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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 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 with 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 are provided with accommodation on demand and have, as a rule, access to the department's data and computer re-

sources and to research assistance. Their research output will be published in one of the department's publication outlets or as an OeNB Working Paper. Research visits should ideally last between 3 and 6 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 2013/14 should be e-mailed to eva.gehringer-wasserbauer@oenb.at by May 1, 2013.

Applicants will be notified of the jury's decision by mid-June. The following round of applications will close on November 1, 2013.

Analyses

Austria Prevails in Bleak Environment

Economic Outlook for Austria from 2012 to 2014
(December 2012)

Gerhard Fenz,
Martin Schneider¹

1 Summary: International Crisis Ripples through Austrian Economy

In its economic outlook of December 2012, the Oesterreichische Nationalbank (OeNB) significantly revised downward the growth prospects for the Austrian economy owing to the – in some cases, marked – economic downturn in a number of Austria’s key export markets. The OeNB projects real GDP growth of a mere 0.4% for 2012, signifying a downward revision of ½ percentage point on its outlook of June 2012. The OeNB revised its forecast for real GDP growth even more sharply for 2013, i.e. from 1.7% to just 0.5%. It does not expect growth to accelerate before 2014 (+1.7%).

Inflation, which has risen again since mid-2012, will ease significantly over the forecast horizon. After rising by 2.5% in 2012, HICP inflation will

fluctuate within the ECB’s price stability target range of just below 2% in both 2013 and 2014 (2013: 1.7%, 2014: 1.6%). The budget balance will stand at –3.0% in 2012. Owing to the government’s consolidation measures implemented in early 2012 and a relative reduction in government financial assistance to (partly) nationalized banks, the budget balance will improve appreciably to –2.1% (2013) and –1.8% (2014) of GDP despite the weak economy.

The recovery, which emerged in 2011 following the financial and economic crisis, has lost considerable momentum in most parts of the world. The crisis in the euro area is rippling across to other regions, dampening their growth prospects. Countries particularly badly hit are Austria’s neighbors in Central and Eastern Europe. Prospects for the U.S.A. are muted

Chart 1

Real GDP Growth (Seasonally and Working-Day Adjusted)



Source: Eurostat, OeNB.

Editorial deadline:
November 23, 2012

¹ Oesterreichische Nationalbank, Economic Analysis Division, gerhard.fenz@oebn.at, martin.schneider@oebn.at. In collaboration with Friedrich Fritzer, Ernest Gnan, Johannes Holler, Walpurga Köhler-Töglhofer, Peter Mooslechner, Christian Ragacs, Lukas Reiss, Alfred Stiglbauer and Klaus Vondra.

owing to the potential consolidation in early 2013 (“fiscal cliff”), which also implies negative repercussions for global exports. The growth momentum of emerging economies in Asia will therefore be curbed by the sluggish demand of their two most important export markets. Although Asian emerging market growth is high by European standards, it has already lost much steam.

The *euro area* is currently in recession. Owing to flagging domestic demand, total output has been down since the fourth quarter of 2011. Of the countries particularly badly hit by the sovereign debt crisis, only Ireland seems to have reversed the trend. The other countries are suffering losses of output, which are dramatic in some cases. Future prospects depend on further crisis management at a European level and on the implementation of the necessary structural reforms and consolidation measures. Of the major euro area economies, only Germany has a positive growth outlook over the entire forecast horizon while the other heavyweights should expect economic output to contract in 2013. Although several smaller euro area countries are likely to expect (in part) robust growth, the latter is basically attributable to economic catching-up processes.

Owing to booming export demand, *Austria* managed to offset the decline in GDP growth suffered during the financial and economic crisis in the two years thereafter. Since mid-2011, however, Austrian GDP growth has come almost to a halt. Domestic demand components did not sufficiently offset flagging export momentum. Despite favorable internal and external financing conditions, sluggish sales expectations and below-average capacity utilization dampened the propensity of companies to invest. Weak investment

activity is set to continue into the first half of 2013. As in 2012, investment in equipment will therefore continue to almost stagnate in 2013. Improved external macroeconomic conditions will not have a knock-on effect on investment activity until 2014. Owing to fewer orders being placed by quasi-public infrastructure companies, investment activity in civil engineering will also remain subdued. Investment activity will be fueled by housing investment, which will receive impetus from low interest rates and rising house prices.

Current sluggish consumption is surprising in view of the Austrian labor market situation, which is favorable by international standards. Although relatively robust employment growth was seen in 2012, weak real wage growth dampened household income growth as in recent years. Real household income growth will remain subdued in 2013. Higher real wage growth will not offset far weaker employment growth. In both 2012 and 2013, private consumption will therefore grow by only about ½%. In 2014, somewhat stronger household income growth will not flow into private consumption in its entirety but be partly used to increase the saving ratio.

Economic momentum, which has been slowing since mid-2011, is increasingly revealing its impact on the labor market. Owing to momentum in early 2012, employment is expected to grow by a robust 1.1% (+45,000 persons) for the year as a whole. In 2013, however, employment growth will prove to be significantly more sluggish (+16,000 persons). The Austrian labor market’s full liberalization in May 2011 for workers from eight new EU Member States has led to robust labor supply growth. The unemployment rate will increase in 2012 (from 4.2% to 4.4%)

Table 1

OeNB December 2012 Outlook for Austria – Key Results¹

	2011	2012	2013	2014
Economic activity				
<i>Annual change in % (real)</i>				
Gross domestic product	+2.7	+0.4	+0.5	+1.7
Private consumption	+0.9	+0.3	+0.5	+1.1
Government consumption	+0.5	+0.8	+0.9	+1.0
Gross fixed capital formation	+6.3	+1.0	+0.8	+2.5
Exports of goods and services	+7.1	+1.8	+2.7	+5.6
Imports of goods and services	+7.0	+1.7	+3.0	+5.4
<i>% of nominal GDP</i>				
Current account balance	+0.6	+1.7	+1.5	+1.9
Contribution to real GDP growth				
<i>Percentage points</i>				
Private consumption	+0.5	+0.2	+0.2	+0.6
Government consumption	+0.1	+0.2	+0.2	+0.2
Gross fixed capital formation	+1.3	+0.2	+0.2	+0.5
Domestic demand (excluding changes in inventories)	+1.8	+0.5	+0.6	+1.3
Net exports	+0.4	+0.2	+0.0	+0.4
Changes in inventories (including statistical discrepancy)	+0.4	-0.2	-0.1	+0.1
<i>Annual change in %</i>				
Harmonised Index of Consumer Prices (HICP)	+3.6	+2.5	+1.7	+1.6
Private consumption expenditure (PCE) deflator	+3.5	+2.8	+1.8	+1.6
GDP deflator	+2.4	+2.2	+1.5	+1.5
Unit labor costs in the total economy	+0.9	+3.7	+2.3	+1.1
Compensation per employee (at current prices)	+1.9	+3.1	+2.4	+2.2
Productivity (whole economy)	+0.9	-0.7	+0.1	+1.0
Compensation per employee (real)	-1.5	+0.2	+0.6	+0.6
Import prices	+5.7	+1.6	+1.6	+1.6
Export prices	+3.7	+1.4	+1.5	+1.7
Terms of trade	-2.0	-0.2	+0.0	+0.0
Income and savings				
Real disposable household income	-0.8	+0.4	+0.3	+1.4
<i>% of nominal disposable household income</i>				
Saving ratio	7.4	7.4	7.3	7.6
Labor market				
<i>Annual change in %</i>				
Payroll employment	+2.0	+1.2	+0.4	+0.7
<i>% of labor supply</i>				
Unemployment rate (Eurostat definition)	4.2	4.4	4.7	4.7
Budget				
<i>% of nominal GDP</i>				
Budget balance (Maastricht definition)	-2.5	-3.0	-2.1	-1.8
Government debt	72.4	74.6	75.7	75.4

Source: 2011: Eurostat, Statistics Austria; 2012 to 2014: OeNB December 2012 outlook.

