–1.2	0.3	2.5	0.1
Per hour (nominal)				
Compensation per hour (gross)	2.0	2.4	1.6	1.8
Compensation per hour (net)	1.1	2.0	4.2	2.1
Per hour (real)				
Compensation per hour (gross)	0.0	1.3	0.2	0.0
Compensation per hour (net)	–0.9	0.9	2.8	0.3
	% of nominal GDP			
Wage share	48.1	48.3	47.8	47.5

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

[1] *Whole economy.*
[2] *Including employers' social security contributions.*

As regards investment, the trend reversal in residential construction is subject to high uncertainty. The trend reversal is expected to materialize in 2016 as a consequence of sharply increased real estate prices, high housing demand and the government's housing stimulus package. However, past experience shows that in residential construction, the investment cycle is long, making it difficult to predict the exact time of when the trend reversal will take place. Finally, Austrian consumer and business confidence is still below the international average. The assumption that confidence will improve soon in keeping with the benign external environment might prove to be too optimistic.

The majority of external risks to this outlook are also tilted toward the downside. A further aggravation of geopolitical tensions (war in Syria, the conflict between Russia and Ukraine, IS terrorism) represents a serious risk to global growth prospects. Another big factor of uncertainty is how the migration of refugees will evolve in the near future. From an economic perspective, faltering growth in China and the ensuing slowdown in Asia's emerging economies are giving rise to concern. In this outlook, China is expected to see a soft landing, with growth coming in at 6%. A sharper deceleration could cause turbulence in the world economy. Finally, this outlook assumes a gradual hike in U.S. key interest rates to 1.5% in 2017. Given past experience, it remains to be seen whether this will not result in massive capital outflows from developing countries.

8 No revision to June outlook

The assumptions about the international environment that underlie this outlook have improved in nominal terms, but deteriorated in real terms since June 2015. The former is mostly due to lower oil prices. Current market expectations for crude oil prices for

2016 and 2017 are USD 19 and USD 16 per barrel Brent lower than they were in June 2015. Short-term interest rates fell again (by up to 30 basis points), long-term interest rates remained almost unchanged. Nominal exchange rates did not see any notable changes. The depreciation of the euro triggered by the Eurosystem's expanded asset purchase program took place already in the first half of 2015 and was therefore already included in the OeNB's June outlook.

Weaker global growth, in particular weaker global trade, are acting as a drag on growth. Austrian export markets are expected to grow by 1 percentage point less in 2015 and 2017 and by 1½ less in 2016. Competitors' prices in Austrian export markets have dropped compared with the June outlook, which, however, is mainly the result of lower commodity prices and therefore does not impact on Austrian exporters' price competitiveness.

The effects of new external assumptions were simulated using the OeNB's macroeconomic model. Table 12 provides detailed reasons for revising the outlook. Apart from the impact of changed external assumptions, they are attributable to the impact of new data and other changes. The influence of new data includes the effects of the revisions of both the historical data already available at the time of the previous economic outlook (i.e. data up to the first quarter of 2015) and the forecasting errors of the previous outlook for the periods now published for the first time (i.e. data for the second and third quarters of 2015). The item

Table 11

Change in external economic conditions since the OeNB June 2015 outlook

	December 2015			June 2015			Difference		
	2015	2016	2017	2015	2016	2017	2015	2016	2017
	Annual change in %								
Growth of Austria's export markets	2.9	3.8	4.6	3.8	5.3	5.5	–0.9	–1.5	–0.9
Competitor prices in Austria's export markets	2.5	0.8	2.2	3.5	2.0	2.0	–1.0	–1.2	0.2
Competitor prices in Austria's import markets	2.7	0.8	1.9	3.4	1.7	1.7	–0.7	–0.9	0.2
	USD per barrel (Brent)								
Oil price	53.8	52.2	57.5	63.8	71.0	73.1	–10.0	–18.8	–15.6
	Annual change in %								
Nominal effective exchange rate (exports)	2.4	–0.2	0.0	2.9	0.2	0.0	–0.5	–0.4	0.0
Nominal effective exchange rate (imports)	2.5	–0.1	0.0	2.7	0.1	0.0	–0.2	–0.2	0.0
	%								
Three-month interest rate	0.0	–0.2	–0.1	0.0	0.0	0.2	0.0	–0.2	–0.3
Long-term interest rate	0.8	1.0	1.3	0.8	1.1	1.3	0.0	–0.1	0.0
	Annual change in %								
U.S. GDP (real)	2.4	2.7	2.6	2.6	3.1	2.7	–0.2	–0.4	–0.1
	USD/EUR								
USD/EUR exchange rate	1.11	1.09	1.09	1.12	1.12	1.12	–0.01	–0.03	–0.03

Source: Eurosystem.

Table 12

Breakdown of revisions to the OeNB outlook

	GDP			HICP		
	2015	2016	2017	2015	2016	2017
	Annual change in %					
December 2015 outlook	0.7	1.9	1.8	0.8	1.3	1.7
June 2015 outlook	0.7	1.9	1.8	0.9	1.9	2.0
Difference	0.0	0.0	0.0	–0.1	–0.6	–0.3
Caused by:	*Percentage points*					
External assumptions	0.0	–0.2	–0.3	–0.1	–0.5	–0.4
New data[1]	0.1	0.0	0.0	0.0	0.0	0.0
of which: Revisions to historical data until Q1 15	*0.1*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Projection errors for Q2 15 and Q3 15	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*
Other changes[2]	–0.1	0.2	0.3	0.0	–0.1	0.1

Source: OeNB December 2015 and June 2015 outlooks.

[1] "New data" refer to data on GDP and/or inflation that have become available since the publication of the preceding OeNB outlook.
[2] Different assumptions about trends in domestic variables such as wages, government consumption, effects of tax measures, other changes in assessment and model changes.

"Other changes" includes new expert assessments regarding domestic variables, such as government consumption or wage settlements, as well as any changes to the model.

The growth prospects for 2015 to 2017 remained unchanged on the June outlook. From a purely technical perspective, changes in the external environment would imply a downward revision of GDP growth in 2016 and 2017 by 0.2 and 0.3 percentage points, respectively. There was no need for revision arising from the revision of historical data and the forecast error for first-time released data. The main reason why the growth outlook for 2016 and 2017 was left unchanged is additional government spending in connection with the high number of asylum-seekers that have entered Austria. This expenditure will contribute a total of 0.5 percentage points to growth in 2016 and 2017; the figures are shown under the item "Other changes" in table 12.

The downward revision of inflation in 2016 is primarily attributable to lower commodity prices, but wage settlements that were lower than anticipated in the June outlook have also played a role.

Table 13

Comparison of the OeNB December 2015 and June 2015 outlooks

	Actual figures	December 2015 outlook			Revision to the June 2015 outlook		
	2014	2015	2016	2017	2015	2016	2017
Economic activity	*Annual change in % (real)*						
Gross domestic product	0.4	0.7	1.9	1.8	0.0	0.0	0.0
Private consumption	0.1	0.2	1.6	1.4	–0.5	–0.2	–0.2
Government consumption	0.8	0.8	1.3	1.1	–0.1	0.4	0.0
Gross fixed capital formation	–0.1	0.5	2.3	2.2	2.4	0.6	–0.4
Exports of goods and services	2.2	2.3	3.9	4.5	–0.5	–0.9	–0.3
Imports of goods and services	1.1	1.8	3.6	4.3	–0.2	–1.1	–0.8
	% of nominal GDP						
Current account balance	2.0	2.7	2.8	3.1	1.4	0.7	0.3
Contribution to real GDP growth	*Percentage points*						
Private consumption	0.0	0.1	0.9	0.7	–0.3	–0.1	–0.1
Government consumption	0.2	0.2	0.3	0.2	0.0	0.1	0.0
Gross fixed capital formation	0.0	0.1	0.5	0.5	0.5	0.1	0.0
Domestic demand (excluding changes in inventories)	0.2	0.4	1.6	1.4	0.3	0.1	–0.2
Net exports	0.6	0.4	0.3	0.3	–0.1	0.1	0.2
Changes in inventories (including statistical discrepancy)	–0.3	0.0	0.0	0.0	0.0	–0.1	–0.1
Prices	*Annual change in %*						
Harmonised Index of Consumer Prices	1.5	0.8	1.3	1.7	–0.1	–0.6	–0.3
Private consumption expenditure deflator	2.0	1.1	1.4	1.8	0.1	–0.4	–0.1
GDP deflator	1.6	1.6	1.6	1.6	0.3	–0.2	–0.3
Unit labor costs in the total economy	2.2	1.8	0.4	0.8	–0.1	–0.8	–0.7
Compensation per employee (at current prices)	1.8	1.8	1.3	1.6	–0.1	–0.7	–0.7
Compensation per hour worked (at current prices)	2.0	2.4	1.6	1.8	0.4	–0.5	–0.6
Import prices	–0.8	–0.1	1.0	1.6	–0.5	–0.8	–0.3
Export prices	–0.1	1.1	1.3	1.7	–0.1	–0.6	–0.2
Terms of trade	0.7	1.2	0.3	0.0	0.5	0.3	0.0
Income and savings							
Real disposable household income	0.6	–0.4	2.8	1.0	–2.2	0.0	–0.6
	% of nominal disposable household income						
Saving ratio	7.8	7.1	8.1	7.7	–0.8	–0.5	–0.9
Labor market	*Annual change in %*						
Payroll employees	0.9	1.0	1.2	1.1	0.2	0.1	0.1
Hours worked (payroll employees)	0.6	0.4	0.9	0.9	–0.3	–0.1	0.0
	% of labor supply						
Unemployment rate (Eurostat definition)	5.6	5.8	6.1	6.3	0.1	0.4	0.8
Public finances	*% of nominal GDP*						
Budget balance (Maastricht definition)	–2.7	–1.6	–2.0	–1.7	0.2	–0.2	–0.3
Government debt	84.2	84.9	83.3	81.7	–0.8	–0.5	0.1

Source: 2014 (actual figures): OeNB December 2015 and June 2015 outlooks.

Annex: detailed result tables

Table 14

Demand components (real prices)

Chained volume data (reference year = 2010)

	2014	2015	2016	2017	2014	2015	2016	2017
	EUR million				*Annual change in %*			
Private consumption	161,287	161,581	164,215	166,513	0.1	0.2	1.6	1.4
Government consumption	60,953	61,463	62,288	62,949	0.8	0.8	1.3	1.1
Gross fixed capital formation	68,698	69,058	70,625	72,148	–0.1	0.5	2.3	2.2
of which: Investment in plant and equipment	*23,559*	*24,116*	*24,892*	*25,520*	*1.5*	*2.4*	*3.2*	*2.5*
Residential construction investment	*12,843*	*12,609*	*12,870*	*13,310*	*–1.1*	*–1.8*	*2.1*	*3.4*
Nonresidential construction investment and other investment	*18,683*	*18,569*	*18,849*	*19,167*	*–0.7*	*–0.6*	*1.5*	*1.7*
Changes in inventories (incl. statistical discrepancies)	2,525	2,473	2,464	2,481	×	×	×	×
Domestic demand	293,463	294,574	299,592	304,091	–0.2	0.4	1.7	1.5
Exports of goods and services	166,900	170,756	177,384	185,343	2.2	2.3	3.9	4.5
Imports of goods and services	152,854	155,585	161,205	168,106	1.1	1.8	3.6	4.3
Net exports	14,046	15,172	16,178	17,237	×	×	×	×
Gross domestic product	307,509	309,746	315,771	321,328	0.4	0.7	1.9	1.8

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

Table 15

Demand components (current prices)

	2014	2015	2016	2017	2014	2015	2016	2017
	EUR million				*Annual change in %*			
Private consumption	177,318	179,637	185,143	191,117	2.1	1.3	3.1	3.2
Government consumption	65,612	67,401	69,200	70,611	2.8	2.7	2.7	2.0
Gross fixed capital formation	73,693	74,753	77,377	80,203	1.4	1.4	3.5	3.7
Changes in inventories (incl. statistical discrepancies)	404	–272	243	459	×	×	×	×
Domestic demand	317,026	321,520	331,964	342,391	1.1	1.4	3.2	3.1
Exports of goods and services	175,607	181,580	191,065	202,956	2.1	3.4	5.2	6.2
Imports of goods and services	162,920	165,656	173,424	183,816	0.3	1.7	4.7	6.0
Net exports	12,687	15,924	17,641	19,140	×	×	×	×
Gross domestic product	329,713	337,444	349,605	361,531	2.1	2.3	3.6	3.4

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

Table 16

Demand components (deflators)

	2014	2015	2016	2017	2014	2015	2016	2017
	2010 = 100				*Annual change in %*			
Private consumption	109.9	111.2	112.7	114.8	2.0	1.1	1.4	1.8
Government consumption	107.6	109.7	111.1	112.2	2.0	1.9	1.3	1.0
Gross fixed capital formation	107.3	108.2	109.6	111.2	1.5	0.9	1.2	1.5
Domestic demand (excl. changes in inventories)	108.8	110.2	111.6	113.4	1.9	1.2	1.3	1.5
Exports of goods and services	105.2	106.3	107.7	109.5	–0.1	1.1	1.3	1.7
Imports of goods and services	106.6	106.5	107.6	109.3	–0.8	–0.1	1.0	1.6
Terms of trade	98.7	99.9	100.1	100.1	0.7	1.2	0.3	0.0
Gross domestic product	107.2	108.9	110.7	112.5	1.6	1.6	1.6	1.6

Source: 2014: Eurostat; 2015 to 2017: OeNB December 2015 outlook.

Table 17

Labor market

	2014	2015	2016	2017	2014	2015	2016	2017
	Thousands				*Annual change in %*			
Total employment	4,267.2	4,295.5	4,341.6	4,384.9	0.8	0.7	1.1	1.0
of which: Private sector	*3,590.2*	*3,618.5*	*3,664.1*	*3,707.4*	*1.1*	*0.8*	*1.3*	*1.2*
Payroll employment (national accounts definition)	3,697.0	3,733.5	3,780.1	3,820.5	0.9	1.0	1.2	1.1
	% of the labor supply							
Unemployment rate (Eurostat definition)	5.6	5.8	6.1	6.3	×	×	×	×
	EUR per real unit of output x 100							
Unit labor costs (economy as a whole)[1]	59.5	60.6	60.8	61.3	2.2	1.8	0.4	0.8
	EUR thousand per employee							
Labor productivity (economy as a whole)[2]	72.1	72.1	72.7	73.3	–0.4	0.1	0.9	0.8
	EUR thousand							
Compensation per employee (real)[3]	39.0	39.3	39.2	39.2	–0.3	0.7	–0.1	–0.2
	At current prices in EUR thousand							
Compensation per employee (gross)	42.9	43.7	44.2	44.9	1.8	1.8	1.3	1.6
	At current prices in EUR million							
Total gross compensation of employees	158,627	163,115	167,233	171,679	2.6	2.8	2.5	2.7

Source: 2014: Eurostat, 2015 to 2017: OeNB December 2015 outlook.

[1] *Gross wages and salaries divided by real GDP.*
[2] *Real GDP divided by total employment.*
[3] *Gross wages and salaries per employee divided by private consumption expenditure deflator.*

Table 18

Current account

	2014	2015	2016	2017	2014	2015	2016	2017
	EUR million				*% of nominal GDP*			
Balance of trade	12,068.0	15,328.5	16,192.9	17,509.6	3.7	4.5	4.6	4.8
Balance of goods	1,557.0	3,769.6	4,285.4	4,806.1	0.5	1.1	1.2	1.3
Balance of services	10,511.0	11,558.9	11,907.5	12,703.5	3.2	3.4	3.4	3.5
Balance of income	–2,293.0	–2,290.6	–2,293.0	–2,293.0	–0.7	–0.7	–0.7	–0.6
Balance of transfer payments	–3,285.0	–3,884.0	–4,020.0	–4,140.0	–1.0	–1.2	–1.1	–1.1
Balance of current account	6,490.0	9,154.0	9,879.9	11,076.6	2.0	2.7	2.8	3.1

Source: 2014: Eurostat, 2015 bis 2017: OeNB December 2015 outlook.

Table 19

Quarterly outlook results

	2015	2016	2017	2015				2016				2017			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Prices, wages and costs	*Annual change in %*														
HICP	0.8	1.3	1.7	0.6	1.0	0.9	0.7	1.1	1.1	1.2	1.8	1.7	1.6	1.8	1.8
HICP (excluding energy)	1.7	1.7	1.8	1.6	1.7	1.8	1.6	1.6	1.9	1.6	1.8	1.8	1.7	1.8	1.8
Private consumption expenditure (PCE) deflator	1.1	1.4	1.8	1.4	1.1	1.0	0.9	1.1	1.3	1.5	1.7	1.8	1.8	1.8	1.8
Gross fixed capital formation deflator	0.9	1.2	1.5	1.2	0.9	0.8	0.7	0.9	1.1	1.3	1.5	1.5	1.5	1.4	1.4
GDP deflator	1.6	1.6	1.6	1.7	1.6	1.5	1.6	1.6	1.6	1.7	1.6	1.6	1.6	1.6	1.6
Unit labor costs	1.8	0.4	0.8	2.2	2.0	1.7	1.2	0.7	0.4	0.1	0.3	0.5	0.7	0.9	1.1
Nominal wages per employee	1.8	1.3	1.6	1.7	1.9	1.9	1.8	1.5	1.3	1.1	1.2	1.3	1.5	1.7	1.8
Productivity	0.1	0.9	0.8	–0.5	–0.1	0.2	0.6	0.8	0.8	1.0	0.9	0.8	0.8	0.7	0.7
Real wages per employee	0.7	–0.1	–0.2	0.3	0.7	0.9	0.9	0.4	–0.1	–0.4	–0.5	–0.5	–0.3	–0.1	0.0
Import deflator	–0.1	1.0	1.6	–0.5	0.1	–0.2	0.3	0.6	0.6	1.3	1.5	1.6	1.6	1.7	1.7
Export deflator	1.1	1.3	1.7	1.0	1.2	1.1	1.0	1.0	1.2	1.4	1.6	1.7	1.7	1.7	1.6
Terms of trade	1.2	0.3	0.0	1.5	1.1	1.4	0.7	0.4	0.5	0.0	0.1	0.1	0.1	0.0	–0.1
Economic activity	*Annual and/or quarterly changes in % (real)*														
GDP	0.7	1.9	1.8	0.2	0.3	0.3	0.4	0.5	0.6	0.6	0.5	0.4	0.3	0.3	0.3
Private sector consumption	0.2	1.6	1.4	0.0	0.0	0.0	0.3	0.6	0.5	0.4	0.4	0.3	0.3	0.3	0.4
Public sector consumption	0.8	1.3	1.1	0.2	0.2	0.2	1.1	–0.1	0.2	0.3	0.5	0.3	0.2	0.1	0.0
Gross fixed capital formation	0.5	2.3	2.2	0.3	0.5	0.5	0.6	0.6	0.6	0.6	0.6	0.5	0.5	0.5	0.4
Exports	2.3	3.9	4.5	0.2	1.0	1.4	1.0	0.6	1.0	1.1	1.1	1.2	1.1	1.1	1.1
Imports	1.8	3.6	4.3	0.4	0.9	1.6	1.0	0.5	0.8	0.9	1.0	1.1	1.1	1.1	1.2
	Contribution to real GDP growth in percentage points														
Domestic demand	0.4	1.6	1.4	0.1	0.2	0.2	0.5	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Net exports	0.4	0.3	0.3	–0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.0
Changes in inventories	0.0	0.0	0.0	0.2	0.1	0.1	–0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Labor market	*% of labor supply*														
Unemployment rate (Eurostat definition)	5.8	6.1	6.3	5.6	5.9	5.7	6.1	6.1	6.1	6.0	6.1	6.1	6.2	6.3	6.5
	Annual and/or quarterly changes in %														
Total employment	0.7	1.1	1.0	0.2	0.2	0.2	0.1	0.3	0.4	0.3	0.3	0.2	0.2	0.2	0.2
of which: Private sector	*0.8*	*1.3*	*1.2*	*0.2*	*0.2*	*0.2*	*0.1*	*0.4*	*0.4*	*0.4*	*0.4*	*0.3*	*0.2*	*0.2*	*0.2*
Payroll employment	1.0	1.2	1.1	0.3	0.2	0.3	0.2	0.4	0.4	0.4	0.3	0.3	0.2	0.2	0.2
Additional variables	*Annual and/or quarterly changes in % (real)*														
Real disposable household income	–0.4	2.8	1.0	–1.6	–0.3	2.9	–1.0	0.9	0.9	0.8	0.7	0.2	–0.2	–0.3	–0.4
	% of real GDP														
Output gap	–1.0	–0.5	–0.4	–0.9	–0.9	–1.0	–0.9	–0.8	–0.6	–0.4	–0.3	–0.4	–0.4	–0.4	–0.4

Source: OeNB December 2015 outlook. Quarterly figures adjusted for seasonal and working-day variations.