¹ The outlook was drawn up on the basis of seasonally adjusted and working-day adjusted national accounts data. Therefore, the values for 2011 may deviate from the nonadjusted data released by Statistics Austria.

and in 2013 (to 4.7%). The jobless rate is expected to remain unchanged in 2014.

Inflation will come to 2.5% in 2012. The weakness of the international economy will induce commodity prices to fall over the forecast horizon.

In combination with a favorable development of unit labor costs, production prices will not come under any notable pressure, leading inflation to ease to 1.7% in 2013. A further slight downturn in inflation to 1.6% is expected in 2014.

The budget balance will deteriorate to -3.0% of GDP in 2012, primarily owing to a steep increase in government financial assistance to (partly) nationalized banks. A reduction in this financial assistance and a comprehensive package of consolidation measures will substantially improve the budget balance to -2.1% of GDP in 2013 despite weak economic activity. A further slight improvement to -1.8% of GDP is expected for 2014.

2 Technical Assumptions

This forecast for Austria is the OeNB's contribution to the Eurosystem's December 2012 staff projections. The forecast horizon ranges from the fourth quarter of 2012 to the fourth quarter of 2014. November 16, 2012, was the cut-off date for data underlying the assumptions on global growth as well as interest rates, exchange rates and crude oil prices. The OeNB used its macroeconomic quarterly model to prepare the projections for Austria. The key data source comprised seasonally and working day-adjusted national accounts data computed by the Austrian Institute of Economic Research (WIFO), which were fully available up to the second quarter of 2012. The data for the third quarter of 2012 are based on GDP flash estimates, which cover only part of the aggregates in the national accounts, however. The short-term interest rates used for the forecast horizon are based on market expectations for the three-month EURIBOR, namely 0.6% in 2012, 0.2% in 2013 and 0.4% in 2014. Long-term interest rates, which are based on market expectations for ten-year government bonds, are set at 2.4% (2012), 2.3% (2013) and 2.7% (2014). The exchange rate of the euro vis-à-vis the U.S. dollar is assumed to stay constant at USD 1.28. The projected development of crude oil prices is based on

futures prices. The oil price assumed for 2012 is USD 111.7 per barrel of Brent, while the prices for 2013 and 2014 are set at USD 105.0 and USD 100.5 per barrel of Brent, respectively. The prices of commodities excluding energy are also based on futures prices over the forecast horizon.

3 Euro Area Crisis and U.S. Fiscal Policy Dampen World Economic Outlook

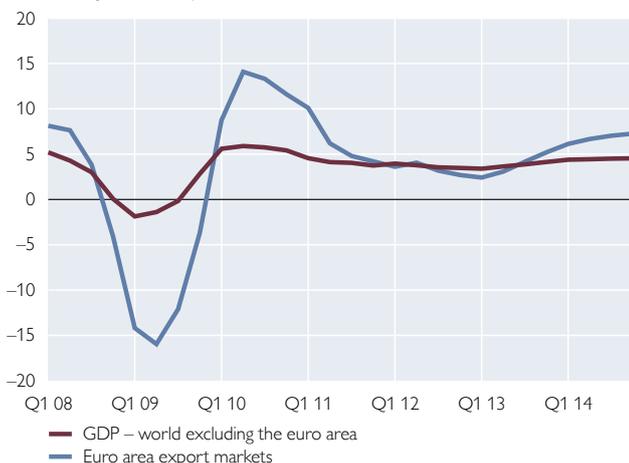
The recovery which emerged in 2011 following the financial and economic crisis has lost considerable momentum in most parts of the world. The crisis in the euro area is spilling over to other regions, dampening their growth prospects. Countries particularly badly hit are Austria's neighbors in Central and Eastern Europe. The outlook for the U.S. economy is muted owing to potential consolidation in early 2013 ("fiscal cliff"), which also implies negative repercussions for both global demand and exports. As a result, the growth momentum of Asian emerging economies will be curbed by the sluggish demand of their two most important export markets. Although Asian emerging market growth is high by European standards, it has already lost much steam.

World trade growth slowed significantly in the course of both 2011 and 2012 and is not expected to recover until early 2013 (chart 2, left-hand image). Key leading indicators such as the OECD leading indicator corroborate this assumption of a merely gradual recovery. However, for some regions of the global economy, this indicator has already bottomed out. While the indicator for the OECD as a whole is pointing toward a stabilization and that for the U.S. is already suggesting a recovery, the indicator for the euro area and that for China are still pointing down.

Has the World Economy Bottomed Out?

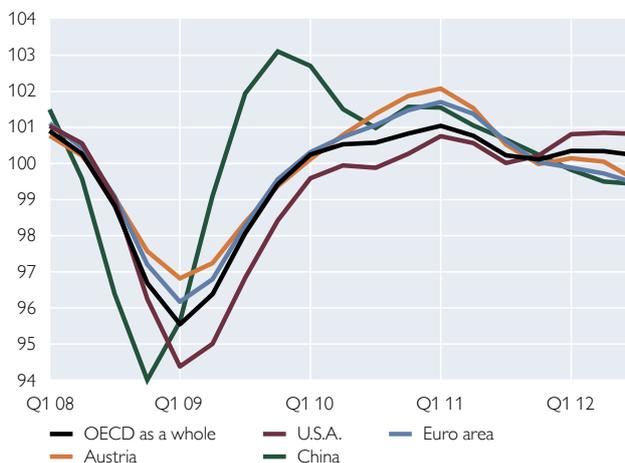
Economic Development Worldwide

Annual change on quarterly basis in %



OECD Leading Indicator

Index



Source: Eurosystem, OECD.

Accordingly, the recovery of the world economy is likely to be uneven across regions and weak on the whole.

In the *U.S.A.*, growth momentum slowed in the first half of 2012. In the third quarter of 2012, however, GDP growth accelerated to +0.7% (on a quarterly basis). Growth was fueled by domestic demand. In particular, government consumption, but also private consumption and investment, expanded whereas exports declined. The labor market situation improved in the course of 2012, with the speed of job creation accelerating steadily. The jobless rate, which still stood at 9.0% in 2011, had fallen to 7.9% by October 2012. Improved labor market prospects are reflected in a more favorable consumer assessment. Stabilization in the real estate market is forging ahead. In August 2012, the S&P/Case Shiller Index (20 Cities) climbed for the seventh month in a row after having fallen for 20 months previously. Housing investment made a positive contribution to growth for the sixth quarter in succession. Fiscal policy currently

poses the greatest risk to the *U.S.* economy. If the *U.S.* Congress does not reach agreement by end-2012, tax increases will automatically enter into force in early 2013. In addition, automatic expenditure cuts would take effect without an increase in the debt ceiling. Although the situation described as a “fiscal cliff” by Ben Bernanke (Governor of the Federal Reserve System) would improve the budget deficit by 4% of GDP, it would also place pressure on the *U.S.* economy. This forecast is based on the assumption that budget cuts amounting to 3½% of GDP will take effect in early 2013. As a result, *U.S.* GDP growth will slow to 1.9% in 2013. The GDP effect which is relatively small in view of the scale of consolidation can be explained by the fact that primarily high-income population groups are affected.