Table 20

Comparison of current economic forecasts for Austria

	OeNB			WIFO		IHS		OECD			IMF		European Commission		
	December 2015			September 2015		September 2015		November 2015			October 2015		November 2015		
	2015	2016	2017	2015	2016	2015	2016	2015	2016	2017	2015	2016	2015	2016	2017
Key results	*Annual change in %*														
GDP (real)	0.7	1.9	1.8	0.7	1.4	0.7	1.6	0.8	1.3	1.7	0.8	1.6	0.6	1.5	1.4
Private consumption (real)	0.2	1.6	1.4	0.4	1.3	0.4	1.5	0.4	1.6	1.2	×	×	0.3	1.0	1.0
Government consumption (real)	0.8	1.3	1.1	0.8	0.5	0.5	0.3	0.8	–0.6	0.8	×	×	0.8	0.5	0.6
Gross fixed capital formation (real)	0.5	2.3	2.2	0.4	1.5	–0.5	1.7	–0.5	2.4	4.0	×	×	–0.1	2.6	2.7
Exports (real)	2.3	3.9	4.5	2.5	3.6	1.8	3.9	0.7	3.3	4.7	1.1	4.8	1.2	3.7	3.6
Imports (real)	1.8	3.6	4.3	2.3	3.4	0.9	3.9	0.2	3.6	5.1	0.6	4.7	1.0	3.6	3.7
GDP per employee[1]	0.1	0.9	0.8	0.7	1.1	–0.1	0.7	0.3	0.4	0.5	×	×	–0.1	0.7	0.6
GDP deflator	1.6	1.6	1.6	1.6	1.7	1.8	1.9	1.4	1.4	1.6	0.9	1.6	1.5	1.5	1.8
CPI	×	×	×	1.1	1.7	1.1	1.8	×	×	×	×	×	×	×	×
HICP	0.8	1.3	1.7	1.1	1.7	1.1	1.8	0.9	1.5	1.7	1.0	1.7	0.9	1.8	2.0
Unit labor costs	1.8	0.4	0.8	1.7	1.2	1.8	1.0	1.7	0.7	1.2	×	×	0.4	–0.4	–0.6
Payroll employment	0.7	1.1	1.0	0.9	1.0	0.8	0.9	0.4	0.8	1.2	0.7	0.8	0.7	0.8	0.8
	% of labor supply														
Unemployment rate (Eurostat definition)	5.8	6.1	6.3	5.8	6.0	5.8	5.8	6.0	6.1	5.9	5.8	5.6	6.1	6.1	6.0
	% of nominal GDP														
Current account	2.7	2.8	3.1	1.4	1.4	×	×	2.3	2.0	2.0	1.6	1.7	2.6	2.6	2.8
Budget balance (Maastricht definition)	–1.6	–2.0	–1.7	–1.9	–2.0	–1.7	–2.0	–1.8	–1.9	–1.3	–2.0	–1.7	–1.9	–1.6	–1.3
External assumptions															
Oil price in USD/barrel (Brent)	53.8	52.2	57.5	55.0	60.0	56.0	59.0	54.1	50.0	50.0	51.6	50.4	54.8	54.2	58.8
Short-term interest rate in %	0.0	–0.2	–0.1	0.10	0.10	0.0	0.10	0.0	0.0	0.10	–0.0	–0.0	0.0	–0.1	0.0
USD/EUR exchange rate	1.11	1.09	1.09	1.1	1.1	1.1	1.1	1.11	1.11	1.11	1.1	1.1	1.1	1.1	1.1
	Annual change in %														
Euro area GDP (real)	1.5	1.7	1.9	1.5	1.5	1.4	1.7	1.5	1.8	1.9	1.5	1.6	1.6	1.8	1.9
U.S. GDP (real)	2.4	2.7	2.6	2.4	2.4	2.5	2.6	2.4	2.5	2.4	2.6	2.8	2.6	2.8	2.7
World GDP (real)	2.9	3.4	3.7	3.0	3.3	×	×	2.9	3.3	3.6	3.1	3.6	3.1	3.5	3.7
World trade	1.5	3.5	4.2	0.5	2.0	2.5	3.2	2.0	3.6	4.8	3.2	4.1	2.3	3.6	4.5

Source: OeNB, WIFO, IHS, OECD, IMF, European Commission.

[1] *Excluding WIFO: productivity per hour.*

Interest rate perceptions and expectations when interest rates are low – survey evidence on Austrian households

Christian Beer, Ernest Gnan, Doris Ritzberger-Grünwald[1]

Are Austrians fully aware of the currently prevailing ultra-low interest rate environment? Do they expect these low interest rates to persist for a protracted period? To answer these questions, we conducted a survey on the interest rate perceptions and expectations of Austrian households and present the survey evidence in this study. We find that people are largely aware that interest rates are extremely low and that they expect rates to stay low for some time. But we also find that the knowledge of interest rates is limited, as a high fraction of respondents does 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. Likewise, quite a large fraction of survey participants has not formed any expectations about how high or low interest rates will be 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 of the level of interest rates. Our findings suggest that in modeling the monetary policy transmission mechanism, one cannot simply take for granted that people are well-informed about actual interest rates. One needs to take into account perception limitations and biases. 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.

JEL classification: D12, D14
Keywords: interest rate perceptions, interest rate expectations, financial literacy

The current period of ultra-low interest rates in the euro area is reflected in particularly low retail savings and credit interest rates in Austria. The ECB has taken far-reaching measures – including forward guidance and the Expanded Asset Purchase Program (APP) – not only to bring down short-term rates, but also to lower interest rate expectations and hence long-term interest rates. Thus, retail rates are very low also for relatively long tenors, e.g. fixed rate mortgage loans with maturities of 10 to 20 years.

To investigate the extent to which households are fully aware of the current interest rate environment, we surveyed about 2,000 Austrian households between April and May 2015, querying their perceptions of the interest rate level, interest rate expectations and their impressions of how well informed they felt by banks about interest rate changes as well as risks related to interest rate changes.

The issue is relevant for a number of reasons: First, awareness of the current and likely future level of retail rates is a necessary condition for well-informed decisions to either save or spend, including on real estate. Hence, retail rate levels are also an important factor in people's decisions whether to rent or to buy property for housing purposes. If interest rate perceptions and expectations diverged systematically for socioeconomic factors, less informed groups in society would be at a disadvantage in their decision making. Second, if interest rate perceptions di-

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verged systematically from actual interest rates, this could affect the transmission process of monetary policy. More specifically, incomplete awareness of the current ultra-low level of interest rates as well as of the implications of the ECB's APP and forward guidance could reduce the expansionary impact of these measures. In this case, central banks should also consider interest rate perceptions as part of their monitoring and analysis of the transmission of monetary policy measures.

The paper is structured as follows: Section 1 scans the existing literature for relevant findings. Section 2 provides a stylized model of the flow of information for the formation of interest rate perceptions and expectations and examines its relevance for the transmission of monetary policy impulses. Section 3 presents the data raised by the survey. Section 4 summarizes some findings from nonresponses. In section 5, we present the results of respondents' perceptions of nominal interest rates prevailing at the time of the survey, including the ECB's key interest rate, the interest rate on a short-term savings account and the interest rate on a long-term variable rate mortgage. To assess the quality of knowledge, the distribution of responses is compared with the actual ECB key interest rate and the distribution of banks' savings and mortgage lending rates according to the OeNB's official interest rate statistics. Box 1 analyzes respondents' understanding of the definition of the real interest rate. Section 6 summarizes findings on interest rate expectations (again for the ECB's key interest rate, a short-term savings account, and long-term variable rate mortgage credit). Section 7 analyzes the role of information provided by banks. Section 8 concludes.

1 Limited body of empirical research on knowledge of interest rates

Empirical research on the knowledge of prevailing interest rates is relatively scarce.[2] Household surveys about interest rates are mostly interested in outstanding loans of households or investment products owned by households (e.g. the U.S. Survey of Consumer Finances, SCF,[3] or the Eurosystem's Household Finance and Consumption Survey, HFCS[4]). Therefore, these surveys do not collect data either on respondents' knowledge of the monetary policy rate or on perceptions of interest rates on savings accounts and loans that are newly contracted at the time of the survey. Furthermore, only households that own the underlying product are asked about interest rates. As a consequence, the interest rate information from these surveys is more suitable for evaluating e.g. the economic behavior and decision making of households, the soundness of their financial situation (e.g. the ability to service debt) and resulting risks for the banking sector. This knowledge is especially useful for designing macroprudential measures.

Survey data on interest rate expectations are also limited: The SCF and the Surveys of Consumers of the University of Michigan (Michigan Surveys) ask about the future direction of interest rates (will they go up, stay the same, or go down) over five years and over

[2] *Research in the related field of inflation perceptions and inflation expectations is much more abundant (see Fritzer and Rumler, 2015, for a recent contribution using data from the OeNB barometer survey).*

[3] *http://www.federalreserve.gov/econresdata/scf/.*

[4] *https://www.ecb.europa.eu/pub/economic-research/research-networks/html/researcher_hfcn.en.html; for Austria, see http://www.hfcs.at/en.*

one year, respectively. The data were used to evaluate consumers' expectations ex post. For example, Chunping and Turvey (2011) compare responses to the SCF question on interest rate expectations with actual rates five years later. They derive three results: First, households tend to have similar interest rate expectations; second, interest rate expectations are biased in the direction of rising interest rates; third, most of the time the majority of households had wrong expectations. Baghestani and Kherfi (2008) use the Michigan Surveys. They find that forecast quality was much better in the volatile interest rate environment from 1978 to 1983 than in the relatively stable interest rate environment between 1984 and 2005. During the latter period, respondents too often predicted an increase in interest rates (a result similar to the findings of Chunping and Turvey, 2011). Baghestani and Kherfi (2008) attribute differences in consumers' forecast ability to different loss functions and different benefits from correctly forecasting future interest rate developments in calm and in volatile interest rate periods (for instance, the benefits of renegotiating loans are potentially higher in volatile periods).

Survey questions on interest rate expectations were also used to investigate whether consumers form expectations that are consistent with economic theory. For example, Dräger et al. (2014) use the Michigan Surveys to investigate whether respondents form expectations about interest rates, inflation and unemployment that are consistent with the Taylor rule; they find that 46% of respondents do so. Responses in line with the Taylor rule are more likely during periods of rising and constant interest rates than during periods of falling interest rates. Furthermore, consistency of expectations with the Taylor rule suffers if inflation is above 2%. Moreover, increased transparency in the Fed's communication positively affected consistency.

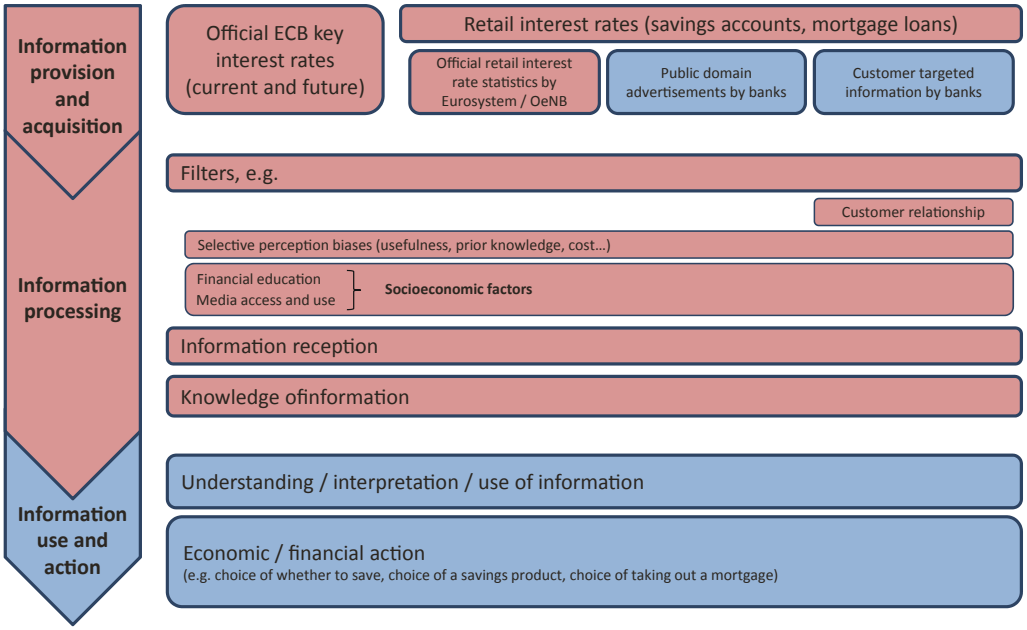
We are not aware of any work mentioning the concept of interest rate perceptions (as opposed to actual interest rates) or raising the issue of how deviations of interest rate perceptions from actual interest rates might affect the transmission of monetary policy impulses.

2 Interest rate perceptions within an information flow and processing model and their relevance for the transmission of monetary policy impulses

How households obtain and process information on interest rates represents important input to our paper. Research directly relevant for our article was published by Lee and Hogarth (1999), who used a special edition of the Michigan Surveys that included additional questions on consumers' knowledge of the terms of their loans. The responses showed that the availability of information on interest rates by no means guaranteed that consumers received and used this information; adoption of publicly available information may take considerable time and will never be complete. Furthermore, awareness of interest rate information does not necessarily imply that consumers actually know and understand this information. Sociodemographic factors such as education, profession and income, but also age and gender imply notable differences in interest rate information reception and knowledge. Information search efforts by consumers are important; existing knowledge and experience facilitate the absorption of new information. For information to be adopted, it should be useful, easy to understand and affordable; both the quality and the quantity of information make a difference (see

Chart 1

Transmission of information on interest rates



Source: Authors' own design, content inspired by Lee and Hogarth (1999).

Note: Aspects addressed in this paper are shaded in red.

Lee and Hogarth, 1999, and the references quoted there).

Chart 1 is a flow chart with a stylized stepwise description of how information on various interest rates reaches consumers, how consumers process information to form their perceptions of reality, and how they use these perceptions in making decisions. The basic idea is that, in line with communication theory, information on its way from the sender to the receiver may get lost, be filtered and be biased. The red text boxes are aspects our survey and this paper address.

In our flow chart, information on interest rates is provided by the central bank (official interest rates published on the central bank website, by the media, etc.) and by banks. Banks can provide information either to the general public (by internet, advertisements, the media and the like) or, alternatively, target specific existing or prospective customer groups.

This last aspect is interesting, as it might imply a different level of information among consumers depending on their relationship with banks, and thus act as a first set of filters. Information may also be filtered by other mechanisms. First, consumers may be subject to selective perception, i.e. they seek, or become aware of, only the information that is of relevance and use to them, given that knowledge acquisition is costly and higher personal relevance justifies search costs, or they filter information in a way that confirms their preconceived views, thus creating a distorted picture of reality. Furthermore, the level of financial education[5]

[5] *In examining inflation expectations, Burke and Manz (2011) show in an experimental setting that more financially literate people are better at predicting inflation. They are better at selecting relevant information as well as making use of the information.*

as well as the choice of media may act as information filters. These filters may in turn be influenced by various socioeconomic factors, such as the level of education, the type of profession, age, gender or the location of residence.

Even if information on interest rates reaches the receiver, there is no certainty that it is remembered, understood, correctly interpreted and ultimately used. Other factors may be more important for the decision-making process. For example, unemployment or the fear of unemployment and economic uncertainty more generally may deter households from taking out a loan no matter how low the interest rate may be. Similarly, financially constrained households may have more limited access to credit than higher income and/or higher net wealth households. All these obstacles may imply that an action expected in a world of rationally behaving individuals with perfect information processing and uninhibited access to finance is not taken or is taken in a different way.

Applied to monetary policy, the implication of economic agents' mindset is that savings, investment and credit decisions are not influenced by official rates or even retail rates as such, but by their perceptions, understanding, interpretation of, and ability to act on, these rates. Hence, in the current environment of ultra-low interest rates, if consumers are not fully aware of how low savings and mortgage interest rates actually are, they might not choose to reduce savings in favor of consumption and might not take out mortgages, even though they would be expected to in theory.[6]

Bearing in mind this stylized model of information processing, we will use the following hypotheses to organize the discussion of our empirical findings on households' interest rate perceptions and expectations as well as on the role of information provided by banks:

1. Households have limited knowledge of the prevailing ultra-low level of interest rates; their perceptions of the prevailing level of policy and retail rates are on average biased.
2. Perceptions of the current level of interest rates are heterogeneous. They are influenced by socioeconomic factors such as gender, education, income, profession or age. Furthermore, awareness of interest rates depends on the personal relevance of these rates. Thus, applied to our questionnaire, holding or intending to hold a savings account or a mortgage loan should positively influence knowledge.
3. Respondents find it easier to state expectations about the future development of interest rates in broad terms than to pin them down in concrete numbers. Expectations are heterogeneous. The distribution of expectations is in line with the notion of a zero lower bound of nominal interest rates, i.e. any expected changes tend to be upward.
4. The perceived quality of the information provided by the bank to the customer is correlated with respondents' financial knowledge.

3 The data

We use microsurvey data from the OeNB barometer survey. This survey is conducted regularly by the Institute for Empirical Social Studies, IFES, on behalf of the OeNB. The questionnaire consists of a fixed part (including questions on the socioeconomic characteristics of the respondent and the house-

[6] *We intend to pursue the latter aspects of households' action in response to the current ultra-low interest rates in future research.*

hold in general) and a variable part that allows questions on specific topics to be added. We added 34 questions on, among other things, respondents' knowledge of the interest rate level, their interest rate expectations, the impact of low interest rates on respondents' savings, investment and borrowing decisions, as well as on how well households feel informed by their banks on interest rate changes as well as risks. The survey was conducted between the end of April and the beginning of June 2015. 2,005 participants older than 15 years were asked in computer-assisted personal interviews (CAPI).

Respondents were asked about their perception of the current monetary policy rate, the interest rate on savings accounts, and the interest rate on mortgage loans. The specific interest rates considered are: first, the interest rate on the ECB's main refinancing operations. For reference, at the time of the survey, the ECB's main refinancing rate stood at 0.05%. Second, respondents were asked about the interest rate on savings accounts with an agreed maturity of between one year and up to two years. Third, the question on loan interest rates focused on a variable rate euro-denominated mortgage of EUR 100,000 with a maturity of 20 years. The questions on interest rates on savings accounts and loans were asked for the fictitious situation of newly allocating money to a savings account or taking out a new loan.

In addition, the survey included questions on expectations of the interest level five years ahead, in 2020. Expectations were queried in two steps: First, participants were asked to indicate which direction they expect for interest rates (considerably higher rates, higher rates, rates at about the same level, or lower rates). In a second step, respondents who did not answer "don't know" or did not refuse to answer the first question were asked for a quantitative assessment. To make it easier for respondents, they were offered a choice of several preset response options in the form of intervals or numbers to approximate the interest rate assessment (e.g. "about 2%"). To merge the answer categories and to facilitate the comparison of the answers on perceptions and expectations, we mapped the original response options into coarser intervals. If the original response options were presented in form of specific numbers, we used the midpoint between the numbers as the endpoints of the interval.

4 General knowledge of interest rates – messages from item nonresponse

We start our presentation of the survey results with an analysis of nonresponses.[7] Quite a large proportion of respondents stated that they were not acquainted with the current level of interest rates and could not form expectations about the future level.[8] This number varies from 15% for the cur-

[7] *When interpreting "don't know" answers, the following caveat seems appropriate: "Don't know" respondents most likely think that they cannot answer the question. Potential reasons for such an answer are that respondents have absolutely no knowledge of the subject, or have some knowledge and are aware that they do not know the correct answer, or are at least unsure. At the same time, some respondents who think that they can answer a question then give an incorrect answer. Therefore, it is not possible to determine whether respondents who answer "don't know" are less knowledgeable than those who think they know but then give an incorrect answer. Note also that "incorrect" answers do not exist for all questions. In particular, answers to the question on interest expectations cannot be "right" or "wrong." By contrast, answers to the question on the monetary policy rate can be compared to actual prevailing rates and thus can be categorized as factually right or wrong.*

[8] *In this analysis, we regard respondents that refused to answer the question as respondents that do not know the answer or that gave an incorrect answer. The proportion of respondents who refused to give an answer is quite low.*

rent interest rate on savings accounts to 36% for numerical expectations (within preset intervals) for the monetary policy rate (see table 1). Respondents are more willing to answer questions on savings accounts than on mortgage loans or the monetary policy rate, and they are more likely to answer the question on interest rates on mortgage loans than on the monetary policy rate – at least on the current monetary policy rate. This indicates that participants consider themselves better able to respond to questions that concern products that are more widespread and have a higher personal relevance. 76% of respondent households own a savings account but only 23% have an outstanding loan. By contrast, the monetary policy rate is not of direct relevance for households. It may be argued that from a monetary policy perspective, it might not be important for people to have expectations on the monetary policy rate, as this interest rate comes early in the monetary policy transmission mechanism.

Not surprisingly, respondents are more likely to have expectations on the future *direction* of interest rates than on the future interest rate *level*. Furthermore, stating expectations about the future direction of interest rates seems to be easier than stating the current rate. Hence, knowledge of current interest rates is not a prerequisite for forming expectations.

Even though the proportion of respondents who cannot answer differs across questions, regression analysis shows that the factors that are correlated with a lack of knowledge are similar for all questions. As table 2 shows, there are no clear-cut age effects for most interest rate questions. A higher education level generally reduces the likelihood of not answering. Somewhat surprisingly, this effect is more pronounced for secondary school graduates (and most of the time also for respondents who have completed an apprenticeship) than for university graduates. Women more often stated that they did not know how high the monetary policy rate and the interest rate on mortgage loans was. Gender differences also arise for most other questions (see below), a finding which is in line with other studies on financial literacy (see e.g. Greimel-Fuhrmann et al., 2015).[9] For most questions, respondents who live in a primary residence owned by their household (variable *ownership*) were more likely to give an answer. The same is the case for indi-

Table 1

Proportion of respondents who did not answer the questions on interest rates

	Monetary policy rate	Savings accounts	Mortgage loans
	%		
Current rate	35	16	30
Expectations – tendency	22	15	22
Expectations – category	36	25	35

Source: Own calculations based on the OeNB barometer survey.

Note: "Tendency" refers to whether respondents expect interest rates to be (considerably) higher, stay at about the same level or to be lower in 2020. "Category" refers to expected values at preset intervals.

[9] *A potential explanation that comes to mind is that male respondents are more likely to be responsible for the household's finances and therefore have more financial knowledge. Indeed, the survey data show that this is the case for 88% of male respondents but only for 54% of female respondents and only 25% of female respondents in households where more than one person has an income. To capture the potential effects of being a target person and not ascribing them spuriously to a gender effect, we include the variable "target person" in the estimations. A respondent is the target person if he or she contributes most to the household income and/or is most knowledgeable about the household finances. It turns out that this variable does not have any significant impact on our results.*

Table 2

Don't know (no answer) response to the question on the interest rate level

Average marginal effects after logit estimation

Current level

	Monetary policy rate	Savings accounts	Mortgage loans
Age	–0.06	–0.10 ***	–0.07 **
Age squared	0.01 *	0.01 ***	0.01 **
Education (base category: compulsory schooling or less)			
Apprenticeship	–0.09 **	–0.08 ***	–0.05
Secondary schooling	–0.20 ***	–0.16 ***	–0.12 ***
University	–0.10 *	–0.12 ***	–0.01
Household income (base category: <EUR 1,950)			
EUR 1,950 – EUR 3,300	–0.00	–0.01	0.04
≥EUR 3,300	–0.03	0.03	0.01
Female	0.07 ***	–0.00	0.08 ***
Target person	–0.00	0.00	0.05 *
Ownership	–0.12 ***	–0.03	–0.09 ***
City size (base category: population of up to 5,000)			
5,000 – 50,000	–0.04	0.01	0.04
>50,000	–0.12 ***	–0.05 **	–0.14 ***
Employed	0.00	0.01	–0.04
Loan	0.01	–0.01	–0.16 ***
Intention to take out a loan	–0.04	0.02	–0.05
Savings accounts	–0.01	–0.05 ***	–0.00
Intention to change investment	–0.13 ***	–0.23 ***	–0.12 **
Knowledge of real interest rate	–0.24 ***	–0.13 ***	–0.14 ***

Expectations

	Monetary policy rate		Savings accounts		Mortgage loans	
	tendency	category	tendency	category	tendency	category
Age	–0.01	–0.05	–0.01	–0.07 **	–0.01	–0.07 *
Age squared	0.00	0.01 *	0.00	0.01 ***	0.00	0.01 **
Education (base category: compulsory schooling or less)						
Apprenticeship	–0.07 **	–0.07 *	–0.03	–0.06 *	–0.06 *	–0.07 *
Secondary schooling	–0.10 **	–0.14 ***	–0.06 *	–0.13 ***	–0.09 **	–0.11 ***
University	–0.03	–0.04	–0.01	–0.04	–0.05	–0.03
Household income (base category: <EUR 1,950)						
EUR 1,950 – EUR 3,300	–0.04	–0.05 *	–0.01	–0.02	0.00	0.04
≥EUR 3,300	–0.03	–0.06	–0.03	–0.03	–0.02	0.02
Female	0.03	0.04 *	–0.02	0.01	0.06 **	0.09 ***
Target person	–0.02	–0.02	–0.03	–0.01	0.00	0.02
Ownership	–0.04 *	–0.04	–0.04 **	–0.03	–0.06 ***	–0.09 ***
City size (base category: population of up to 5,000)						
5,000 – 50,000	–0.00	–0.00	0.05 **	0.02	0.02	0.04
>50,000	–0.06 **	–0.08 ***	–0.01	–0.07 ***	–0.03	–0.13 ***
Employed	0.02	0.00	0.02	0.01	–0.03	–0.01
Loan	–0.00	0.02	–0.04 *	–0.03	–0.05 *	–0.09 ***
Intention to take out a loan	–0.02	0.03	–0.03	0.01	–0.09 *	–0.12 **
Savings accounts	–0.03	–0.01	–0.03	–0.03	0.00	0.01
Intention to change investment	–0.11 **	–0.14 ***	–0.12 **	–0.25 ***	–0.16 ***	–0.10 **
Knowledge of real interest rate	–0.16 ***	–0.20 ***	–0.12 ***	–0.15 ***	–0.13 ***	–0.15 ***

Source: Own calculations based on the OeNB barometer survey.

*Note: ***, **, * indicate significance at the 0.10, 0.05 and 0.01 level. To improve readability, we divided the age variable by 10 and consequently age squared by 100.*

viduals that live in large cities (variable *city size*). Furthermore, the personal relevance of interest rates and interest rate changes seems to play a role: Households that want to change their investment (variable *intention to change investment*[10]) were more likely to give an answer. It is less likely that a respondent with an outstanding mortgage loan (variable *loan*) does not know how high the current rate is or has no expectations. The likelihood of giving an answer increases if households intend to take out a loan in the next 12 months (variable *intention to take out a loan*). In the case of savings accounts, respondents who own this product (variable *savings accounts*) are also more likely to feel informed. Whether the respondent holds a job (variable *employed*[11]) does not affect the likelihood of answering questions. The strong correlation with knowledge of the definition of the real interest rate remains even when controlling for other factors, which confirms the notion that knowledge of this definition may be regarded a proxy of financial literacy.

5 Perceptions of the current level of interest rates

Let us now turn to the respondents who answered our survey questions. Our survey data suggest that respondents are generally aware that we are currently experiencing a period of ultra-low interest rates, while at the same time they tend to overestimate the interest rate level.

5.1 Perceptions of the monetary policy rate

The upper left panel of chart 2 suggests that the majority of respondents are aware that monetary policy rates are currently ultra-low. More than 40% of respondents who gave a current answer correctly stated the level of the actual monetary policy rate in effect (0.05%).[12] Only a small proportion of respondents (12%) think that the monetary policy rate is zero or negative.[13] One-quarter slightly overestimated the monetary policy rate (more than 0.05% but less than 0.75%) and about 20% of respondents strongly overestimated the monetary policy rate, assuming that it was higher than 0.75%.

The results in table 3 suggest that knowledge of the level of the monetary policy rate is explained by roughly the same factors as knowledge of the definition of the real interest rate.[14] A higher degree of formal education, ownership of the principal residence and the intention to change investment increases the likelihood of a correct answer. Women are less likely to give a correct answer, however. Knowledge of the definition of the real interest rate

[10] *The variable "intention to change investment" takes the value 1 if respondents answer the question in the affirmative: "Does your household intend to prefer different savings or investment instruments in the next 12 months because of the low interest rate environment?"*

[11] *Including full and part-time jobs as well as apprenticeships.*

[12] *Taking into account "don't know" answers, refusals to answer and incorrect answers, 28% of respondents are familiar with the current monetary policy rate.*

[13] *As the proportion of respondents who think that the monetary policy rate is negative is small, confusion with the interest rate on the deposit facility (which at the time of the survey stood at –0.20%) does not appear to be an important issue.*

[14] *Note that respondents who gave a wrong answer are a subset of respondents who refused to give an answer, as we assigned both to the category "incorrect answer." A robustness test in which we took into account only respondents who answered the question on the level of the monetary policy rate suggests that results do not change in any significant way.*

Box 1

Knowledge of the real interest rate

We asked respondents whether they knew the definition of real interest rates. We did so for two reasons: First, in economic theory, the real rather than the nominal interest rates should guide savings and investment decisions. Second, we take knowledge of this fundamental concept as a simple and crude proxy of financial literacy. Respondents could choose from a list of three potential answers. About 17% of respondents chose the first answer "Real interest rates correspond to the nominal interest rate minus the effective interest rate." 10% opted for the second answer "Real interest rates correspond to the nominal interest rates minus fees." Only 30% chose the correct answer: "Real interest rates correspond to the nominal interest rates minus inflation." More than 40% of survey participants stated that they did not know the answer (on this topic see also Greimel-Fuhrmann et al., 2015).

Regression results shown in the table on the right suggest that people with a higher degree of formal education were more likely to state the proper definition. Furthermore, ownership of financial products (loans, savings accounts) as well as ownership of the principal residence is positively correlated with knowledge of the concept of real interest rates. Female respondents were less likely to give the right answer to the question. The finding that respondents intending to take out a loan scored worse in terms of knowing the definition of the real interest rate is puzzling; it might suggest that knowledge of the concept (and therefore also of the level) of the real interest rate may not be decisive for households' loan decisions.

Correct answer to the question on the real interest rate

Average marginal effects after logit estimation

Age	0.06
Age squared	–0.01 *
Education (base category: compulsory schooling or less)	
Apprenticeship	0.07 **
Secondary schooling	0.14 ***
University	0.20 ***
Household income (base category: <EUR 1,950)	
EUR 1,950 – EUR 3,300	0.01
≥EUR 3,300	0.04
Female	–0.06 **
Target person	0.05
Ownership	0.05 **
City size (base category: population of up to 5,000)	
5,000 – 50,000	0.02
>50,000	0.03
Employed	–0.01
Loan	0.06 **
Intention to take out a loan	–0.10 *
Savings accounts	0.11 ***
Intention to change investment	–0.00

Source: Own calculations based on the OeNB barometer survey.

*Note: ***, **, * indicate significance at the 0.10, 0.05 and 0.01 level. To improve readability, we divided the age variable by 10 and consequently age squared by 100.*

is strongly correlated with knowledge of the level of the monetary policy rate.[15] It may seem surprising that households with an outstanding loan are less likely to give a correct answer. These households display some tendency to overestimate the monetary policy rate. A possible explanation may be that they still have in mind the higher past monetary policy rate in effect when they took out the loan.

It is not apparent which factors affect the assessment of the monetary policy rate, i.e. which factors determine whether respondents who gave an incorrect answer over- or underesti-

[15] *One might argue that the question on the definition of the real interest rate should not enter into the econometric analysis because both knowledge of the monetary policy rate and knowledge of the correct definition of the real interest rate are knowledge questions and are likely to be driven by the same factors. However, excluding the variable indicating knowledge of the real interest rate definition from the explanatory variables affects results only marginally.*

Chart 2

Perceptions of the monetary policy rate

Source: Own calculations based on the OeNB barometer survey.

Note: Excluding respondents who gave no answer.

mated the actual rate and to what extent.[16] Chart 2 gives an overview of the assessment of monetary policy rates by several socioeconomic characteristics. Regarding potential reactions of households to the ultra-low interest rate environment, note that the lower left-hand panel in chart 2 suggests that respondents from households that intend to change their investment or to take out a loan are most inclined to think that the official rate is negative.

[16] *We experimented with ordered probit regressions as well as with interval regressions, but were not able to detect any significant patterns. The same is the case for interest rates on savings accounts and on mortgage loans (see below).*

Table 3

Correct answer to the question on the monetary policy rate

Average marginal effects after logit estimation

Age	–0.04
Age squared	0.00
Education (base category: compulsory schooling or less)	
Apprenticeship	0.12 ***
Secondary schooling	0.26 ***
University	0.25 ***
Household income (base category: <EUR 1,950)	
EUR 1,950 – EUR 3,300	–0.02
≥EUR 3,300	–0.04
Female	–0.07 ***
Target person	–0.04
Ownership	0.11 ***
City size (base category: population of up to 5,000)	
5,000 – 50,000	0.03
>50,000	–0.02
Employed	0.02
Loan	–0.09 ***
Intention to take out a loan	–0.06
Savings accounts	–0.03
Intention to change investment	0.03
Knowledge of real interest rate	0.21 ***

Source: Own calculations based on the OeNB barometer survey.

*Note: ***, **, * indicate significance at the 0.10, 0.05 and 0.01 level. To improve readability, we divided the age variable by 10 and consequently age squared by 100.*

5.2 Interest rate perceptions on savings accounts

Most respondents are aware that interest rates on savings accounts are currently quite low (see table 4). 54% of respondents expect to receive less than 0.9% interest on a new savings account and only 8% of respondents expect interest rates above 1.75%.

At the same time, respondents considerably overestimate interest rates on savings accounts. While there is an official policy rate, there is no official rate for savings accounts, but we can compare our survey data with the data from the OeNB statistics on the interest rate of credit institutions, i.e. information by banks on actually contracted interest rates on savings accounts. According to the interest rate statistics, the volume-weighted average interest rate on savings amounted to 0.38% in May 2015.[17] Hence, three-quarters of respondents choose interest rate intervals that are clearly above the average rate according to the interest rate statistics. Microdata from the interest rate statistics allows us to map volumes from the interest rate statistics at the same interest rate intervals that we use for survey data. Table 4 (lower part) shows the fraction of each interest rate category in the total volume of new savings accounts. The comparison between the official interest rate statistics and our household survey suggests that households have a tendency to overestimate interest rates on savings accounts. Whereas 83% of all savings that were deposited in a savings account in May 2015 receive less than 0.5% interest, only 25% of respondents believe that interest rates on savings accounts fall in this category. Moreover, whereas 47% of respondents think that they would receive over 0.9% interest on new savings deposits, banks granted such an interest rate for only 5% of all newly made deposits.[18]

Chart 3 shows survey results on the assessment of the interest rate on savings accounts by respondents' socioeconomic characteristics and compares

[17] *The interest rate statistics are available at http://www.oenb.at/en/Statistics/Standardized-Tables/interest-rates-and-exchange-rates/Interest-Rates-of-Credit-Institutions.html. The survey question corresponds to interest rates on new business of euro saving deposits of households with an agreed maturity of over one year and up to two years.*

[18] *A comparison of survey data and data from the statistics on the interest rate of credit institutions has some limitations because the two data sources are quite different. At the aggregate level, however, the estimates in the survey and the data from the interest rate statistics should be similar as long as there are no reasons to believe that survey respondents would obtain different conditions for savings accounts than savers who actually make new deposits.*

Table 4

Perception of interest rates on savings accounts

Survey	Interest rate in % <0.5	0.5–0.9	0.9–1.75	1.75–3	>3	Don't know/ no answer
	% of respondents excluding those who gave no answer					
All respondents	25	29	39	7	1	16
Interest rate statistics						
	% of each interest rate category in the total volume of new savings accounts					
Deposits	83	12	5	0	0	
Savings deposits	88	11	1	0	0	

Source: Own calculations based on the OeNB barometer survey, OeNB interest rate statistics.