Japan currently stands on the brink of recession. Owing to a decline in exports, GDP fell by 0.9% in the third quarter of 2012. In addition to slackening global demand, the appreciation of the Japanese yen was also responsible

for this phenomenon. Furthermore, impetus from the reconstruction program following the disaster in March 2011, which fueled growth in the first half of 2012, is receding. Since global momentum will continue to slow, further contraction cannot be excluded in the fourth quarter of 2012, which means the Japanese economy will start 2013 in an unfavorable position. As a result, Japan will not provide any notable stimuli to world trade over the forecast horizon. In *China*, by contrast, economic momentum gathered some steam in the course of 2012. The latest economic indicators also signal an end to the phase of decelerating growth. Compared with 2011, however, growth will slow in 2012 and will fall short of the trend seen in recent years in 2013 and 2014. Besides the fact that the working population is growing more slowly, the steady increase in wage costs is primarily responsible for this situation. Growth stimuli from both fiscal and monetary policy, to which falling inflation will offer some scope, are however expected. *India* is suffering high inflation, which is considerably restricting the scope of its monetary policy. In addition, crop failures will dampen growth in 2012. All in all, the Asian emerging economies will remain the global economy's engine of growth. Their growth rates will accelerate over the forecast horizon, although they will not reach their pre-crisis levels.

The growth outlook for *Central, Eastern and Southeastern European (CESEE) countries* is subdued owing to the unfavorable outlook for the euro area. After two healthy years, GDP growth will slow down markedly in 2012. Only Russia – and, with certain qualifications, Poland – will escape this development thanks to robust domestic demand. The *United Kingdom* registered strong growth in the third quar-

ter of 2012, which came as a pleasant surprise after three quarters of shrinking output. High levels of household debt and budget consolidation, however, suggest only a hesitant economic recovery.

The *euro area* is currently in recession. Total output fell for the first time in the fourth quarter of 2011. After stagnating in the second quarter of 2012, the euro area again registered negative growth in the third quarter (–0.1%) on the back of flagging domestic demand. Companies are cautious about investing in view of the high levels of uncertainty surrounding future sales potential. The slump in construction investment is particularly sharp. Growing joblessness and the related downward pressure on wages as well as government consolidation efforts are dampening net household income. Private consumption has been contracting since end-2011, which means it cannot drive the economy. Only net exports are currently making a positive contribution to growth although, for some euro area countries, this phenomenon is attributable not to a strong export performance but to weakening imports on the back of sluggish domestic demand. A further marked decline in economic output is anticipated for the fourth quarter of 2012. A gradual recovery is not expected before spring 2013. Owing to growth-tempering factors arising from the debt crisis, this recovery will prove to be very subdued, however. Growth differentials will remain high over the entire forecast horizon, as countries that are particularly badly hit by the crisis (Greece, Italy, Spain, Portugal, Slovenia and Cyprus) should expect to see a slump in growth – which will be steep, in some cases – for both 2012 and 2013. Overall, the euro area will suffer negative growth for the second

time in a row in 2013, as also forecast by the OECD.

The crisis is now starting to spill over to central euro area countries. This said, growth in the core of the euro area will still be much more favorable than that in the periphery. In *Germany*, exports are currently experiencing significant cooling. Thinning order intakes indicate a decrease in exports and investment in equipment in the fourth quarter of 2012, which is likely to induce a decline in GDP. The German economy's fundamentals remain intact, however. German exporters have steadily improved their competitiveness in recent years, benefitting from strong regional diversification. Private consumption growth is very robust owing to favorable rises in both employment and wages. Construction

investment is another pillar supporting the German economy.

As for *France*, the outlook is marked by fiscal consolidation and a stagnating economic environment. High levels of uncertainty are dampening investment activity. In view of the tax increases in early 2013, private consumption will be maintained only via a reduction in the saving ratio. Owing to the consolidation measures and the anticipated rise in unemployment, economic recovery cannot be expected until 2014.

In *Italy*, economic output is steadily shrinking. Although the contraction of the economy was somewhat weaker than expected in the third quarter of 2012, GDP fell for the seventh quarter in a row. In addition to the consolidation measures taken, the major factors depressing the economy are the high

Table 2

Underlying Global Economic Conditions

	2011	2012	2013	2014
	<i>Annual change in % (real)</i>			
Gross domestic product				
World GDP growth outside the euro area	+4.1	+3.7	+3.8	+4.5
U.S.A.	+1.8	+2.2	+1.9	+2.6
Japan	-0.7	+1.6	+0.4	+1.3
Asia excluding Japan	+7.6	+6.0	+6.7	+7.4
Latin America	+4.5	+3.1	+3.6	+4.1
United Kingdom	+0.9	+0.0	+1.4	+2.0
New EU Member States ¹	+3.2	+1.1	+1.3	+2.6
Switzerland	+1.9	+1.0	+1.5	+1.7
Euro area ²	+1.5	-0.6 to -0.4	-0.9 to +0.3	+0.2 to +2.2
World trade (imports of goods and services)				
World economy	+6.3	+3.0	+4.1	+7.0
Non-euro area countries	+7.0	+4.0	+4.3	+7.7
Real growth of euro area export markets	+6.3	+3.4	+3.7	+6.8
Real growth of Austrian export markets	+6.4	+1.3	+2.7	+5.9
Prices				
Oil price in USD/barrel (Brent)	111.0	111.7	105.0	100.5
Three-month interest rate in %	1.4	0.6	0.2	0.3
Long-term interest rate in %	3.3	2.4	2.1	2.5
USD/EUR exchange rate	1.39	1.28	1.28	1.28
Nominal effective exchange rate (euro area index)	103.39	97.67	96.82	96.82

Source: Eurosystem.

¹ Bulgaria, Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania.

² 2012 to 2014: Results of the Eurosystem's December 2012 projections. The ECB publishes the projections as ranges based on historical forecast errors.

levels of jitters. Moreover, interest rates that rose in the wake of the sovereign debt crisis are making the refinancing of the banking sector more difficult, which has made lending to the private sector suffer. In view of this tough situation, the Italian economy will not be on track to modest growth before 2014.

In addition to the sluggish international environment, *Spain* is suffering from a number of domestic factors tempering GDP growth. For instance, the reduction of high levels of private debt accumulated in the wake of the housing bubble, the government consolidation measures and the restrictive lending conditions are having a negative impact on growth. Economic output is expected to contract both in 2012 and 2013.

Greece is still in a deep recession. In the third quarter of 2012, GDP slumped by 7.2% (compared with the same period a year ago), which was an even steeper fall than in the two previous quarters. The necessary adjustment measures are weighing heavily on the Greek economy. In addition to the deep cuts made in the course of fiscal consolidation, household income is being squeezed by rising unemployment. Furthermore, both lending restrictions and high levels of uncertainty have led to a steady reduction in total investment. In view of the unfavorable international environment, sluggish exports will not provide any stimuli for growth. As a result, Greek economic output will decline for the fifth and sixth year in succession in 2012 and 2013, respectively.

Portugal, like Greece, is struggling with adjustment problems. *Ireland*, however, seems to have adjusted best of all the EU-IMF program countries. Although growth will only be slightly positive in 2012, strong exports will provide sufficient stimuli for Ireland to

boost its growth despite continued domestic demand problems.