Note: Savings deposits refer to deposits on savings accounts, deposits also include electronic saving products.

them to the data from the interest rate statistics. The chart suggests that interest rate perceptions differ only marginally among socioeconomic groups. It seems that people with tertiary education and respondents from households that intend to change their savings and investment behavior chose the correct category "below 0.5%" more frequently than the average.[19] Respondents who intend to change their investment behavior might assess the interest rate level as lower for two reasons: First, they are more involved and therefore better informed. Second, households might want to use different savings and investment products because they have a low assessment of the interest rate level.

5.3 Interest rate perceptions on mortgage loans

Households' perceptions of interest rates on mortgage loans (table 5) show a pattern similar to their perceptions of the monetary policy rate and of the interest rate on savings accounts. Respondents are largely aware that interest rates are very low, but again display a clear tendency to overestimate interest rates. Possible explanations could be that there is some time lag in the transmission from policy to retail rates in general, which might be even larger

Table 5

Perception of interest rates on mortgage loans

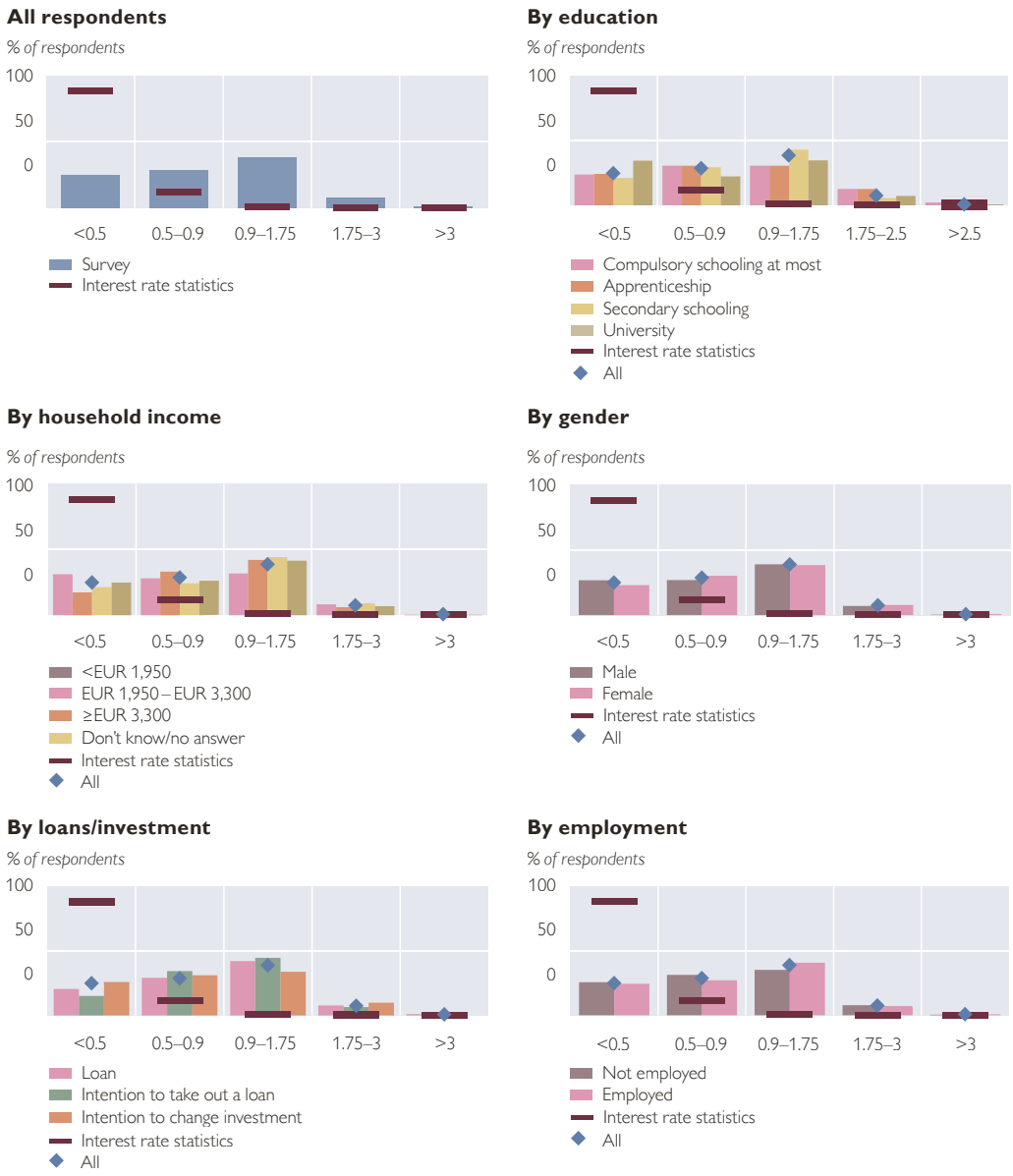
Survey	*Interest rate in %* <1	1–1.75	1.75–2.75	2.75–4.5	>4.5	Don't know/ no answer
	% of respondents					
All respondents	4	20	26	32	18	30
Interest rate statistics						
	% of each interest category in the total volume of new mortgage loans					
Mortgage loans	0	33	55	11	0	

Source: Own calculations based on the OeNB barometer survey, OeNB interest rate statistics.

[19] *The survey data also suggest that respondents with tertiary education are more inclined to change their investment behavior than respondents with a lower level of formal education.*

Chart 3

Perceptions of interest rates on savings accounts



Source: Own calculations based on the OeNB barometer survey and OeNB interest rate statistics.

Note: Excluding respondents who gave no answer. Interest rate statistics in % of interest rate category in the total volume of new savings accounts.

when interest rates decline. Furthermore, banks may try to increase markups over the reference interest rate for new credits in times of falling interest rates to compensate for falling interest rate margins in a phase of ultra-low interest rates with a legal or de facto zero lower bound on deposit rates. Expert groups on consumer protection have documented such behavior (Arbeiterkammer, 2012). The possibility of an inverse relationship between the size of markups and the level of the reference rate is also in line with the development of mortgage lending rates according to the OeNB interest rate statistics over recent years; however, a more thorough analysis would be necessary to deter-

mine the underlying drivers. Households may anticipate or overestimate this lag. Another explanation would be that fees are increased to compensate for reduced net interest rate margins in a period of ultra-low interest rates. As pure interest rates and fees are not always so easy to disentangle, households might have the impression that interest rates are declining more slowly than they actually are.

According to the OeNB interest rate statistics, the volume-weighted average interest rate on mortgage loans was 2.03% in May 2015.[20] Our survey data show that 50% of respondents thought that interest rates on mortgage loans are above 2.75%, which is clearly above the average rate of the interest rate statistics. According to the interest rate statistics, rates above 2.75% were charged for only 11% of the new loan volume.[21] In fact, 18% of respondents even thought that they would pay interest rates of more than 4.5%, but such high interest rates were not charged on any new variable rate mortgage loans at all at the time of the survey.

Chart 4 shows survey responses by socioeconomic characteristics and again compares them to data from the OeNB interest rate statistics. As is the case with the other interest rates, mortgage interest rate perceptions also differ only marginally among respondents with different socioeconomic characteristics. We observe some tendency of households that intend to take out a loan or to change their investment to expect mortgage interest rates of below 1%. For these households, their low perception of interest rates might be one good reason to take out a loan. Our microdata do not allow us to investigate why these households have a lower-than-average interest rate perception (e.g. a better bargaining position, better creditworthiness). Surprisingly, among households that intend to take out a loan, quite a large proportion thinks that interest rates are above 4.5%. The broad dispersion of responses by households intending to take out a loan may indicate that these households have not yet thoroughly informed themselves about current mortgage rates or that the low interest rates are not the motivation for taking out a loan.[22] Finally, it is striking that around two-fifths of households with an outstanding loan thought that prevailing mortgage interest rates on new loans were between 2.75% and 4.5%. This may reflect perception biases (memory of the higher initial rate at which the loan was taken out).

6 Interest rate expectations

In this section, we analyze respondents' expectations for the interest rate level five years ahead, i.e. in 2020. Information on interest rate expectations of consumers is important for several reasons: Among other things, savings, investment, and consumption decisions hinge on interest rate expectations – at least in theory, where consumers are rationally acting agents. Low interest rate expectations for a protracted period could point to low expectations for

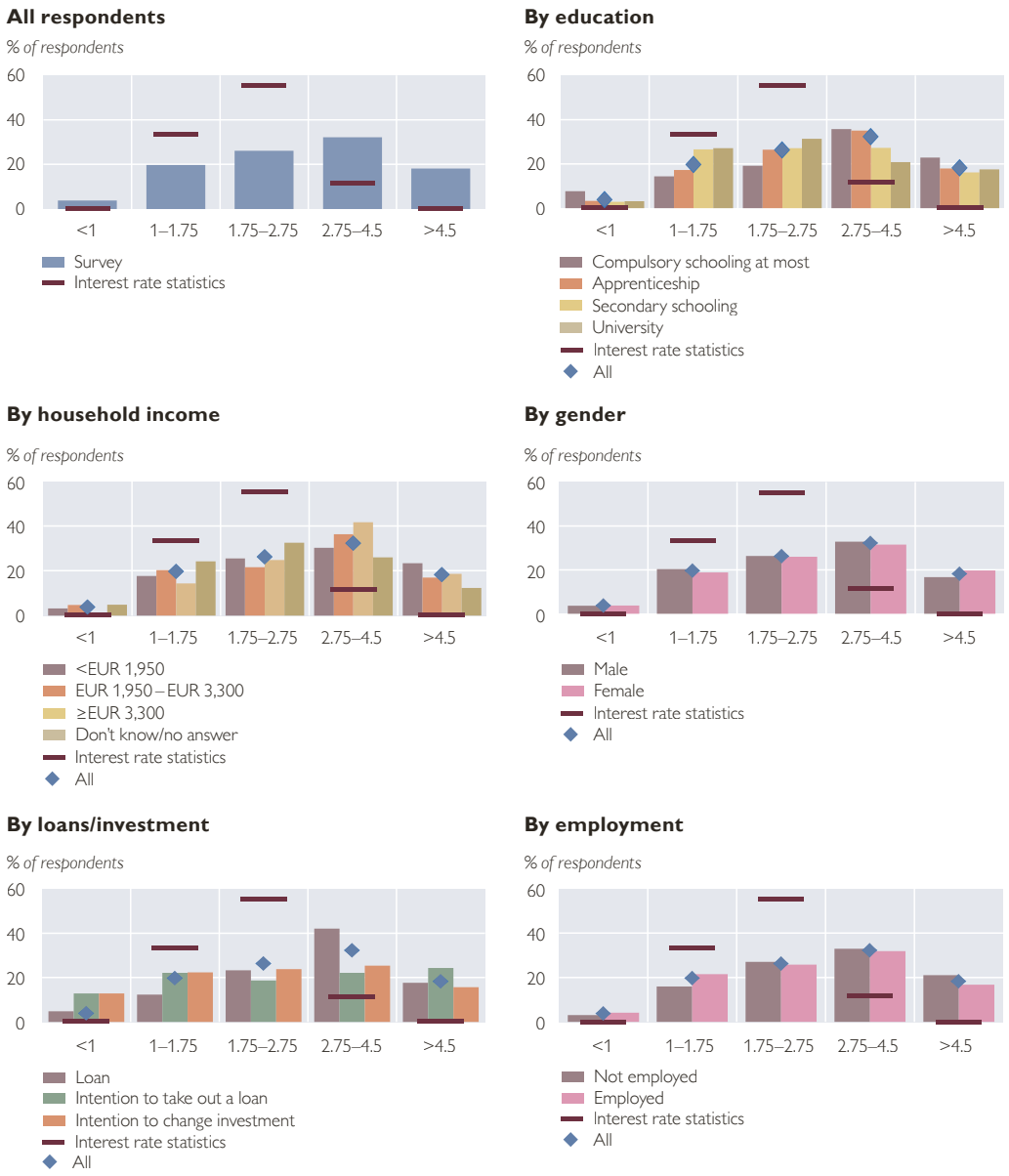
[20] *The survey question corresponds to new euro-denominated loans for house purchases to households with an initial rate fixation of up to one year in the interest rate statistics.*

[21] *The caveat stated in the section on interest rates on savings accounts regarding the comparability of survey data and data from the interest rate statistics is even more applicable to interest rates on mortgage loans. The assessment of interest rates by individual borrowers also depends on their creditworthiness, which we cannot determine with the available data.*

[22] *About 30% of respondents stated that the low interest rate environment is not among the reasons why they intend to take out a loan.*

Chart 4

Perceptions of interest rates on mortgage loans



Source: Own calculations based on the OeNB barometer survey.

Note: Excluding respondents who gave no answer. Interest rate statistics in % of interest rate category in the total volume of new mortgage loans.

inflation and/or economic growth (secular stagnation). Furthermore, from a financial stability perspective, households that expect unrealistically low interest rates might be more inclined to take out a loan and might have overly optimistic expectations about their ability to pay it back.

We asked about rate expectations in two formats, first in terms of the expected direction of changes and then in terms of ranges. Table 6 suggests that the majority of respondents expect interest rates to stay at about the same level or rise somewhat by the year 2020. There are some differences across expected rates. Only few re-

spondents expect lower monetary policy rates or lower interest rates on mortgage loans, while one-fifth of respondents who gave an answer 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.

Turning to interest rate expectations in terms of ranges, chart 5 suggests that about 20% of respondents expect the monetary policy rate to remain at 0.05% in 2020, 40% expect it to be in the range of 0.05% to 0.75%, and about one-third of respondents expect the monetary policy rate to be above 0.75% in 2020. Fewer than 10% expect it to be at zero or even below. A vast majority of respondents expects nominal interest rates on savings accounts to be below 1.75%. As this is below the Eurosystem's definition of price stability, it is likely that such nominal interest rates correspond to negative rates in real terms. Only 15% expect nominal pretax interest rates on savings accounts to be around the price stability definition (implying a zero real interest rate); virtually nobody expects positive real interest returns. Thus, overall, respondents expect a protracted period of ultra-low interest rates. The expectations of households are compatible with market expectations. For example, one-year forward five-years ahead interest rate expectations derived from EONIA swaps pointed to market expectations of about 0.8% in May 2015 (the time of the survey).

Table 6

Interest rate expectations for the year 2020

	Monetary policy rate	Savings accounts	Mortgage loans
	% of respondents		
Considerably higher	10	4	14
Somewhat higher	43	31	51
About the same level	41	45	30
Lower	7	20	4
Don't know/ no answer	22	15	22

Source: Own calculations based on the OeNB barometer survey.

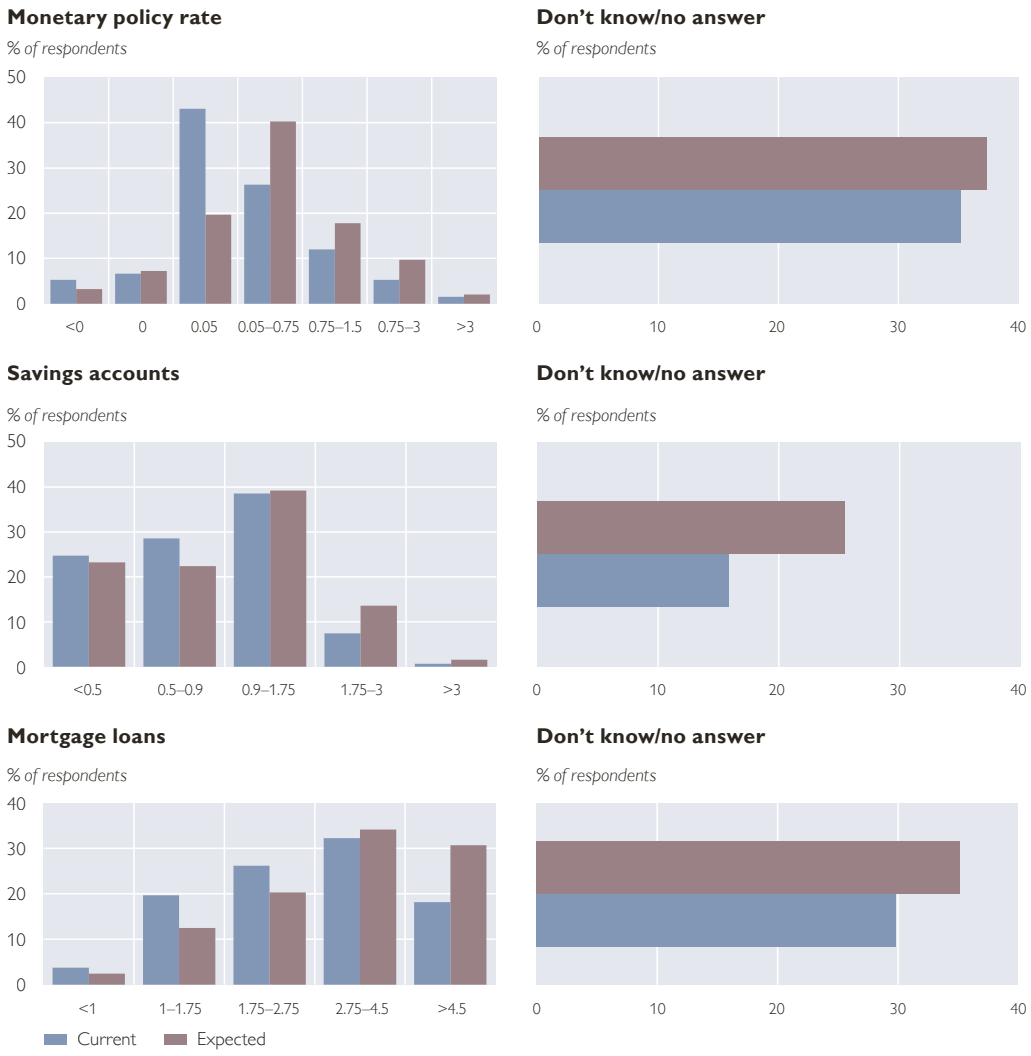
Note: Upper panel excludes respondents who gave no answer.

Our survey data also show that a certain fraction of respondents expects relative interest rate movements that are disadvantageous for households. Among respondents who expect monetary policy rates to stay at about the same level, 46% expect mortgage rates to increase. Furthermore, over 50% of the (small) number of households that expect lower monetary policy rates expect higher mortgage rates. Reasons for this asymmetry could be skepticism toward banks in general or the fear that the ongoing strengthening of regulatory rules might make loans more expensive. The notion that banks might counter a possible overheating in real estate prices by demanding higher risk premiums on housing loans would seem to be too sophisticated to be taken into account by the general public. Among households that expect higher mortgage rates, 32% expect interest rates on savings accounts to stay about the same and 22% even expect lower interest rate on savings accounts. Three-quarters of respondents who expect lower interest rates on savings accounts expect higher interest rates on mortgages.