4 Global Economic Downturn Affects Austrian Economy

4.1 Exports Suffer from Europe's Crisis in Confidence

The years 2010 and 2011 were marked by strong catching-up effects following the sharp slump in 2009. Since early 2011, however, the European debt crisis has led to steadily slowing momentum of Austrian export markets in the euro area. Although Austrian export markets outside the euro area also lost momentum in 2012, this development was much more marked in the euro area.

In both 2009 and 2010, Austria lost export market shares primarily owing to the structure of goods exported. Machinery and transport equipment (SITC 7), which are particularly cyclically-sensitive exports, play a major role in the structure of Austrian exports, accounting for 37% of total goods exported in 2011. Hence, Austrian exports slumped more sharply than aggregate export market growth. This trend of losses in market shares has come to an end.

In the period from 2010 to 2012, the prices of Austrian exporters climbed more slowly than those of their competitors in the international markets, which improved their price competitiveness. Against this backdrop, Austrian exports even made slight gains in market share in 2011 and 2012.

Current export development is being determined primarily by weak growth in Austrian export markets. In 2012, Austrian export markets in the euro area even contracted slightly. In the light of this situation, modest Austrian export growth in the first three quarters of 2012 (+0.4%, +0.6%,

Table 3

Growth and Price Developments in Austria's Foreign Trade

	2011	2012	2013	2014
	<i>Annual change in %</i>			
Exports				
Competitor prices in Austria's export markets	+4.1	+3.1	+1.6	+1.5
Export deflator	+3.7	+1.4	+1.5	+1.7
Changes in price competitiveness	+0.4	+1.7	+0.1	-0.1
Import demand in Austria's export markets (real)	+6.4	+1.3	+2.7	+5.9
Austrian exports of goods and services (real)	+7.1	+1.8	+2.7	+5.6
Austrian market share	+0.8	+0.5	+0.0	-0.4
Imports				
International competitor prices in the Austrian market	+3.9	+2.2	+1.4	+1.5
Import deflator	+5.7	+1.6	+1.6	+1.6
Austrian imports of goods and services (real)	+7.0	+1.7	+3.0	+5.4
Terms of trade	-2.0	-0.2	+0.0	+0.0
	<i>Percentage points of real GDP</i>			
Contribution of net exports to GDP growth	+0.4	+0.2	+0.0	+0.4

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook, Eurosystem.

+0.9% on a quarterly basis) should be assessed quite favorably.

Export growth is expected to have reached its low in the fourth quarter of 2012, with exports almost stagnating. For 2012 as a whole, the OeNB projects export growth of just 1.8%. In line with this forecast's underlying assumptions about the growth in Austrian export markets, export momentum is expected to accelerate steadily, albeit weakly, from early 2013. It will not be until 2014, however, that the international economy will have regained enough momentum for Austrian export market growth to trend close to

its long-term average values (at almost 6%).

The development of imports is determined primarily by export growth. Of domestic demand components, investment in equipment shows the highest degree of import penetration. In view of sluggish export and investment growth, import growth of +1.7% will also prove to be very muted in 2012. Over the forecast horizon, imports will grow roughly as strongly as exports.

Owing to surpluses in trade in services, Austria has consistently had trade balance surpluses since 1998. Prior to the financial and economic crisis, even

Table 4

Austria's Current Account

	2011	2012	2013	2014
	<i>% of nominal GDP</i>			
Balance of trade	2.0	1.7	1.9	2.3
Balance on goods	-2.5	-3.0	-3.0	-2.9
Balance on services	4.5	4.7	4.9	5.2
Balance on income	-0.8	0.1	0.1	0.1
Balance on current transfers	-0.6	-0.1	-0.4	-0.4
Current account	0.6	1.7	1.5	1.9

Source: 2011: OeNB; 2012 to 2014: OeNB December 2012 outlook.

the traditionally negative goods balance moved back into the black on occasion. As a result of the crisis and Austria's better growth performance relative to other euro area countries, the goods balance has suffered sustained deterioration. By contrast, the services balance appears to be unaffected and is following a steady uptrend. The initial estimate of the income balance for 2011 (–EUR 2.5 billion or –0.8% of GDP) is likely to be revised upward on the strength of currently available information, which means the current account for 2011 is also likely to improve by around ½% to 1% of GDP. The OeNB projects a current account surplus ranging from 1½% to 2% of GDP over the forecast horizon.

4.2 Poor Sales Expectations Dampen Corporate Investment Activity

Austrian companies expanded their investment activity significantly in 2011. Gross fixed capital formation increased by 6.3% in real terms, i.e. as strongly as last in 1996; investment in equipment grew by as much as 10.4%. By end-2011, however, investment activity had cooled considerably, and since early 2012 investment in equipment has been declining. By contrast, housing has registered positive developments.

Given the difficult economic environment, the positive effects one might expect of the current internal and external financing conditions, which are extraordinarily favorable by historical comparison, cannot fully materialize. External financing costs are extremely low; real interest rates for corporate loans are close to zero. Under these conditions, there are currently no significant signs of a supply-side tightening in lending volumes although banks in the Bank Lending Survey recently announced a slight tightening in lending

conditions. On the contrary, given sluggish GDP growth, bank lending to companies has been growing fairly vigorously at around 3% during 2012 so far, i.e. far more steeply than in the euro area, which even registered a drop in the previous two quarters. Companies currently have at their disposal considerable funds for internal financing despite – in operating surplus terms – recently falling profit growth. According to statistics on financial assets, corporate deposits amount to more than EUR 56 billion, which is roughly equivalent to the total annual investment of Austrian companies. Despite these favorable financing conditions, investment activity is likely to remain sluggish into the first half of 2013. Companies are cancelling, cutting or postponing their investment projects owing to poor sales expectations, which are reflected in recently sharply thinning order intakes. Although this slump is not as marked as during the financial and economic crisis in 2008 and 2009, it is quite comparable with the recession in 2001. Far fewer new orders were registered from abroad, in particular. The European debt crisis and the recession in some Central and Eastern European countries will further impair the sales potential of Austrian exporters in the next few months. Investment activity will recover as external macroeconomic conditions improve gradually as expected. This recovery will however prove to be unusually subdued and occur only relatively late in the upswing in view of the currently below-average capacity utilization. Against this backdrop, growth in investment in equipment is expected to decelerate markedly to 0.8% (2012) and 0.2% (2013).

Investment activity in civil engineering will also remain subdued ow-

Table 5

Investment Activity in Austria

	2011	2012	2013	2014
<i>Annual change in %</i>				
Total gross fixed capital formation (real)	+6.3	+1.0	+0.8	+2.5
of which: Investment in plant and equipment	+10.4	+0.8	+0.2	+3.4
Residential construction investment	+1.9	+3.7	+1.5	+2.0
Nonresidential construction investment and other investment	+4.7	+0.1	+1.5	+1.8
Government investment	-8.6	+2.9	+1.5	+1.5
Private investment	+7.1	+0.9	+0.8	+2.5
<i>Contribution to real gross fixed capital formation growth in percentage points</i>				
Investment in plant and equipment	+4.1	+0.3	+0.1	+1.4
Residential construction investment	+0.4	+0.7	+0.3	+0.4
Nonresidential construction investment and other investment	+1.9	+0.0	+0.6	+0.7
Government investment	-0.4	+0.1	+0.1	+0.1
Private investment	+6.7	+0.9	+0.7	+2.4
<i>Contribution to real GDP growth in percentage points</i>				
Inventory changes	+0.4	-0.3	-0.2	+0.1

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

ing to fewer orders being placed by quasi-public infrastructure companies. Total gross fixed capital formation will be fueled by housing investment. Although the very steep increase in building permits in 2011 has slowed somewhat recently, very low interest rates and rising house prices should provide impetus to the housing sector in the medium term. Following steep declines in previous years, government investment will expand by an annual average of 2% over the forecast horizon. At around 5%, however, its share in total investment is very small. Investment demand is not expected to revive until the end of the forecast horizon. Driven by cyclically sensitive investment in equipment, total gross fixed capital formation will advance by 2½% in 2014.