It is also interesting to compare households' interest rate expectations with their perceptions of current levels (i.e. the red bars versus the blue bars in chart 5). What emerges clearly is that respondents on the whole expect all three interest rates covered in our survey to be above current levels in 2020. Thus, on average they do not take the current interest rate level as the best predictor of future rates; on the contrary, they seem to believe that the current level of interest rates is extraordi-

Chart 5

Current rates versus expectations



Source: Own calculations based on OeNB barometer survey.

Note: Left panels exclude respondents who gave no answer.

narily low and that the odds for the future are for rates to "normalize" toward higher levels more in line with respondents' previous experience.

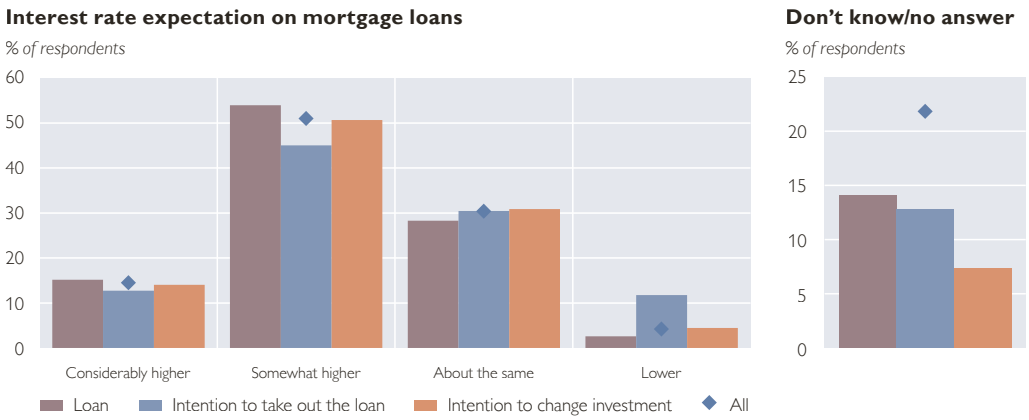
Finally, let us take a closer look at interest rate expectations of households that have taken out a loan or that intend to take out a loan. This is important from a financial stability point of view, as excessively low rate expectations could mean that households underestimate the future interest rate burden and potentially their ability to service a debt. Chart 6 suggests that a disproportionately high share of respondents who live in a household that intends to take out a loan expects mortgage interest rates to be lower in five years. In any event, mortgage rate expectations and loan intentions seem to be consistent.

7 Information by banks

As indicated at the outset in chart 1, banks should be expected to play a major role in the dissemination of information on retail interest rates – after

Chart 6

Expectations and mortgages



Source: Own calculations based on the OeNB barometer survey.

all, interest rates are the key price component of their savings and credit products. Moreover, transparency on retail interest rates including changes over the contract period in the case of variable rate contracts are a vital element of price transparency that consumers need in order to optimize their savings and borrowing decisions as well as to monitor risks and opportunities associated with their financial contracts.

We therefore asked survey participants whether they felt well-informed about interest rate changes on savings accounts and loans and how often their bank informed them. Borrowers were additionally asked whether they were satisfied with the information they receive from their bank on risks stemming from higher interest rate expenditure.

About half of the owners of a savings account are satisfied with the information banks provide on interest rate changes on savings accounts. Most owners state that they are informed about interest rates only when interest rates change (42%), 21% state that they are regularly informed and 31% that they have never been informed (see table 7). Not surprisingly, survey data reveal that the satisfaction with the information on interest rate changes is correlated with the frequency of information. More than 90% of respondents who state they are regularly informed are satisfied with the information policy of banks; this is still the case for 60% of savings account owners who are informed when interest rates change, but only for 5% of savers who state that they are never informed. Hence, the survey data suggest that savers would appreciate more regular information on interest rates on their savings accounts.

Two-thirds of borrowers are satisfied with the information they receive on interest rate changes from their banks. The majority of borrowers state that they are only informed about interest rates when the latter change. One-third is informed on a regular basis and 7% state that they have never been informed. However, the Austrian Banking Act stipulates that borrowers have to be informed in advance of changes in the interest rate. The survey cannot determine whether borrowers are actually not informed or whether they just think that they are not.

Table 7

Information on interest rates

% of respondents

	Satisfied with bank information on interest rate changes	
	Savings accounts	Loans
Don't know/no answer	5	6
Yes	46	65
No	49	29
Does not own product	24	78

	How often informed about interest rates	
	Savings accounts	Loans
Don't know/no answer	6	5
Regularly	21	33
Only when interest rate changes	42	54
Never	31	7

	Well-informed by bank about risks related to interest rate changes
	Loans
Don't know/no answer	8
Yes	58
No	34

Source: Own calculations based on the OeNB barometer survey.

As with savings accounts, consumer satisfaction and the frequency of information on the interest rate are highly correlated. More than 96% of borrowers that receive regular information are satisfied. This proportion drops to 60% if information is only provided in the event of interest rate changes and to only 10% for respondents who state that they never receive information on the interest rate. As with savings accounts, there seems to be room for improvement on the way banks provide information on interest rates. It seems that borrowers would appreciate more regular information. If borrowers were to neglect information on interest rates that is in principle provided, banks could think about making the information more accessible and visible.

Finally, we asked borrowers whether they felt well-informed about risks related to interest rate changes (e.g. higher annuities). Such risks are important in Austria because a very large proportion of loans is at variable rates.[23] The importance of information on interest rate risks is demonstrated by results from the U.S. and the U.K. Bucks and Pence (2006) report that in the U.S.A., borrowers with an adjustable rate mortgage are not aware how much the interest rate on their mortgage can change. For the U.K., Miles (2004) suggests that households attach too much weight to the initial level of

[23] *Variable rate loans accounted for 78% of new lending (in euro) to households in Austria (euro area: 25%) in the third quarter of 2015.*

Table 8

Financial literacy and satisfaction with bank information

% of respondents satisfied with bank information

	Definition real interest rate			Monetary policy rate		
	Correct	Incorrect	Difference	Correct	Incorrect	Difference
Satisfied with interest rate information on savings accounts	53	47	7 **	47	50	–3
Satisfied with interest rate information on loans	76	65	11 **	76	67	10 *
Satisfied with information provided on interest rate risk	69	60	9 *	67	62	5

Source: Own calculations based on the OeNB barometer survey.

*Note: ***, **, * indicates whether the difference between the proportions is statistically different from zero at the 0.10, 0.05 and 0.01 level of significance using a Wald test. Correct (incorrect) indicates whether respondents gave a correct (incorrect) answer to the question on the definition of the real interest rate or the question on the level of the monetary policy rate.*

monthly repayments and do not pay enough attention to the future movements of the interest rate and their impact on loan affordability. According to our survey, 58% of respondents feel well-informed about interest rate risks. This fraction is higher for respondents who are satisfied with bank information on interest rate changes (83%). Conversely, only 10% of households that are not satisfied with the information they receive on interest rate changes appreciate the information on interest rate risks.

To conclude this section, let us come back to our fourth hypothesis about the correlation between the perceived quality of information provided by the bank and respondents' knowledge. We find that this hypothesis is partly confirmed. Respondents with higher financial literacy (as proxied with knowledge of the definition of the real interest rate and of the level of the monetary policy rate) are in general more satisfied with banks' information on interest rate changes and associated risks. The effect of financial literacy on satisfaction with bank information is most pronounced with respect to information on interest rate changes for loans (see table 8). However, the observed differences in satisfaction with bank information with respect to respondents' knowledge of the definition of the real interest rate or of the level of the monetary policy rate between well-informed respondents and respondents that lack this knowledge are sometimes relatively small and, with regard to the knowledge of the monetary policy rate, not always statistically significant.

Note, however, that the survey data leave causality open: We cannot discern whether households are more knowledgeable because they receive better information from their bank or whether more knowledgeable households get better information, ask for better information, or are better at processing information.

8 Summary and conclusions

In this paper we analyzed financial behavior of Austrian households in the current low interest rate environment. Our article builds on financial literacy and behavioral finance literature. The findings are also relevant for the efficacy of the transmission mechanism of monetary policy, since it may be argued that in the end, perceived (rather than actual) current and expected future re-

tail interest rates drive consumers' savings and borrowing behavior. Applied to our initial hypotheses, our findings suggest the following:

Our findings confirm our first hypothesis that households have limited knowledge of interest rates. This is suggested by the high proportion of "don't know" answers to the questions on the current and expected levels of interest rates and the nonnegligible proportion of respondents who gave wrong answers on the question regarding the current level of the policy rate. The hypothesis that perceptions of interest rates are heterogeneous and on average biased holds true: Perceptions of both savings and mortgage rates exhibit a noticeable upward bias. This notwithstanding, the vast majority of respondents is at least aware that we are currently experiencing a period of very low interest rates.

The second hypothesis that perceptions of the current level of interest rates are influenced by socioeconomic factors and personal relevance was partly confirmed insofar as knowledge (i.e. not answering "don't know" and giving a correct answer to the question on the current policy rate) is affected by socioeconomic factors. By contrast, perceptions of the level of interest rates seem to be only weakly affected by socioeconomic factors. Our data do not seem to suggest that personal relevance for investment or credit decisions leads to more accurate perceptions of prevailing current interest rates.

Our results confirm the third hypothesis in that respondents find it easier to state the direction of future interest rate developments than to indicate a specific value. Respondents expect interest rates to stay very low in the near future. While expectations are indeed quite heterogeneous, they are at the same time very much in line with the notion of a zero lower bound of interest rates, i.e. hardly any household expects negative nominal interest rates.[24]

Our fourth hypothesis on the correlation between financial literacy and satisfaction with bank information is partly confirmed. The effect of financial literacy on satisfaction with bank information is most pronounced for mortgage loans.

On the whole, it seems that while respondents display some important knowledge and awareness gaps about actual current interest rates and have difficulties forming expectations about the values of future interest rates, their perceptions of current interest rates as well as their expectations of future interest rates are broadly consistent with the ECB's current expansionary monetary policy stance and its signals that interest rates are going to stay very low over the medium term. At the same time, a noticeable upward bias in households' perceptions of prevailing savings accounts and mortgage credit interest rates might indicate that Austrian households are not, or not yet, aware of the full extent of the low interest rate environment.

This perception bias might imply that households' financial behavior does not yet reflect the full expansionary effect of the ECB's current monetary policy stance. We intend to perform follow-up research to analyze the survey data to determine whether and how the current ultra-low interest rate environment affects economic decisions and behavior of Austrian households.

[24] *The survey was conducted before potential negative interest rates were widely discussed. This has changed meanwhile, among other things because of media coverage of banks' reservations about accepting negative interest rates on existing loan contracts and first decisions by courts on this matter. These developments might change the attitude of households on negative interest rates.*

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Annex

Income variable

For most variables, we use the answers referring to the respondent. Apart from variables that only make sense at the household level (e.g. ownership of the primary residence), the only exception from this rule is income. We use household income to indicate the overall economic situation of the household.

The survey asked households to specify incomes (the personal income of the respondent as well as the household income) in 20 categories and additionally offered the possibility to refuse answering. We recategorized the survey data into the following three income categories:

- below EUR 1,950 (base category in logit estimations)
- EUR 1,950 to EUR 3,300
- EUR 3,300 and above

A problem arose because 570 (28.4%) of the 2,005 households in the sample did not provide any data on household income. Since we cannot assume that the refusal to answer the question on income is random, we preferred not to exclude households whose income data are missing. Consequently, we imputed missing income information using the Stata statistical software program package for multiple imputations. To impute missing income information, we performed ordered logistic regressions

with the following explanatory variables: the number of income recipients in the household, the employment status of the target person (employed full-time or part-time, retired, student, unemployed, qualified task, managerial task, farming) as well as age, age squared, gender, education, marital status, city size and ownership of the primary residence. The number of imputations is 20.

Size of the sample

Overall, 2,005 people took part in the survey. Apart from missing income, refusal to answer the question or "don't knows" also affected the variables *loan* (49 refusals), *intention to take out a loan* (87), *intention to change investment* (182). Overall, we miss at least one of these variables for 257 households. Unlike in the case of income, we cannot impute the missing observations. Ultimately, 1,748 interviews entered the econometric analysis.

Descriptive summary statistics

Summary statistics explanatory variables

% of respondents

Age	
<30	20
30–39	15
40–49	19
50–59	17
60–69	13
>70	17
Education	
Compulsory schooling at most	15
Apprenticeship	59
Secondary schooling	17
University	9
Household income	
<EUR 1,950	38
EUR 1,950 – EUR 3,300	26
EUR 3,300 and above	10
Don't know/no answer	27
Employed	62
Gender	
Male	49
Female	51
Target person	
Yes	72
No	28
City size (base category: population of up to 5,000)	
<5,000	40
5,000 – 50,000	25
>50,000	34
Loans and investment	
Ownership	61
Loan	77
Intention to take out a loan	7
Savings accounts	75
Intention to change investment	8

Source: Own calculations based on the OeNB barometer survey.

Financing the Austrian economy – a bird's eye view based on the financial accounts from 1995 to 2014 and a look at the road ahead

> "I believe we should complement the new European rules for banks with a *Capital Markets Union*. To improve the financing of our economy, we should further develop and integrate capital markets. This would cut the cost of raising capital, notably for SMEs, and help reduce our very high dependence on bank funding."
>
> *Jean-Claude Juncker (2014)*

Michael Andreasch,
Pirmin Fessler
Martin Schürz[1]

As a well functioning financing system is essential for an economy, the EU has launched a Capital Markets Union initiative to ensure stronger integration of European capital markets and to reduce the dependence of enterprises on banks. Especially since the beginning of the financial and economic crisis, much discussion has centered on ways to foster financing channels aside from classical bank lending. A precondition for boosting alternative sources of finance is to check the absolute values and the sources available for financing. We find that while financing through classical bank lending has lost its overwhelming importance in the past 20 years, it remains the major financing channel. There is still potential for the household sector's role in direct business financing to increase, as holdings in savings accounts and real estate of private foundations are comparatively large. Unlocking 1% of sight and savings accounts of the household sector would imply an increase of 2.8% (direct business participations), 3.3% (other stocks) and 3.2% (listed stocks) in direct business financing. New SME bond markets could be another investment channel through which to allocate unlocked capital. Improving debt securitization might help increase credit supply.

JEL classification: E50, G10, G14, G23
Keywords: Capital Markets Union, banking, securitization, SME bonds

Financing in Europe is heavily based on the banking system. Especially small and medium-sized enterprises (SMEs) rely on bank lending. However, bank lending gaps have opened up since the crisis. The current economic and financial crisis has reduced bank lending and has affected SMEs in particular because credit sources tend to dry up more rapidly for small firms than for large companies during economic downturns. SMEs play a significant role in generating employment and driving innovation and growth, so it is of utmost importance to restore their financing resources. Fostering SME financing implies restoring banks' health to improve bank lending and supporting the development of a broad range of nonbank financing for SMEs in debt and equity markets, as the latter are especially well-suited for innovation-oriented SMEs (OECD, 2015).

The financing of SMEs requires a variety of instruments. A major policy challenge in Europe is to establish a broad range of complementary nonbank financing especially suited for SMEs. If companies rely solely on bank loans, their opportunities to grow are limited. Better diversified funding sources – including venture capital, private equity and private placement opportunities – are important vehicles to allow smaller companies to expand and achieve the scale and financing nec-

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Refereed by:
Michael Peneder,
WIFO

essary to gain access to publicly traded markets. The Capital Markets Union (CMU) aims at establishing an adequate framework and conditions for more and better diversified finance in the EU. To this end, it proposes to foster a shift in capital held by households away from the classical investment channel via deposits transformed into loans by banks toward more direct business investments.

The European Commission identifies unlocking *"the capital around Europe which is currently frozen and put[ting] it to work for the economy, giving savers more investment choices and offering businesses a greater choice of funding at lower costs"* as a major objective of the CMU (European Commission, 2015c).

In this study, we perform a stock-taking exercise of financing in Austria using financial accounts data from 1995 to 2014. We redefine specific aggregates of the financial accounts to draw a clearer picture of direct business financing and attempt to identify what the European Commission calls "frozen" capital – a rather unclear term. As we understand it, "frozen" capital refers to all forms of savings that can lead only to indirect investment via banks, such as savings and sight accounts, versus direct business investments, such as equity capital, stocks or corporate bonds.

We find that in the past 20 years, the overwhelming importance of financing through classical bank lending has already diminished, but it remains the major financing channel. The CMU is not the first attempt to foster capital markets (in Austria). Besides the so-called "Zukunftsvorsorge" (2014: EUR 8.1 billion, see OeNB, 2015b), an attempt to establish a state-subsidized private pension system in 2003, the minister of finance also installed a so-called "Kapitalmarktbeauftragter," a government office with the task of fostering capital markets, which was abolished again in 2014. Although direct financing by households and private foundations has already risen, there is still room for growth, as holdings in savings accounts and real estate of private foundations – usually counted as business participations of households – are rather large.

We provide a back-of-the-envelope calculation to illustrate the possible effects of "unlocking" the household sector's "frozen" capital and shifting it to the main existing direct financing channels while holding constant the allocation of types of financers (investors) to different forms of direct business financing. For each percentage point of such a shift from the real estate of private foundations to business financing, overall direct business participations would increase by 0.26%, other stocks by 0.15% and listed stocks by 0.14% of their current volume. Given a 1 percentage point shift from insurance claims, these numbers increase to 1.3%, 1.6% and 1.6%, respectively. Unlocking 1 percentage point of sight and savings accounts would even imply an increase of 2.8% in direct business participations, 3.3% in other stocks and 3.2% in listed stocks. These figures depend on the amount of unlockable capital held by households, nonprofit institutions serving households as well as private foundations. All their claims together comprise the household sector. Furthermore, these figures depend on the sector's portfolio allocation to different types of business participations, i.e. direct business participations, listed stocks and other stocks.

One main goal of the CMU is to create integrated European bond markets for SMEs as a possible alternative channel through which capital currently locked in real estate of private foundations, sight and savings accounts or insurance claims (also including private pension entitlements) could be al-

located to businesses once functioning markets have been established.

Even though debt securitizations of mortgages were one of the main ingredients which started the financial crisis in the U.S.A., various improved forms of debt securitization might help banks to sell claims off their balance sheets and allow them to lend more to SMEs, particularly to enterprises that are too small to participate in bond markets.

The rest of this paper is structured as follows. Section 1 introduces the data and highlights their main particularities. Specifically, we explain how they differ from the usual display of financial accounts data. In section 2, we discuss the types of financers and the types of investment in the current financing structure. Section 3 deals with changes in the composition of financers as well as investment types from 1995 to 2014. In section 4, we take a closer look at the direct financing of enterprises, focusing on the main existing forms of direct business financing. In section 5, we discuss new financing approaches, such as an SME bond market and simplified European debt securitization, and their possible impact on credit supply and banks' profitability, and we point out related caveats. Section 6 concludes.