4.3 Sluggish Consumption Continues

Current sluggish consumption is unexpected in view of the (by international standards) favorable Austrian labor

market situation. Real private consumer spending has been stagnating since early 2012. For 2012 as a whole, growth of only 0.3% is projected. Although relatively robust employment growth has been recorded for 2012, weak real wage growth dampened household income growth as in recent years. At +3.1%, compensation per employee will show an increase for 2012, albeit a somewhat less pronounced one than negotiated wages (+3.3%). The negative wage drift is attributable to a variety of factors: a shift in employment to low wage sectors, a growing share of part-time employees, falling overpayments and a smaller number of hours taken as overtime. In 2012, inflation as measured by the private consumption deflator and HICP inflation will stand at 2.8% and 2.5%, respectively. The effects of the “bracket creep” amount to some 0.5 percentage points. Minus inflation and the effects of the “bracket creep,” compensation per employee in real terms will even fall slightly. In 2012, mixed

Table 6

Determinants of Nominal Household Income in Austria

	2011	2012	2013	2014
<i>Annual change in %</i>				
Payroll employment	+2.0	+1.2	+0.4	+0.7
Wages per employee	+1.9	+3.1	+2.4	+2.2
Compensation of employees	+3.9	+4.3	+2.9	+2.9
Investment income	-2.2	+1.3	+3.4	+3.8
Mixed income and operating surplus, net	+6.3	+3.1	+2.8	+3.3
<i>Contribution to disposable household income growth in percentage points</i>				
Compensation of employees	+3.2	+3.6	+2.4	+2.5
Investment income	-0.2	+0.1	+0.3	+0.4
Mixed income and operating surplus, net	+1.2	+0.6	+0.6	+0.7
Net transfers minus direct taxes ¹	-1.6	-1.1	-1.0	-0.5
Disposable household income (nominal)	+2.7	+3.2	+2.1	+3.0

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

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

income will also turn out to have grown at a far slower pace than in 2011. Although property income will no longer fall in 2012 as it did in the previous three years, it will not make a notable contribution to household income growth. Overall, real household income will therefore increase by just 0.4% in 2012. As a result, the sluggish growth seen in previous years will continue. Hence, in 2012 real disposable household income will still fall slightly short of the 2007 level. This means average consumption growth seen in the previous five years of almost 1% per year was achieved only by a correspondingly sharp reduction in the saving ratio from 11.7% (2007) to 7.4% (2012). The decline in the saving ratio in this period is closely related to changes in the composition of household income. Since the crisis, income shares with a small marginal propensity to consume have become less impor-

tant in relative terms – especially property income. Although the motive of intertemporal consumption smoothing also contributed to the decline in the saving ratio, it plays a secondary role compared with the impact of income composition.

In 2013, real household income will continue to grow sluggishly at a mere +0.3%. Although real wages will rise more rapidly than in 2012, employment growth will be much slower. Other income components will develop much like in 2012. In 2013, growth in household expenditure will be 0.5% in real terms. After declining sharply in previous years, the saving ratio will stabilize at just below 7½% in 2012 and 2013, as property income will stop falling. Toward the end of the forecast horizon, consumption growth will accelerate to 1.1% and the saving ratio will increase marginally to 7.6%.

Table 7

Private Consumption in Austria

	2011	2012	2013	2014
<i>Annual change in %</i>				
Disposable household income (nominal)	+2.7	+3.2	+2.1	+3.0
Private consumption expenditure (PCE) deflator	+3.5	+2.8	+1.8	+1.6
Disposable household income (real)	-0.8	+0.4	+0.3	+1.4
Private consumption (real)	+0.9	+0.3	+0.5	+1.1
<i>% of nominal disposable household income</i>				
Saving ratio	7.4	7.4	7.3	7.6

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

Box 1

Budget Forecast Marked by High Level of Uncertainty¹**Budget Balance Develops Relatively Well Despite Weak Economy**

Despite weak real GDP growth, the general government budget balance is expected to further improve over the forecast horizon. Budgetary improvement is favored by the composition of GDP growth, as particularly robust payroll growth will contribute to a relatively steep increase in receipts from wage income tax, social security contributions and payroll taxes in 2012 and 2013.

The improvement in the budget balance is however attributable primarily to the comprehensive package of consolidation measures. The latter also imply a further improvement of the structural budget balance. This structural improvement is being helped, however, not only by the explicit measures outlined in the consolidation package of early 2012 (increase in social contributions, tax on capital gains from real estate, wage freeze in 2013, pension increases below the rate of inflation etc.) but also by “implicit measures” such as the nonindexing of income tax brackets (“bracket creep”) as well as various nominally fixed social benefits (family allowance, nursing allowance etc.). In addition, expected continued low growth in discretionary expenditure (investment, intermediate consumption etc.) should favor the structural improvement of the budget balance.

Uncertainty about Economic Outlook and Fiscal Policy Strategy

The budget forecast is however marked by very high levels of uncertainty, which is attributable to various factors. For instance, uncertainty about the macroeconomic outlook is comparatively high. Past experience shows that it is extremely difficult to estimate how strongly worse-than-anticipated GDP growth impacts on public sector finances. In 2009, wage tax growth, for example, was much better than expected given the strength of the slump; at the same time, corporate tax receipts fell by more than one-third – likewise more sharply than expected based on past experience.

Austrian regional governments and local authorities have in recent years pursued a relatively tight expenditure policy so that it is doubtful in view of the aforementioned environment whether this restrictive course will be continued. Overall, intermediate consumption and investment were nominally down in both 2010 and 2011, compared with the year before. This had contributed to the fact that the Maastricht deficit of regional governments and local authorities was only slightly below 0.3% of GDP in 2011. As a result, the latter are already relatively close to their target under the Austrian debt brake of 0.1% of GDP (by 2017).² What is more, their need to consolidate will also be reduced because they will gain additional receipts from already implemented fiscal consolidation measures and “bracket creep” in coming years on the basis of revenue sharing.

¹ Compiled by Lukas Reiss, Economic Analysis Division, lukas.reiss@oenb.at.

² For regional governments and local authorities, both the cyclical component and the scale of one-off effects were close to zero in 2011, as a result of which the headline budget balance of 2011 roughly corresponds to the structural budget balance.

Uncertainty about “Bank Stabilization Package” and Euro Area Crisis Management

The support measures to the financial sector represent a further factor of uncertainty for the forecast. As the table below shows, the baseline scenario of the forecast already includes comparatively large capital transfers (“lost” capital injections and a reduction in participation capital) to (partly) nationalized banks. However, there are further risks to the projection of the budget balance, e.g. in relation to recording the federal guarantee for a subordinated bond of EUR 1 billion issued by Hypo Alpe-Adria Bank AG.

Measures taken to manage the euro area crisis impact on Austria’s debt and deficit performance. The current budget forecast includes the (disbursed and committed) bilateral loans to Greece, the EFSF (European Financial Stability Facility) loans to Greece, Ireland and Portugal, as well as the payments into the European Stability Mechanism (ESM). The latter will amount to EUR 2.2 billion for Austria and be allocated in tranches in the period from 2012 to 2014. New bailout programs (e.g. the recapitalization of Spanish banks) will most probably be processed via the ESM and should therefore not have any additional effect on Austria’s sovereign debt. The re-negotiation of Greece’s rescue package does not have a direct impact on Austria’s debt ratio, but will cause a slight deterioration of the budget balance from 2013.

Effects of the “Bank Stabilization Package” and Euro Area Crisis Management in the OeNB Outlook

	2008	2009	2010	2011	2012	2013
“Bank stabilization package”	% of GDP					
Gross savings ¹	0.0	0.0	0.1	0.1	0.1	0.1
Capital transfers ²	0.0	0.0	0.6	0.2	1.0	0.4
Stock flow adjustment ³	0.3	1.7	0.0	-0.2	-0.2	0.0
Budget balance	0.0	-0.0	-0.5	-0.1	-0.9	-0.3
Debt (total) ^{2,4}	0.3	2.1	2.5	2.2	2.9	3.1
Euro crisis management ^{5,6}						
Debt	x	x	0.2	0.7	2.2	2.7

Source: OeNB, Federal Ministry of Finance (2013 Federal Budget), Statistics Austria, Eurostat, ECB.

¹ Dividends + guarantee fees – interest payments.

² Assumption: guarantee for subordinated bond issued by Hypo Alpe-Adria-Bank AG is both deficit and debt neutral.

³ Factors influencing only deficit (reduction in participation capital) or only debt (e. g. capital provided to private banks).

⁴ Cumulative. Includes indirect effect of gross savings on debt.

⁵ Bilateral loans, EFSF loans, payments into ESM. Assumption: capitalization of Spanish banks via ESM.

⁶ The losses incurred by KA Finanz AG from the Greek PSI are assigned to the “bank stabilization package.”

5 Labor Market Situation Deteriorates

The slowdown in economic momentum observed since mid-2012 is increasingly revealing its impact on the labor market. Though employment continued to rise in the third quarter of 2012, it did so at a markedly slower pace than in 2011 and the first half of 2012. In the first three quarters of 2012, employment climbed by an average of 48,000 persons year on year. In September and October 2012, however, employment grew by only 26,000

and 29,000 persons year on year, respectively. The number of reported vacancies, which had peaked in early 2011, continued to fall steadily, signaling further cooling in the labor market. This development is also reflected in the number of jobless leasing workers, who have a higher degree of cyclical sensitivity than other employees. Owing to momentum in early 2012, employment is expected to still have grown robustly by 1.1% (+45,000 persons) for the year as a whole. In 2013, however, employment growth

Table 8

Labor Market Developments in Austria

	2011	2012	2013	2014
<i>Annual change in %</i>				
Total employment	+1.7	+1.1	+0.4	+0.7
of which: Payroll employment	+2.0	+1.2	+0.4	+0.7
Self-employment	+0.0	+0.4	+0.2	+0.6
Public sector employment	+0.1	-0.1	-0.1	-0.1
Registered unemployment	-5.1	+7.6	+7.0	+2.0
Labor supply	+1.4	+1.4	+0.7	+0.8
<i>% of labor supply</i>				
Unemployment rate (Eurostat definition)	4.2	4.4	4.7	4.7

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

will prove to be slower by two-thirds (+16,000 persons, +0.4%). Since the projected recovery in 2014 will only be muted with GDP growth of 1.7%, employment momentum will likewise pick up only marginally (+29,000, +0.7%).

Labor supply grew vigorously in both 2011 and 2012 (+60,000 persons, respectively). A major factor behind this phenomenon is the full liberalization of the Austrian labor market in May 2011 for workers from eight new EU Member States.² From April 2011 to October 2012, labor supply from these countries increased by 50,000 persons, with foreign labor supply up by a total of 70,000 persons. The impact of the labor market's liberalization will lessen significantly over the forecast horizon. An average of 15,000 additional employees from the countries concerned is expected per year. Domestic labor supply recently grew relatively sluggishly, expanding by a mere 40,000 persons in the period from April 2011 to October 2012. A key factor for the increase in domestic labor supply has been the greater labor force participation of mature workers. In the second quarter of 2012, the share

of those gainfully employed aged 55 to 64 rose to 43.6%, thereby surpassing the comparable period a year ago by 1.5 percentage points.

As a result of the aforementioned development in labor demand and labor supply, the unemployment rate will increase in both 2012 (from 4.2% to 4.4%) and 2013 (to 4.7%). In 2014, the jobless rate is expected to remain unchanged.

6 Inflation Expected to Ease Significantly

Austria's HICP inflation, after peaking at 3.9% in September 2011, eased to 2.1% by July 2012. Although a further rise has since been registered, this should be merely of a temporary nature. Inflation stood at 2.9% in October 2012. The main inflationary drivers in recent months were industrial goods (primarily, clothing and shoes). Furthermore, rising oil prices and accelerated wage growth have resulted in both energy and services making larger contributions to inflation.

Over the forecast horizon, the inflationary profile will – in line with our

² The Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovakia and Slovenia.

underlying assumptions – be marked by two factors: falling crude oil prices and the resumption of a slowdown in wage growth from fall 2012. Until end-2013, the public sector will make a largely steady contribution to inflation. The measures entering into force in this period (price increase of highway toll stickers and a cut in air travel tax) will have only a modest impact on overall inflation. Food will also show a flat inflationary trend. Rising world market prices for some agricultural commodities (primarily, wheat) will be offset by a smaller rise in wage costs. The price growth of industrial goods will decelerate owing to smaller increases in unit labor costs.

For 2012, the current outlook projects a rise in HICP by 2.5%. The anticipated sharp drop in inflation means it will fall below the 2% threshold by mid-2013. For 2013 as a whole, inflation will ease to 1.7%. A further slight downtick to 1.6% is expected for 2014.

Only some results of the fall 2012 bargaining round were available at the time this forecast was prepared. The

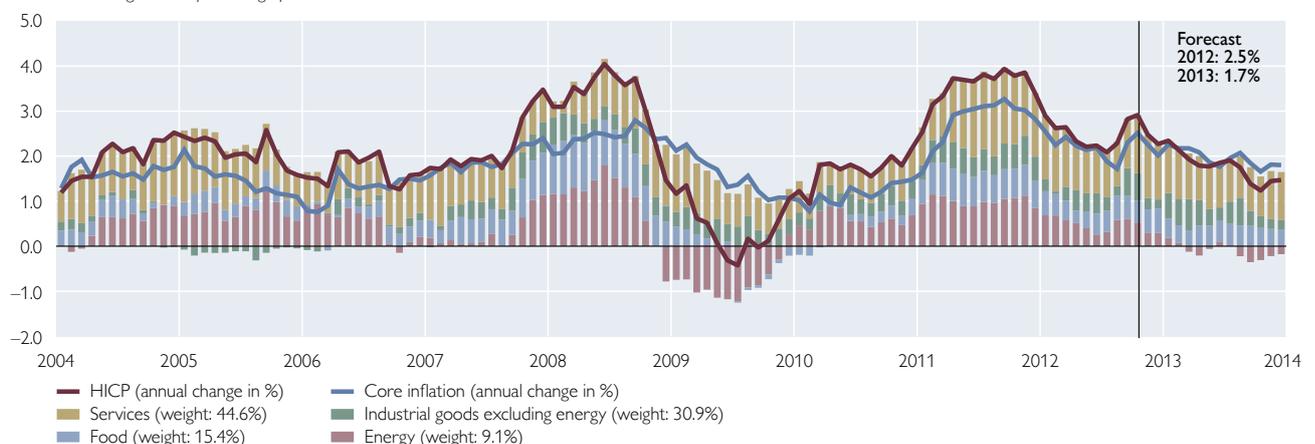
wage settlements made so far suggest an average increase in negotiated private-sector wages of around 3%. For the public sector, in the wake of the 2012 consolidation package, a wage freeze and a very modest wage increase were agreed for 2013 and 2014, respectively. On the strength of this information, total negotiated wages are expected to increase by 2.6% for 2013. Owing to the stuttering economy, overpayments are expected to decline, resulting in a negative wage drift of 0.2 percentage points. With a projected increase in compensation per employee of 2.4%, real wage growth will come to 0.7%. As in 2012, this means corporate profit margins will also narrow in 2013. Owing to easing inflation, overall wage settlements of only +2.3% are anticipated for 2014. Since growth in unit wage costs will fall short of the increase in the GDP deflator in 2014, companies will see profit margins widen again. Price pressures are not expected on the production front, as the output gap will remain negative over the entire forecast horizon.