1 Data from the Austrian financial accounts from 1995 to 2014

We use yearly data from the Austrian financial accounts from 1995 to 2014.[2] Within the framework of sector accounts as defined by the European system of accounts (ESA 2010), the financial accounts provide stock and flow information on the financial investment and financing activities of each sector. In the case of Austria, the financial accounts are compiled on a "from whom to whom" basis, i.e. the data illustrate the debtor-creditor relationships that emerge between the sectors based on the underlying financial instruments. The financial accounts are calculated from a wide variety of sources, including the balance of payments, money and banking statistics, the asset, income and risk statements of banks, securities statistics, balance sheet data, and many more. Details on the basis for the data can be found in the OeNB's financial accounts manual (OeNB, 2014). The data themselves can be found on the OeNB website (OeNB, 2015a).

1.1 Financers

In the following section, we specify the situation of financing in Austria. We start by taking the perspective of financers. Financers have claims based on invested capital or granted credits. In a second step, we examine all types of domestic financers and their financial claims managed in Austria. These claims also include claims abroad provided they are managed in Austria. Additionally, we separately examine all claims abroad on domestic entities.

We regroup the financial accounts to make them more useful for our analysis. For the enterprise sector, we look at the financial corporations (financial accounts sector S.12) minus the central bank (the Oesterreichische Nationalbank; S.121) and nonfinancial enterprises (S.11) separately. To prevent double counting, we exclude all claims of investment funds (S.123, S.124) from our analysis.

The claims of the household sector are split up into three segments: First, we have the claims of households (S.14), excluding claims of nonprofit institutions serving households (NPISHs, S.15)

[2] *We use financial accounts data as of August 2015.*

and of private foundations (usually part of S.14), as well as claims of those usually classified under households. Typically, financial asset holdings as well as real estate of private foundations are recorded as financial claims of households, as these are usually the beneficiaries of private foundations. Also, the real estate holdings of private foundations are considered financial claims in the form of direct business participations of households. Note that households include sole proprietorships with up to 50 employees and a turnover of less than EUR 10 million, farmers, employers (including own-account workers), groups of own-account workers (such as group physician practices). However, all limited liability companies, regardless of their size, are accounted for via direct business participations. As most business participations of households are participations in such small limited liability companies, we still cover the most important share in small enterprises. The fact that sole proprietorships are counted as households still leads to an overestimation of the possible exchange of "frozen" capital into equity components of the household sector. This proportion of sole proprietorships should however not be overestimated due to the fact that the number of companies in this area is rather limited. Additionally, such small enterprises are financed neither via the stock or bond markets nor via direct investment in limited liability companies, i.e. direct business participations. Rather, they rely mostly on credits from banks, a financing channel that is not likely to change in the near future (see section 5). Other forms of financing such as crowd funding or lending clubs are on the rise but for now remain of too limited scope to substitute classical bank loans.

Second, we have the claims of private foundations, which are usually also reported as household or NPISH financial claims and are usually double counted when additional information on private foundations is presented. We also include the real estate holdings of private foundations to remain consistent with financial accounts totals, as those holdings are usually reported as financial claims of households.[3]

Third, we have the claims of NPISHs, again excluding the financial claims of private foundations to prevent double counting and to stay consistent with the totals of financial accounts.

In the public sector (usually only S.13), we distinguish between the claims of the Austrian central bank (OeNB; usually financial sector S.121), and the claims of all other public entities (S.13), i.e. general government.

We cannot distinguish between different types of financers holding claims abroad. Of course, in the end all claims are held by a natural person or the general government. For detailed definitions of the sectors, see OeNB (2014).

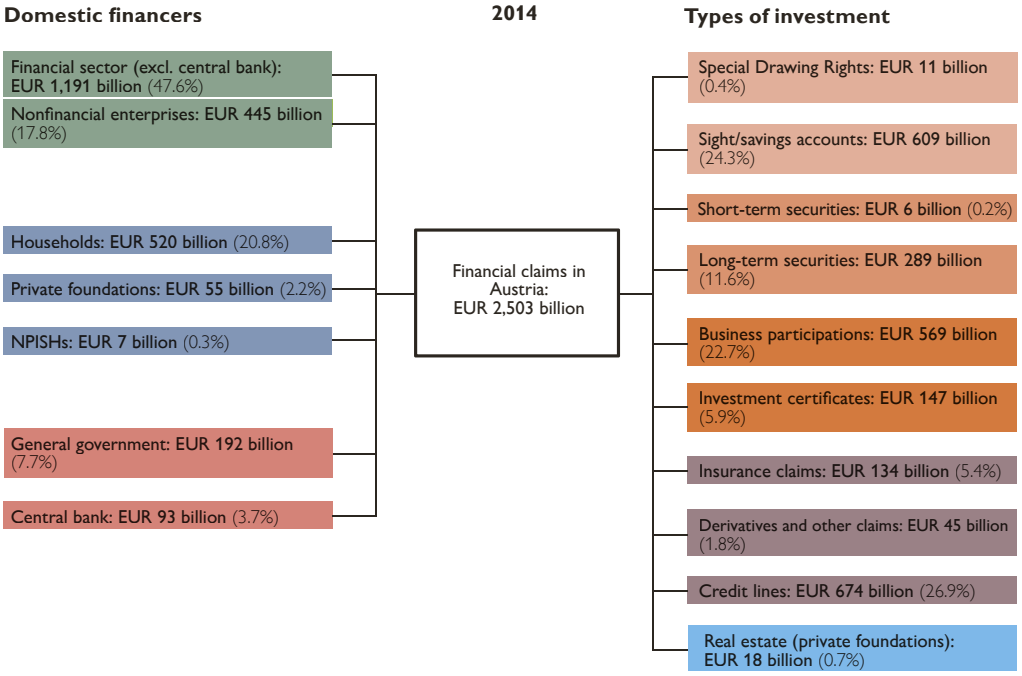
1.2 Types of investment

To characterize the situation of financing in Austria, we distinguish between different types of investment. This investment – the claims that financers hold – consists of gold and Special Drawing Rights (ESA code F.1), currency and deposits (F.2), short-term debt securities (F.31), long-term debt securities (F.32), business participations (equity, F.51), investment certificates (mutual fund shares, F.52), insurance claims (F.6), derivatives and other claims (F.7 and F.89) as well as credit

[3] *See annex table A1 for an illustration of the differences between our classification and standard financial accounts reporting in the household sector.*

Chart 1

Financial claims of domestic financers managed in Austria



Source: OeNB.

lines (F.4 and F.81). We additionally report the real estate holdings of private foundations, which are usually reported as business participations (F.51) of households and NPISHs.

In section 4, we split up business participations into greater detail, i.e. into listed shares (F.511), unlisted shares (F.512) and direct business participations (other equity, F.519).

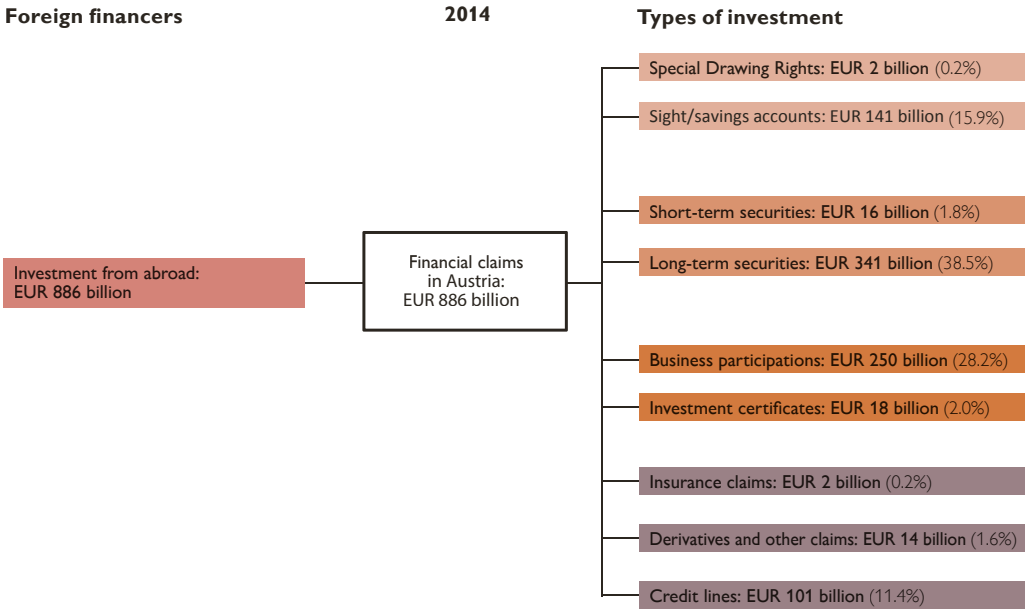
2 Financing in Austria in 2014

Chart 1 shows the financing patterns for 2014 of financial claims of domestic financers managed in Austria. Overall, domestic financers hold about EUR 2,500 billion of financial claims. The bulk of financing is channeled through the financial sector, which holds about EUR 1,200 billion of these claims. Households are the second-largest financer, holding about EUR 520 billion, closely followed by nonfinancial enterprises with EUR 445 billion. General government financial claims amount to about EUR 190 billion, the central banks' claims to EUR 93 billion. The amount of financial claims held by private foundations (including their real estate holdings) comes to about EUR 55 billion. The financial claims of NPISHs total EUR 7 billion.

Most of these investments, namely EUR 674 billion, are directly granted credit lines. A rather large amount of financial assets, EUR 609 billion, take the form of sight and savings accounts. About EUR 570 billion are direct business participations, either via the stock market or via direct ownership in limited liability companies. Long-term securities total EUR 289 billion, insurance claims EUR 134 billion. Claims in the form of derivatives are comparatively small at about EUR 45 billion. Real estate of private foundations accounts for EUR 18 billion, Special Drawing Rights for EUR 11 billion and

Chart 2

Financial claims of foreign financers on Austrian entities

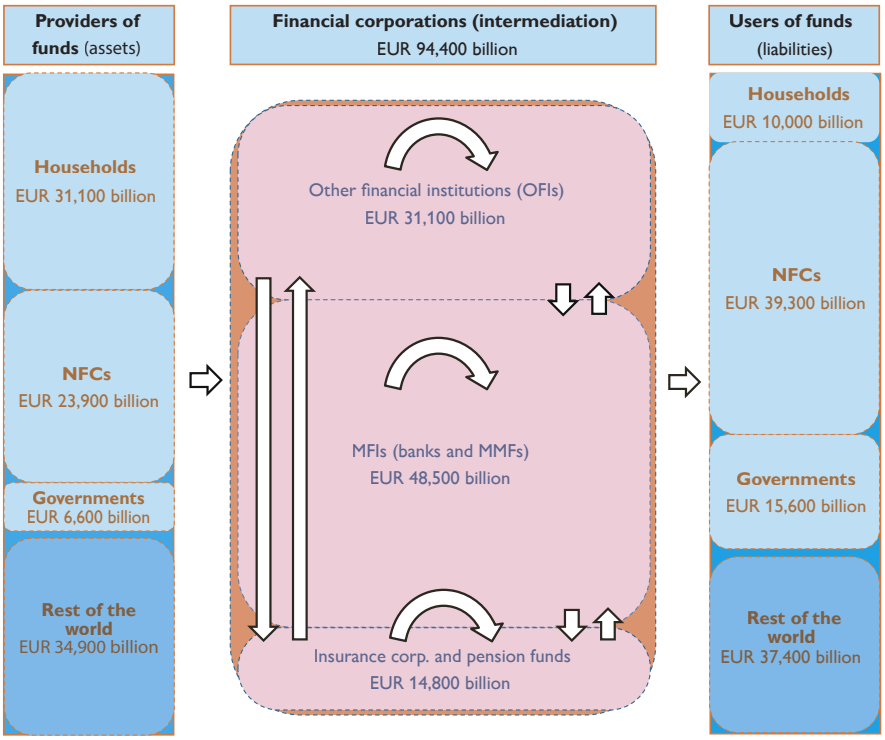


Source: OeNB.

Chart 3

Financing of the economy: size of institutional sectors in the EU-28 in 2014

EUR billion



Source: European Commission (2015b).

Note: The height of each box is proportional to the actual size of the sector. Assets and liabilities of the real economy and rest of the world include funds channeled both through intermediation and direct financing.

short-term securities for EUR 6 billion of investments.

Chart 2 shows the financial claims of financers abroad on Austrian entities. These do not include claims on entities outside of Austria that are purely managed in Austria. Total claims of foreign financers in Austria come to about EUR 890 billion.

Foreign financers mainly invest in long-term securities, which sum up to about EUR 340 billion, and business participations, which come to about EUR 250 billion. Some EUR 140 billion take the form of sight and savings accounts, whereas credit lines account for around EUR 100 billion. All other investment types are of lesser importance (investment certificates: EUR 18 billion; short-term securities: EUR 16 billion; derivatives: EUR 14 billion; Special Drawing Rights and insurance claims: EUR 2 billion each).

Holding over 60% of all financial claims, the banking system and foreign investors are therefore by far the largest financers. Households (15%) and nonfinancial enterprises (13%) are also rather large investors. Again, in the end all claims are held by a natural person or the general government. The relationships displayed here show only the first-order financing channels, namely the relations between the operating entity and its first known counterpart. Furthermore, because we exclude investment funds to prevent double counting, we mask the fact that households hold about EUR 5 billion in businesses indirectly via investment funds; in our case, these holdings show up as holdings of banks. A more detailed analysis of the household sector based on data underlying the financial accounts can be found in a recent publication of the Oesterreichische Nationalbank (OeNB, 2015b).

A similar illustration (chart 3) for the EU-28 is given in the Supplement Economic Analysis to the Action Plan on Building a Capital Markets Union (European Commission, 2015b).

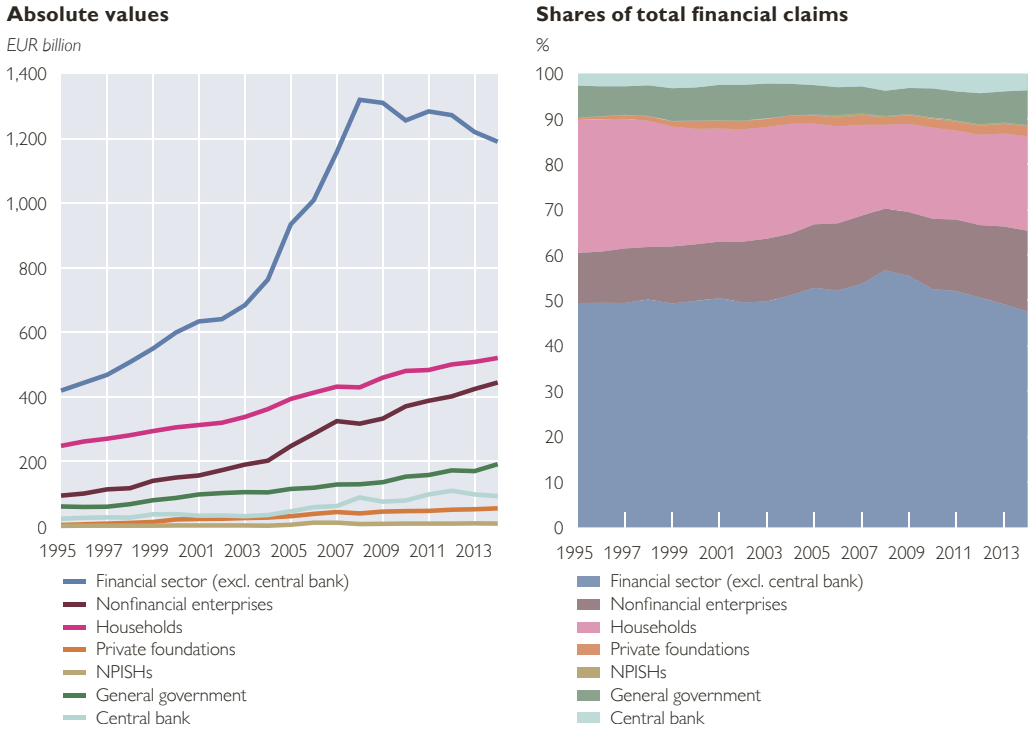
3 Financing in Austria from 1995 to 2014

The financial claims (in nominal terms) of domestic financers almost tripled from about EUR 850 billion in 1995 to about EUR 2,500 billion in 2014. Claims of foreign financers on domestic entities, however, increased nearly sixfold from about EUR 150 billion to almost EUR 900 billion. During the same period, domestic financers increased their capital claims abroad from about EUR 125 billion to almost EUR 900 billion. Therefore, the share of foreign capital in Austria increased significantly.

While we had to exclude holdings of domestic investment funds to prevent double counting, holdings of special purpose entities (SPEs) are included in the financial sector. Their importance sharply increased from 2005 and is partly responsible for the steep increase in absolute values of the financial claims of the financial sector (see chart 4). SPEs' holdings came to below EUR 5 billion in 2004 and already amounted to roughly EUR 115 billion in 2014. However, as a share of total financial claims, the share of the financial sector did not increase over the 20 years to 2014, remaining relatively stable at around 50%. Also, the share of the general government remained rather stable at about 7%. Nonfinancial enterprises, however, increased their share from about 11% to roughly 18% of domestic financers' total financial claims. The central bank also increased its share of total financial claims from 2.7% to about 3.7%. Private foundations played a minor role in 1995, holding about 0.4% of total financial claims, whereas in 2014, their share had in-

Chart 4

Financial claims by financer type from 1995 to 2014



Source: OeNB.

creased fivefold to more than 2% of all claims. NPISHs remain fairly unimportant, holding less than 1% of all financial claims.

Let us now examine how financers' portfolios changed from 1995 to 2014. This analysis aims at highlighting portfolio changes over time as well as identifying possible sources of more direct business financing via business participations or possible future SME bond markets (see section 5). We show the absolute and relative importance of different types of financing.

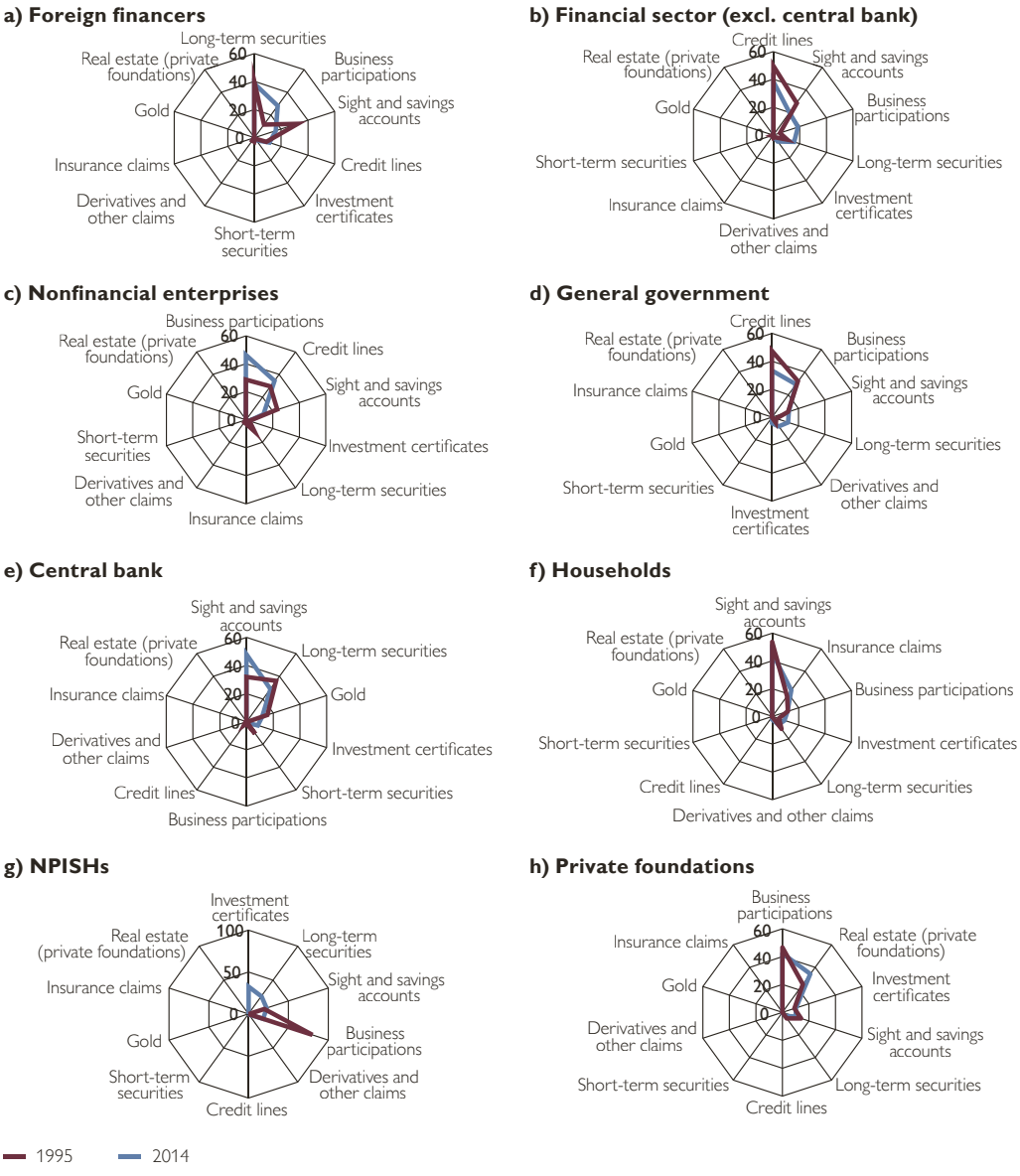
Spider charts, which display multivariate data in the form of a two-dimensional chart with quantitative variables represented on axes starting from the same point, are useful for looking at several different factors all related to one item. Each panel of spider charts 5a to 5h is sorted clockwise, starting at 12 o'clock and descending by the share a financer held in a certain investment type in 2014. Each panel shows the share of different portfolio items in percent of the respective financer's total financial claims, so that all items always sum up to 100%.

Foreign financers (chart 5a) hold mainly long-term securities, business participations and sight and savings accounts. Between 1995 and 2014, they increased their holdings in business participations and decreased them in sight and savings accounts. Of course, this change might be partly due to a change in the composition of foreign investors: fewer households versus more banks, insurance companies and enterprises.

As the main provider of credit to the economy, the financial sector (chart 5b) holds claims mainly in the form of

Chart 5

Financers' holdings by investment type



Source: OeNB.

credit lines/loans. Sight and savings accounts as well as business participations and long-term securities also represent important holdings. One explanation for the rise in the share of business participations as well as long-term securities from 1995 to 2014 is the growing importance of domestic SPEs, which are part of the financial sector. Their financial claims amounted to about EUR 115 billion in 2014. Many SPEs are founded for tax reasons, are owned by foreign investors, and consist mainly of business participations outside of Austria.

Nonfinancial enterprises (chart 5c) raised their share of business participations and credit lines and decreased liquid assets in sight and savings accounts, which were still almost as large in 1995

as business participations and credit lines.

The portfolio of the general government (chart 5d) also changed, to a lesser degree, away from credit lines and business participations and toward long term securities.

The central bank's portfolio (chart 5e) changed away from securities and gold (Special Drawing Rights) toward liquid assets in sight and savings accounts (transferable and nontransferable deposits).

The portfolios of households (chart 5f) hardly changed. By far the most important assets (close to 60% of all financial claims) are sight and savings accounts, followed by insurance claims and business participations. For an analysis of savings accounts in Austria, see Andreasch et al. (2012).

NPISHs shifted their portfolio strongly toward business participations, which might have to do with a change in the structure, number and increasing variety of NPISHs.

Private foundations' share of business participations declined whereas their real estate holdings increased.

4 Direct financing of enterprises

To identify possible channels that serve to increase the direct financing of enterprises thereby decreasing their dependence on the banking system, we analyze the financial claims directly linking the household sector to enterprises: the listed stocks, other stocks and direct business participations of households, private foundations and NPISHs. Direct business participations are mostly direct shares in limited liability companies and therefore include smaller enterprises.

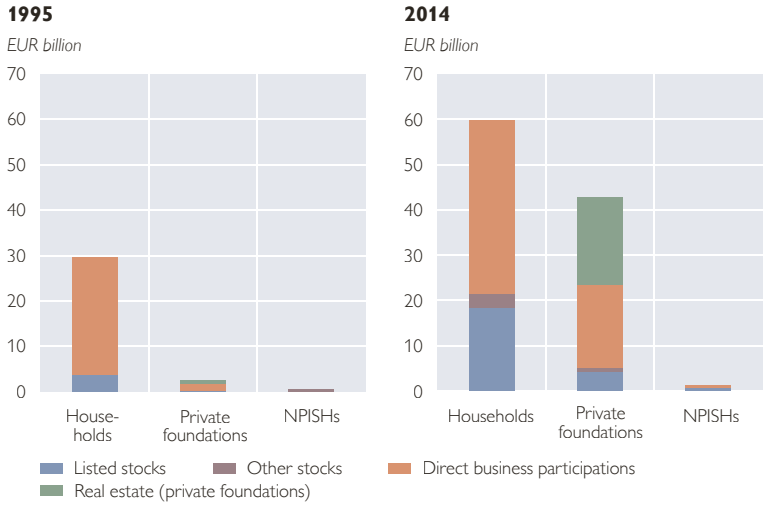
For the sake of consistency, we report the real estate holdings of private foundations, which are usually counted as direct business participations of households. This is important also for interpretation purposes, as for the question of direct business financing it makes no sense to count the real estate wealth of private foundations as investment in business (held by households), which would be the usual procedure in the financial accounts. Chart 8 shows the absolute values of these claims for 1995 and 2014.

As a next step, we examine the possible impact of the CMU on direct business financing by "unlocking frozen capital." We calculate the percentage change in three types of business participation (direct business participation, listed stocks, other stocks) given a 1% shift in different "frozen" capital types. These "frozen" capital types are: sight and savings accounts, insurance claims and real estate of private foundations.

Chart 9 shows the resulting values of this back-of-the-envelope calculation to assess the size of possible shifts to direct business financing.

Chart 8

Business participations (and real estate of private foundations) of the household sector



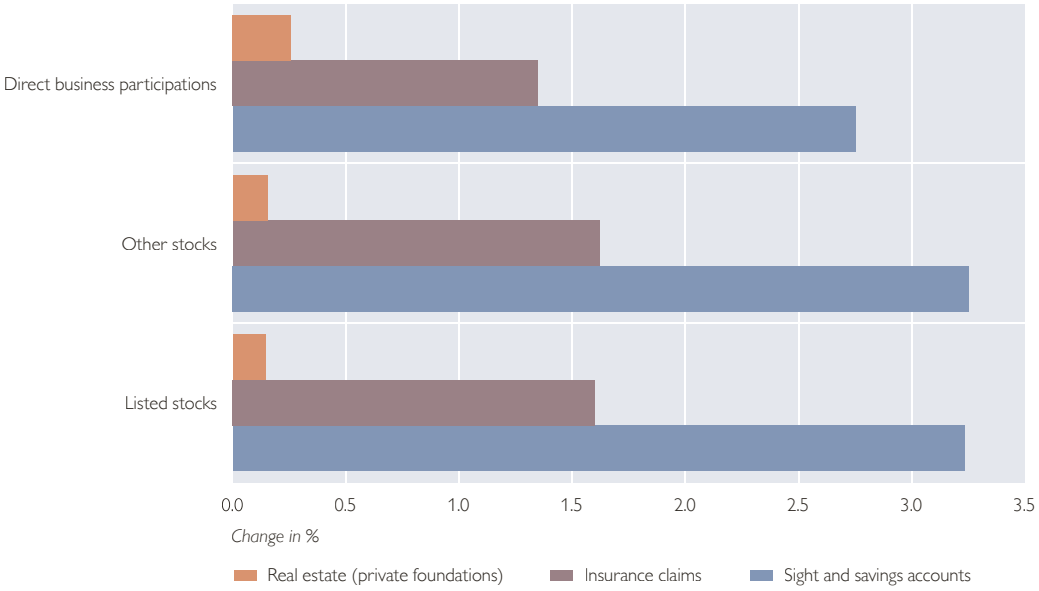
Source: OeNB.

The largest amounts are held in sight and savings accounts (roughly EUR 250 billion), the second-largest in insurance claims (roughly EUR 121 billion) and the third-largest in real estate of private foundations (roughly EUR 19 billion), totaling roughly EUR 385 billion of "frozen" capital. Even though the values in different types of business participations differ quite substantially, with about EUR 58 billion being held in direct business participations, roughly EUR 23 billion in listed stocks and about EUR 4 billion in other stocks, the relative effects of a shift to these assets are still quite similar among financers. We assume that financers allocate their "unlocked" assets along the same partitioning lines they use for their existing business participation assets. For example, households hold about 64% of their business assets in direct business participations and only 5% in other stocks, while private foundations hold almost 80% in direct business participations. Turning to the distribution of the "frozen" capital among household sector entities, most of the savings accounts as well as all insurance claims are held by households, while all real estate of private foundations is held only by private foundations.

The resulting relative effects are a combination of all these factors. For each 1% shift from real estate of private foundations to business financing, we see an increase in overall direct business participations, other stocks and listed stocks by 0.26%, 0.15% and 0.14%, respectively. Given a 1% shift from insurance claims, these numbers increase to 1.3% (direct business participations), 1.6% (other stocks), and 1.6% (listed stocks). Unlocking 1% of sight and savings accounts would even imply an increase of 2.8% (direct business participations), 3.3% (other stocks), and 3.2% (listed stocks). Note

Chart 9

Percentage change of business participation given a 1% shift from other assets



Source: OeNB.

Note: This back-of-the-envelope calculation illustrates a 1% shift from certain asset types of households, NPISHs and private foundations toward business participations, given these entities' current structure of different types of business participations.

that smaller enterprises benefit relatively more from unlocking the real estate of private foundations, as they invest the highest relative share in such assets compared to investments in listed stocks and other stocks.

Once a successful CMU has established SME bond markets, these markets would be another possible target to which unlocked capital would shift (see section 5).

Note that the choice of assets designated as "frozen" capital remains rather arbitrary. For example, one could also define bonds held by households, especially sovereign and banking sector bonds, as "frozen" capital. Insurance claims, on the other hand, also include private pension insurance entitlements that might be not the best policy choice for such a portfolio shift. Even though real estate might in general not be a good candidate for "frozen" capital, we include it not only for reasons of completeness and because it is usually counted as a business asset and has to be removed from that asset class in such an analysis, but also because in the case of private foundations, it is rather to be seen as an "investment" controlled by few households that might well qualify as "frozen" capital. However, the point of this exercise is rather to illustrate the relative potential dimension of such a portfolio reallocation given the current asset volumes and portfolio allocations of the different agents.

It is quite important to also consider the mechanism of control of these assets. As Atkinson underlines, "*in considering the role of capital it is necessary to keep distinct the beneficial ownership of wealth and the control conveyed by capital over economic decisions*" (Atkinson, 2015, p. 155). While there are about 3.8 million households in Austria, financial wealth is relatively concentrated, so that only a very small share of households holds a large fraction of financial claims.

We showed that savings accounts are strongly concentrated (see table 1). More than 30% of total savings are concentrated in the top 1.8% of savings accounts above EUR 50,000. From data collected in the Household Finance and Consumption Survey, we also know that even the wealthiest households hold substantial amounts of wealth in sight and savings accounts.

This concentration of savings implies that a CMU could succeed if it

Table 1

Savings account data for 2011

Account category	Number of accounts	Share in total number of accounts		Aggregate balances	Share in aggregate balances		Balance per account
		%	*Cumulated in %*	*EUR million*	%	*Cumulated in %*	*EUR*
Up to EUR 10,000	18,760,739	80.939	80.939	40,820	26.003	26.003	2,176
EUR 10,000 to EUR 20,000	3,200,669	13.809	94.747	43,350	27.615	53.618	13,544
EUR 20,000 to EUR 50,000	807,007	3.482	98.229	25,056	15.961	69.579	31,049
EUR 50,000 to EUR 100,000	281,698	1.215	99.444	19,147	12.197	81.777	67,971
EUR 100,000 to EUR 500,000	121,761	0.525	99.970	20,221	12.881	94.658	166,070
EUR 500,000 to EUR 1 million	4,833	0.021	99.990	3,190	2.032	96.690	660,115
EUR 1 million to EUR 3 million	1,856	0.008	99.998	2,805	1.787	98.477	1,511,120
Above EUR 3 million	366	0.002	100.000	2,391	1.523	100.000	6,533,617
Total	23,178,929			156,981			6,773

Source: Savings account data compiled by the OeNB.

gives households in the upper part of the wealth distribution more incentives to move liquid assets from sight and savings accounts into direct investment. These are also likely to be the households that can easily bear the additional risks associated with higher returns and that are more willing to react to such incentives, as their portfolios display a high degree of risk diversification. Already now, riskier assets and riskier financing behavior is more likely to be observed among wealthier households. They have a higher probability to hold stocks, mutual funds but also foreign currency loans. By comparison, the large group of low-wealth individuals mostly have sight and savings accounts as their one and only financial asset (see Fessler and Schürz, 2008).

By the same token, Austria has around 3,200 private foundations that are controlled by about the same (or smaller) number of households. This raises the issue of so-called business angels and other high-wealth individuals who could become business angels by shifting e.g. real estate wealth (of their private foundations) or wealth in sight and savings accounts to direct business participations. An analysis of private foundations' equity stakes in direct business participations (limited liability corporations, see table 2) shows that wealth in private foundations is also rather concentrated even inside the group of private foundations (see table 2), indicating that only very few private foundations hold large amounts of real estate wealth, assuming that real estate wealth is similarly unequally distributed among private foundations.

Table 2

Shares of top groups in private foundations' total equity stakes

	Total equity stakes per private foundation	Share in total equity stakes
	EUR billion	*%*
Top 10%	7.4	80.35
Top 5%	6.3	68.34
Top 1%	3.8	41.05
Total	9.2	100.00

Source: OeNB (as of 2010).

5 SME bonds and debt securitization

Two of the arguably most important goals of the CMU are to create new tools, such as integrated European bond markets for SMEs, and to develop improved forms of debt securitization.

European bond markets for SMEs have to be considered an alternative channel through which capital currently locked in real estate of private foundations, sight and savings accounts or insurance claims could be allocated to business once functioning markets have been established.

Additionally, various improved forms of debt securitization might help banks to sell claims off their balance sheets and allow them to lend more to SMEs, particularly to enterprises that are too small to participate in bond markets.

5.1 SME bond markets

The Prospectus Directive regulates what information a company needs to provide in a so-called prospectus to gain access to regulated markets in the EU. Its main purpose is to provide investors with an equivalent level of protection and comparable information across the EU.

The administrative burden of producing such a prospectus is quite large, and one objective of the CMU is to reduce that burden to enable more and especially smaller SMEs to gain access to capital markets.

The Action Plan of the European Commission states that the Commission will:

"Modernise the Prospectus Directive to make it less costly for businesses to raise funds publicly, review regulatory barriers to small firms listing on equity and debt markets and support the listing activities of small firms through European advisory structures" (European Commission, 2015a).

The object is to enable more SMEs to place bonds. Currently, large companies are the main beneficiaries of this type of financing, which generally plays a minor role in overall company financing. In Austria, the amount the household sector invests in company bonds is quite small (EUR 5 billion of about EUR 585 billion, see OeNB, 2015b). Several preconditions are required to implement such an SME bond market:

First of all, as the Commission states, the Prospectus Directive would need to be overhauled to enable smaller companies to seek capital on the capital markets. Second, a harmonized way to rate European SMEs would need to be in place. Third, to make such bonds attractive for households that usually opt for sight and savings accounts, they would need to be sold in small amounts. Otherwise, they might mainly attract institutional investors. Fourth, a sufficiently liquid secondary market would need to be in place to allow investors to actually sell bonds in an acceptable amount of time. Compared to the few traditional corporate bonds of large companies traded in Austria, such SME bonds would come with rather large risks. Investing in single SME bonds might therefore be rather risky for most households, as they do not have the resources to diversify in the SME bond market, but might be interesting for institutional investors. A likely result would be that households would invest in other structured products, such as certificates or mutual funds linked to such SME bonds.

It should also be mentioned that to make such a market work transnationally, changes in insolvency laws, tax laws, and corporation laws might be necessary. Harmonization would be very important before markets are established. Otherwise, these new markets might again be nationally segmented.

Important players in this context are the SMEs themselves, banks, rating agencies, households (private foundations), institutional investors in the private sector, and legislative and supervisory institutions in the general government sector.

For SMEs, placing bonds might be an attractive alternative to financing via loans. While loans are mostly subject to balance sheet reviews and are often renegotiated accordingly, a bond with a three- or five-year or an even longer maturity might allow SMEs to plan better. However, if more savings were diverted to such bonds, banks would have fewer deposits to grant loans, which might be a disadvantage – at least at first sight – for enterprises that are too small to participate in these new markets. Thus, enhancing investment opportunities for larger companies might result in relative disadvantages for companies that are too small to participate.

For banks, such bond markets might be attractive, as they might boost their commission business. As relationship banking in Austria means that banks are closely involved in households' savings decisions, banks are likely to help SMEs place their bonds and to inform households and institutional investors about related savings and investment possibilities. Therefore, banks could profit from commissions from issuers and investors alike without taking any risks themselves. Such a situation might on the

one hand call for more consumer potection regarding such products, but might on the other hand also reduce rating burdens for banks. What is more, this business would reduce banks' balance sheets, as part of the bank lending channel based on deposits would be moved toward this more direct bond channel.