Chart 3

HICP Inflation Rate and Contributions of Subcomponents

Contributions to growth in percentage points

Last observation: October 2012



Source: OeNB, Statistics Austria.

Table 9

Selected Price and Cost Indicators for Austria

	2011	2012	2013	2014
	<i>Annual change in %</i>			
Harmonised Index of Consumer Prices (HICP)	+3.6	+2.5	+1.7	+1.6
HICP energy	+11.3	+5.2	-1.2	-1.0
HICP excluding energy	+2.8	+2.2	+2.0	+1.8
Private consumption expenditure (PCE) deflator	+3.5	+2.8	+1.8	+1.6
Investment deflator	+2.3	+2.1	+1.2	+1.5
Import deflator	+5.7	+1.6	+1.6	+1.6
Export deflator	+3.7	+1.4	+1.5	+1.7
Terms of trade	-2.0	-0.2	+0.0	+0.0
GDP at factor cost deflator	+2.2	+2.2	+1.8	+1.5
Unit labor costs	+0.9	+3.7	+2.3	+1.1
Compensation per employee	+1.9	+3.1	+2.4	+2.2
Labor productivity	+0.9	-0.7	+0.1	+1.0
Collectively agreed wage settlements	+2.0	+3.3	+2.6	+2.3
Profit margins ¹	+1.3	-1.5	-0.5	+0.4

Source: 2011: Eurostat, Statistics Austria; 2012 to 2014: OeNB December 2012 outlook.

¹ GDP deflator divided by unit labor costs.

7 External Downside Risks Outweigh Domestic Upside Risks

This forecast describes the most likely way, from a current perspective, the Austrian economy will develop in the period from 2012 to 2014. There exist, however, a number of factors which together represent a downside risk to the economy.

From a global perspective, developments in the euro area still remain the most significant risk. In recent years, a number of countries have seen the implementation of many reforms that have been very painful in some cases. Recently, in the struggle to prevent imminent Greek bankruptcy, the situation was eased with the agreement to disburse the next few tranches. However, it cannot be considered guaranteed that the countries concerned will implement all the necessary structural reforms and consolidation measures in future. As a result, renewed uncertainty on the part of the financial markets could increase risk premiums again and make the refinancing of the countries concerned more expensive. By

contrast, speedy reform in the countries concerned may bring about a faster-than-expected recovery.

A further external risk is associated with the potential repercussions of the “fiscal cliff” for the U.S. economy. Although the fiscal cliff is included in a good part of this forecast, the calculation of the impact is based on a low fiscal multiplier of 0.3. However, the fiscal contraction might also have larger repercussions on the U.S. economy. If, by contrast, Congress agrees by end-2012 to further extend the tax break measures and lift the debt ceiling, U.S. growth may prove stronger than expected by this forecast. Further risks to the global economy are posed by a number of potential geopolitical hotspots. In addition to the unstable political situation in the Middle East and in Arab Spring countries, the conflict between China and Japan concerning the Senkaku (Japanese name) or Diaoyu (Chinese name) archipelago is the latest to be admitted to the category of geopolitical risks. The outlook for the euro area is based on a “mud-

dling through” scenario, according to which it is assumed that the sovereign debt crisis in the euro area will neither get worse nor find a fast solution. Domestic demand in Austria also poses upside risks. Owing to an excellent corporate profit situation, investment growth may quite possibly turn out higher if sales expectations rise. If consumer sentiment looks up, consumers could finance higher consumption growth by lowering the saving ratio.

Most short to medium-term risks to inflation currently point to the downside. The downside risk to the global economy also means a downside risk to prices since overcapacity currently prevails worldwide. Should geopolitical risks become applicable, this situation may fuel inflation via higher commodity prices. In the medium term, currently low inflation expectations could climb to a higher level, giving rise to an uptick in inflation.

8 Forecast Revised Primarily owing to Slacker Export Demand

The external environment has significantly deteriorated since the OeNB June 2012 outlook. The underlying assumptions on the growth of global trade had to be sharply revised downward. We have lowered our growth expectations for Austria’s export markets by a total of 5.8 percentage points over the forecast horizon. The weaker global economy is also reflected in lower oil prices. Expansionary monetary policy induced a dip in both short-term and long-term interest rates, compared with the June 2012 outlook. Compared with the OeNB June 2012 outlook, the underlying assumptions on exchange rate developments remain almost unchanged.

The effects of these new external assumptions were simulated using the OeNB macroeconomic model. Table 11

Table 10

Change in the External Economic Conditions since the OeNB June 2012 Outlook

	December 2012			June 2012			Difference		
	2012	2013	2014	2012	2013	2014	2012	2013	2014
<i>Annual change in %</i>									
Growth of Austria's export markets	+1.3	+2.7	+5.9	+3.1	+6.1	+6.5	-1.8	-3.4	-0.6
Competitor prices in Austria's export markets	+3.1	+1.6	+1.5	+3.4	+1.8	+1.7	-0.3	-0.2	-0.2
Competitor prices in Austria's import markets	+2.2	+1.4	+1.5	+2.6	+1.9	+1.8	-0.4	-0.5	-0.3
<i>USD per barrel (Brent)</i>									
Oil price	111.7	105.0	100.5	115.7	109.3	103.1	-4.0	-4.3	-2.6
<i>Annual change in %</i>									
Nominal effective exchange rate (exports)	+1.5	+0.3	+0.0	+1.1	+0.1	+0.0	+0.4	+0.2	+0.0
Nominal effective exchange rate (imports)	+0.7	+0.2	+0.0	+0.6	+0.1	+0.0	+0.1	+0.1	+0.0
%									
Three-month interest rate	0.6	0.2	0.3	0.8	0.7	1.0	-0.2	-0.5	-0.7
Long-term interest rate	2.4	2.1	2.5	2.9	3.1	3.5	-0.5	-1.0	-1.0
<i>Annual change in %</i>									
U.S. GDP (real)	+2.2	+1.9	+2.6	+2.2	+2.2	+2.8	+0.0	-0.3	-0.2
<i>USD/EUR</i>									
USD/EUR exchange rate	1.28	1.28	1.28	1.31	1.31	1.31	-0.03	-0.03	-0.03

Source: Eurosystem.