For European rating agencies, such bond markets are very attractive, as the need for ratings of a greatly increased number of SMEs harmonized across Europe would boost their business model. On the other hand, ratings might be relatively costly for smaller placements.

For households, the opportunities to directly invest in companies would increase. However, given the extremely skewed distribution of financial wealth, it could also imply that too many households might be tempted to take the risk of a direct business investment. About 90% of Austrian households have less than EUR 100,000 in financial wealth. Most of this wealth is held in sight and savings accounts, which have a deposit guarantee of EUR 100,000, per bank and person. Given Austrians' traditional preferences for savings passbooks, building and loan contracts and life insurance contracts, which are held by the majority of Austrian households, large investments in bond markets, which are currently made by less than 4% of Austrian households (investments include the predominant sovereign bonds), would definitely require a paradigm change in Austrian households' saving behavior. Such a change would need to be accompanied by massive changes in financial literacy. Recent research shows that only about 20% of the population understands simple relationships between interest rates and bond prices (Silgoner and Weber, 2015, and Silgoner et al., 2015).

For institutional investors like insurance companies, such an SME bond market is likely to be very welcome, as they suffer in the low-interest environment and might profit from increased investment options likely to generate higher yields. As investment in corporate bonds is subject to regulatory limits, SME bonds might also allow insurance companies to increase the diversification of their portfolio.

For legislative and supervisory institutions in the EU Member States, such an SME bond market is a challenge for several reasons. While companies and banks usually renegotiate debt when repayment problems arise, such negotiations are hardly possible with regard to SME bonds and households. Even though SME bonds allow SMEs to plan better, there is no renegotiation option for times when things are not going as expected but the business is still profitable overall in the longer term. Moreover, if no overall profitable business is expected anymore in the case of insolvency, there are dramatic differences between a system mainly based on many household bondholders or mainly based on large investors. While a liquidator usually negotiates the terms of an insolvency and in the end has the power to make deals with the large parties involved, in case of financing via bonds held by many bondholders, such procedures are much more difficult. The delegation of negotiating rights to large investors might also be more problematic in the case of SME bonds, because overall volumes are smaller and possibly because no large institutional investor is affected. Insolvency legislation needs to be adapted and harmonized across Europe as a precondition for creating a liquid European SME bond market.

Supervisory institutions need to control ratings and market makers and

must make sure that procedures are harmonized and that risk measurement works properly. Like in many European countries, the capital market is rather underdeveloped in Austria. The Vienna Stock Exchange has just recently changed from a single daily auction for corporate bonds (in total only 39 Austrian companies) to allowing continuous trade (Wiener Börse, 2015). It is not clear how such an SME bond market would look like in practice and how the primary and secondary market would be organized.

5.2 Improved debt securitization

Debt securitization products became infamous in the financial crisis, when many of them broke down. U.S. debt securitization products sold by U.S. banks to U.S., European and other banks around the world turned out to be filled with massive amounts of unsustainable debt. Since then, the debt securitization market has lost some of its importance in Europe as well. In the meantime, legislation has been put in place to improve the securitization market. Put simply, originators have to hold at least 5% of the net economic interest instead of being allowed to sell the full volume. So if there are losses, the originator is also hit by them ("skin in the game"). In addition, transparency regulation has been improved by stipulating detailed investor reports.

The Action Plan of the European Commission states that the Commission will *"revitalise simple, transparent and standardised European securitisations to free up capacity on banks' balance sheets and provide access to investment opportunities for long term investors"* (European Commission, 2015a).

The main idea is that debt securitization can increase the availability of credit and reduce the cost of funding. Banks grant loans, put them together in larger packages and partly sell them, which in turn reduces the amount of loans on their balance sheets and allows them to grant new loans.

On the other side, long-term investors, such as other banks, pension funds or insurance companies, can buy such long-term, and hopefully well-diversified, investment products.

As such debt securitization products allow banks to free up capacity to grant loans, they could also help particularly smaller SMEs unable to place bonds in a newly developed SME bond market, as they could offset resulting decreases in deposits that reduce credit supply via the classical bank lending channel.

5.3 Possible caveats

Volume versus allocation

In the end, savings result from income and consist of postponed future consumption. How much is saved, how much income is accumulated, and therefore how large the volume of total savings and capital investment is has to be distinguished from where and through which channels such savings are invested.

Even though reducing barriers to allocation across countries as well as across channels and types of investment might induce more growth (higher income) in the future, the result is primarily a reallocation of existing savings. In that sense, reducing these barriers might primarily shift investment from one country to another, from one investment type (e.g. insurance or savings) to another (e.g. SME bonds), or from one channel (e.g. bank deposits and lending) to another (e.g. direct equity capital). Depending on the current situation of financing in different countries, such policies will produce (net) winners and losers – countries, service providers (e.g. banks,

insurance companies, other financial intermediaries, rating agencies) and firms (e.g. large versus small, listed versus unlisted).

Especially banks' refinancing structure might suffer from a reduction of deposits, which might reduce their capacity to lend to companies too small to participate in newly created SME bond markets.

Specialization

Creating a more integrated financial market is likely to lead to stronger specialization inside the formally less integrated market. Again, there will be winners and losers of such a policy, and they are likely to be segregated across country borders and branches. Not every country in Europe can have a successful stock exchange once capital markets have been fully integrated given economies of scale and scope in financial services. Some national financial systems will be winners, some losers compared to their current degree of capitalization.

Transparency

Cross-country SME bond markets and debt securitization vehicles are the main ingredients of a CMU. However, the assessment of risks as well as legal and institutional settings is often linked to specific know-how at national levels. It might be rather difficult to create complex financial products that include different types of assets and that are subject to different laws and institutional settings but that are transparent enough at the same time to prove practical for households as direct investors. Especially questions of insolvency have to be tackled.

Historical differences

The degree of banking-based financing systems as well as the importance of the stock market varies considerably across Europe. While in some countries, pensions – old age provision is one of the most important savings motives – are to a substantial part organized privately via the capital markets, in other countries they are organized mostly publicly via pay-as-you-go state-funded systems, so that very few households are active in the stock market in these countries (in Austria about 10% hold mutual funds and fewer than 6% hold stocks directly). Therefore, households have hardly any experience with such investment forms. For some countries, introducing such investment forms would need large changes in saving patterns that have grown historically along related supply-side institutions like life insurance providers or building and loan associations. These historical differences might lead to different costs of adopting CMU policies and might again create winners and losers, also by affecting the supply side.

6 Conclusions

We take a flow-of-funds perspective on financing and illustrate the broad range of links between the financial side and the real side of the economy. We underline the usefulness of financial flow data in the analysis of the CMU project in Europe. The flow-of-funds data offer a framework to identify the potential for reaching the aims of the CMU.

It is important to analyze financers separately because of remarkable differences in the size and characteristics of their investments. We find that while financing through classical bank lending has lost its overwhelming importance in the past 20 years, it remains the major financing channel. There is still potential for the household sector's role in direct business financing to increase, as holdings in savings accounts and real estate of private foundations

are comparatively large. Unlocking 1% of sight and (and keeping everything else constant) savings accounts of the household sector would imply an increase of 2.8% (direct business participations), 3.3% (other stocks), and 3.2% (listed stocks) in direct business financing.

The largest amounts of financial claims of the household sector are held in sight and savings accounts (roughly EUR 250 billion), the second-largest in insurance claims (roughly EUR 121 billion) and the third-largest in real estate of private foundations (roughly EUR 19 billion), totaling roughly EUR 385 billion of "frozen" capital. Unlocking just 1% of these claims would therefore have a potential of EUR 3.85 billion to be invested through other (more direct) channels than the already existing direct business participations and stocks, but also through new channels, such as an SME bond market.

European bond markets for SMEs have to be considered an alternative channel through which capital currently locked in real estate of private foundations, sight and savings accounts or insurance claims could be allocated to businesses once functioning markets have been established.

Additionally, various improved forms of debt securitization might help banks to sell claims off their balance sheets and allow them to lend more to SMEs, particularly to enterprises that are too small to participate in bond markets.

All in all, the Action Plan of the European Commission (European Commission, 2015a and b) remains rather vague, and some goals seem to be contradictory. For example, while larger SMEs might benefit from the access to new bond markets, it remains unclear how the liquidity of such markets would be guaranteed and why the created flow from deposits to bonds would not lead to tightening conditions for the small SMEs that remain dependent on bank loans. Many preconditions, such as harmonized insolvency laws adapted to such new markets, have yet to be created.

Finally, it is difficult to assess how other developments fostered by the CMU will impact the banking industry. Increasing the role of nonbanks in general, but also crowdfunding, peer-to-peer lending and other financial innovations might have a further adverse impact on the banking sector, whose profitability has been affected anyway. Financial supervisors might also find it harder to gather the necessary data to analyze financial stability issues with growing volumes of relevant assets, liabilities and transactions taking place outside banks.

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Annex

Table A1

Holdings of private foundations in EUR million

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Financial claims	2,571	4,038	5,591	7,421	9,545	15,448	16,389	17,087	18,516	19,320	21,123	30,418	29,380
Real estate	855	1,311	1,818	2,410	3,100	5,040	5,297	5,616	6,551	6,895	9,035	7,043	13,969
Usually counted under entity													
Households	3,192	5,050	7,023	9,345	12,042	19,541	20,740	21,702	23,976	25,069	28,336	35,203	40,744
NPISHs	39	62	86	114	147	238	253	265	292	306	339	390	460
Nonfinancial corporations	195	237	301	372	457	709	694	736	799	840	1,483	1,868	2,145

	2008	2009	2010	2011	2012	2013	2014
Financial claims	27,613	31,430	32,456	31,976	33,452	34,649	35,478
Real estate	11,454	13,090	13,809	15,165	16,854	17,344	19,368
Usually counted under entity							
Households	36,709	41,820	43,922	44,340	47,402	48,934	50,996
NPISHs	486	494	536	542	580	599	550
Nonfinancial corporations	1,872	2,206	1,807	2,258	2,324	2,461	3,300

Source: OeNB.

Note: The real estate of private foundations is the net value after deduction of the liabilities of private foundations. August 2015.

Event wrap-ups and miscellaneous

The central bank balance sheet in the (very) long run – how to construct it, how to read it, what to learn from it

Workshop hosted by the OeNB in Vienna on October 1, 2015

Compiled by Clemens Jobst and Thomas Scheiber[1]

Quantitative easing (QE) by some major central banks and large-scale purchases of foreign exchange by others have moved the central bank balance sheet – for a long time a sideshow to interest rate policy – into the focus of public interest. The channels through which QE impacts central banks' balance sheets, and how shifts in the composition of assets and liabilities impact the economy are issues that are often raised in this context. Changes in balance sheets might also have repercussions on central banks themselves, as e.g., the risk of substantial losses could affect their ability to effectively pursue their objectives in the future.

To discuss these and related questions, the OeNB hosted a workshop in Vienna on October 1, 2015, entitled "The central bank balance sheet in the (very) long run – how to construct it, how to read it, what to learn from it." The purpose of the workshop was to bring together scholars who have worked with historical central bank balance sheets and to put the current debate into a longer-term perspective. The workshop had been co-organized by the Department for Economic and Social History of the University of Vienna and took place in conjunction with the 10th conference of the South-East European Monetary History Network (SEEMHN).

In his introduction to the workshop, Clemens Jobst (OeNB) referred to the experience the SEEMHN team made when collecting and publishing a set of harmonized historical macrofinancial data on South-East Europe over the past years (see box). While working on the project, the team was faced with a number of questions that could not be answered readily, like e.g. on the nature of central banking in SEE, notably how central bank operations and the setting of policy rates have interacted with the economy, and how the evolution of central banks in the region compares with that in the rest of Europe. One of the purposes of the workshop was thus to extend the comparative perspective beyond the standard reference of the Bank of England, thereby also helping to put the SEE central banks into a wider context of "continental" central banking.

Using the Banque de France as an example, Patrice Baubeau (Université Paris Ouest Nanterre La Défense) discussed the specifics of the central bank balance sheet as a historical source. In particular, he explained why the Banque de France decided to publish balance sheets in the 1840s and why information was concealed or made public. In a related presentation, Stefano Ugolini (Université Toulouse) argued that often, key information on central bank policies cannot be deduced from the published balance sheets but must be reconstructed from archival evidence. Taking the examples of the National Bank of Belgium's 19th century foreign exchange policy and the Bank of England's open market operations before 1914, Ugolini showed that

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Box 1

What is the South-East European Monetary History Network

The South-East European Monetary History Network (SEEMHN) was established in 2006 and brings together financial and monetary historians, economists and statisticians working on South-East Europe. Its main objective is to increase the visibility of the region in historical research and promote research on the region as an integral part of European history.

An important outcome of the year-long cooperation of the central banks involved in the SEEMHN has been the compilation of data sets of monetary and financial variables for seven South-East European countries, including Austria, covering the period from the 19th century to World War II. This data volume was published in December 2014 and is available for free download on the websites of the central banks involved:

https://www.oenb.at/en/Publications/Economics/south-east-european-monetary-history-network-data-volume.html

the relevant numbers were aggregated into larger categories, partly in order to reduce visibility and increase policy effectiveness.

The presentations by György Kövér (ELTE Budapest) and Juha Tarkka (Bank of Finland) both dealt with the long-time key instrument of monetary policy, the discounting of commercial bills. To limit risks, central banks require extensive information on the quality of the bills submitted for discounting. In his paper, György Kövér looked at how the local discount committees of the Austro-Hungarian Bank before World War I were organized, described the move from oral information to written records as well as the internal flow of information within the bank. Juha Tarkka argued that discounting was less prevalent in the early 19th century than a look at the Bank of England or the Banque de France may suggest. Public banks around the Baltic Sea for a long time issued money not against short-term bills but long-term mortgages. The evolution toward what Tarkka called the "classical model" took place as late as in the mid-19th century.

Eric Monnet (Banque de France) looked at the historical and current debate on whether government debt in the central bank balance sheet is held for monetary policy purposes or constitutes monetary financing of the state. He distinguished between two models: the "English model," where the central bank buys government debt in the market, and the "French model," where the central bank lends to the government directly but is prevented from purchasing government bonds in the market. Christophe Chamley (Boston University and Paris School of Economics) and Pamfili Antipa (Banque de France) compared the two episodes of war financing and the return to gold convertibility by the Bank of England during the French Wars and World War I. A comparison of the development of the Bank of England's balance sheet in the two episodes reveals fundamental differences that help understand why the return to convertibility after 1925 ultimately failed. Jens Eisenschmidt (European Central Bank) provided a primer on the Eurosystem balance sheet, comparing the relative role of outright securities holdings versus reverse operations for the Eurosystem and for the Federal Reserve. He argued that the crisis made the balance sheets of the two central banks more similar and that the recently launched Public Sector Purchase Programme marks a significant change in the implementation of monetary policy in the euro area.

The final session of the workshop looked at the interplay between the central bank and the money market. Roland Uittenbogaard (Ministry of Finance, the Netherlands) looked at the determinants of De Nederlandsche Bank's bank rate decisions during the period 1814–1870. Combining quantitative evidence with an analysis of board discussions, Uittenbogaard finds that the DNB mainly strove to maximize lending, thereby following market trends without controling the money market. Klas Fregert (Lund University) offered a history of monetary policy-making in Sweden through the lens of the structural liquidity position of the banking system. The structural liquidity position makes an important difference for policy insofar as a deficit of the banking system helps the central bank to control money market rates. This is of particular interest today, as in the aftermath of the financial crisis, many of the major central banks have moved from a liquidity deficit to a liquidity surplus.

The details of the workshop program as well as a link to selected presentations can be found at:
https://www.oenb.at/en/Monetary-Policy/Research/workshops/central-bank-balance-sheet-in-a-long-term-perspective-workshop.html

Notes

List of studies published in Monetary Policy & the Economy

For further details on the following publications, see *www.oenb.at*.

Issue Q3/14

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Gerhard Fenz

Labor Productivity Developments in Austria in an International Perspective
Martin Schneider

How Gender-Specific Are Payments? A Study Based on Austrian Survey Data from 1996 to 2011
Klaus Forstner, Karin Wagner

Austria Holds Intra-EU Export Market Shares almost Constant despite Difficult Economic Environment
Klaus Vondra

Issue Q4/14

Growth Remains Weak in 2015 – Economic Outlook for Austria from 2014 to 2016 (December 2014)
Gerhard Fenz, Martin Schneider

A Common European Unemployment Insurance – A Much Debated Route toward European Fiscal Union
Christian Beer, Walpurga Köhler-Töglhofer, Alfred Stiglbauer

Bitcoin – The Promise and Limits of Private Innovation in Monetary and Payment Systems
Christian Beer, Beat Weber

Issue Q1/15

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Christian Ragacs, Fabio Rumler, Martin Schneider

Determinants of Inflation Perceptions and Expectations: an Empirical Analysis for Austria
Friedrich Fritzer, Fabio Rumler

Impact of Inflation on Fiscal Aggregates
Doris Prammer, Lukas Reiss

Housing Markets in Austria, Germany and Switzerland
Martin Schneider, Karin Wagner

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Christian Ragacs, Klaus Vondra

Financial literacy gaps of the Austrian population
Maria Silgoner, Bettina Greimel-Fuhrmann, Rosa Weber

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Christian Beer, Ernest Gnan

Long-Term Perspectives for Economic Growth – summary of the OeNB's 43rd Economics Conference
Doris Prammer, Helmut Stix

Issue Q3/15

Austria: Sluggish economic growth
Martin Schneider

Causes of declining investment activity in Austria
Gerhard Fenz, Christian Ragacs, Martin Schneider, Klaus Vondra, Walter Waschiczek

Expected retirement age and pension benefits in Austria: evidence from survey data
Markus Knell, Esther Segalla, Andrea Weber

Issue Q4/15

Austrian economy to grow at same pace as euro area economy in 2016 and 2017 – Economic outlook for Austria from 2015 to 2017 (December 2015)
Gerhard Fenz, Martin Schneider

Interest rate perceptions and expectations when interest rates are low – survey evidence on Austrian households
Christian Beer, Ernest Gnan, Doris Ritzberger-Grünwald

Financing the Austrian economy – a bird's eye view based on the financial accounts from 1995 to 2014 and a look at the road ahead
Michael Andreasch, Pirmin Fessler, Martin Schürz

Periodical publications

See *www.oenb.at* for further details.

Geschäftsbericht (Nachhaltigkeitsbericht) — German | annually
Annual Report (Sustainability Report) — 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

Konjunktur aktuell — German | seven times a year

This online 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/Publikationen/Volkswirtschaft/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 — German | twice a year
Facts on Austria and Its Banks — English | twice a year

This online 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 macrofinancial 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
German | irregularly

Statistiken – Daten & Analysen: Special Issues
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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

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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:
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http://www.oenb.at/en/Publications/Economics/Proceedings-of-OeNB-Workshops.html

Working Papers
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This online 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

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