Table 11

Breakdown of Forecast Revisions

	GDP			HICP		
	2012	2013	2014	2012	2013	2014
	<i>Annual change in %</i>					
December 2012 outlook	+0.4	+0.5	+1.7	+2.5	+1.7	+1.6
June 2012 outlook	+0.9	+1.7	+2.1	+2.4	+1.7	+1.9
Difference	-0.5	-1.2	-0.4	+0.1	+0.0	-0.3
	<i>Percentage points</i>					
Due to:						
External assumptions	-0.1	-0.6	-0.3	+0.0	+0.0	-0.2
New data	-0.3	-0.3	+0.0	+0.1	+0.0	+0.0
<i>of which: Revision of historical data until Q1 12</i>	-0.1	+0.0	+0.0	+0.0	x	x
<i>Projection errors for Q2 12 and Q3 12</i>	-0.2	-0.2	+0.0	+0.1	x	x
Other ¹	-0.1	-0.3	-0.1	+0.0	+0.0	-0.1

Source: OeNB December 2012 and June 2012 outlooks.

¹ Different assumptions about trends in domestic variables such as wages, government consumption, effects of tax measures, other changes in assessment and model changes.

lists the reasons for revising the outlook in detail. Apart from the effects of changed external assumptions, they are attributable to the impact of new data and to a residual. 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 2012) 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 quarter of 2012). The residual includes new expert opinions regarding the development of domestic variables, such as government consumption or wage settlements, as well as any changes to the model.

The downward revision of 0.5 percentage points for 2012 is explicable primarily by the effect of new data. First, historical data up to the first quarter of 2012 were revised down.

Second, growth in the second and third quarter of 2012 was lower than had been expected in June 2012. The more unfavorable external assumptions go only half way to explaining the sharp downward revision of growth by 1.2 percentage points for 2013. One-fourth of the revision (0.3 percentage points) is explained by the lower statistical overhang from 2012 owing to the June 2012 outlook overestimating growth in the second and third quarter. The residual difference of 0.3 percentage points is explicable neither by new data nor by external assumptions and reflects the effect of deteriorating domestic demand sentiment. External assumptions largely explain the revisions for 2014.

The inflation outlook has barely changed despite the sharp revision of the growth outlook. The downward revision for 2014 is largely explicable by lower commodity prices.

Box 2

OeNB-BOFIT Outlook for Selected CESEE Countries: Renewed Slowdown Followed By Modest Recovery¹

Weak euro area growth in the first half of 2012 and dim prospects for the remainder of the year will deeply affect the CESEE-7² region. Following moderately strong growth between 2% and 3% in 2010 and 2011, GDP in the region will expand by only 1.2% in 2012. Growth is projected to pick up slightly to 2.2% in 2013 and 2.8% in 2014, backed by a moderate revival of domestic demand. Individual growth rates across the region will remain diverse over the entire forecast horizon, but all countries are expected to enter positive territory from 2013 onward.

For Russia, we maintain our forecast that annual GDP growth will moderate from 4.3% in 2011 to 3.7% both in 2012 and 2013, before reaching 3.4% in 2014. This assessment is based on the expectation that oil³ and commodity prices will slightly decline over the forecasting period against the background of persisting global weaknesses.

Croatia will only come out of recession slowly, with GDP growth rising from -1.8% in 2012 up to 0.5% and 1.4%, respectively, in 2013 and 2014.

GDP Projections for the Period from 2012 to 2014

	OeNB-BOFIT Outlook			IMF World Economic Outlook		
	2012	2013	2014	2012	2013	2014
	Year-on-year GDP growth in %					
CESEE-7	1.2	2.2	2.8	1.2	1.8	2.7
Bulgaria	0.8	1.6	2.1	1.0	1.5	2.5
Czech Republic	-0.7	1.5	2.3	-1.0	0.8	2.8
Hungary	-1.2	0.5	1.1	-1.0	0.8	1.6
Poland	2.5	2.8	3.4	2.4	2.1	2.7
Romania	0.8	2.4	2.7	0.9	2.5	3.0
Croatia	-1.8	0.5	1.4	-1.1	1.0	1.5
Russia	3.7	3.7	3.4	3.7	3.8	3.9

Source: OeNB, BOFIT, IMF.

Note: CESEE-7 = Bulgaria, the Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania.

Risks to these projections continue to hinge on developments in the euro area and are still biased downward. Even though recent policy moves and ongoing work to improve the institutional foundations of the monetary union have mitigated some of the downside risks, negative spillover risks from the euro area periphery remain elevated. Through its general impact on Europe, a weakening of global growth would also affect the region. On the other hand, swift political decisions leading toward the implementation of a European banking union, the avoidance of the fiscal cliff in the U.S. and a thus more favorable global economic development would pose upside risks to our projections.

The projections for the CESEE-7 countries hinge on growth developments in the euro area. Based on earlier simulation results, a further reduction of euro area growth by ½ percentage point in both 2012 and 2013 against our baseline scenario would most likely bring down CESEE-7 growth to about 1% in 2012 and slightly below 2% in 2013.

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² Bulgaria, the Czech Republic, Hungary, Latvia, Lithuania, Poland and Romania.

³ Compared to the 2011 average, the oil price is expected to decrease by less than 10% until end-2014, based on oil futures.

Bulgaria, the Czech Republic, Hungary, Poland and Romania: Weak Domestic and External Demand Is Denting Growth in 2012, Growth Will Pick Up Slowly in 2013 and 2014

External as well as internal factors will dampen GDP growth considerably in 2012. Lackluster external demand as implied by the current assumptions of a slight recession in the euro area in 2012, coupled with domestic factors that hold back growth in the region (such as ongoing consolidation efforts, deteriorating sentiment, tight credit and slack labor markets and country-specific domestic factors), will halve GDP growth in most countries as compared to 2011. In the Czech Republic and Hungary, GDP will even contract. Given a gradual improvement in net exports, which has been primarily driven by stagnating or even falling import demand rather than by (still moderate) export dynamics, the trough in growth dynamics should have been reached in mid-2012. However, growth will not pick up before the beginning of 2013, when domestic demand will slowly recover.

Given historically low levels of capacity utilization in most countries, no strong impetus is expected from gross fixed capital formation in 2012. However, prospective developments are diverse across countries: We expect investments to stagnate in Bulgaria and the Czech Republic, to fall further in Hungary, and to expand at a lower rate than in 2011 in Poland. Romania is the only country that will show a pronounced rise in gross fixed capital formation in 2012 thanks to a strong performance in the first half of the year.

Export and import growth rates are expected to fall markedly in 2012 and the contribution of net exports is forecast to diminish in all countries except Poland. Over the projection horizon, exports and imports will recover modestly. Their joint growth contribution, however, will decline further.

The risks to this outlook continue to be tilted downward and mainly result from various spillover risks arising from the euro area crisis countries. The risk of a turn in investor confidence due to a deepening of the euro area crisis remains, even if it does not seem imminent at the moment as recent institutional steps within the euro area and improvements in the regulatory framework for the banking sector can be seen to reduce this risk. However, further negative repercussions could arise from the global economy. The possibility of a sharp fiscal correction in the U.S. and the current slowdown of the recovery in Japan may dampen emerging countries' growth on a global scale and thus create an environment for prolonged anemic growth in Europe.

On the other hand, swift political decisions leading toward the implementation of a European banking union, the avoidance of the fiscal cliff in the U.S. and a thus more favorable global economic development would pose upside risks to our projections.

Russia: Economic Expansion Affected By Weakening External Environment

GDP growth in Russia is anticipated to slow to 3.7% for 2012 as a whole. Downward effects stem from heightened uncertainty in the global economy and trade, a leveling-off of the oil price and a drought-stricken harvest, while upward effects emanate from increased government expenditure. In 2013 and 2014, the downward impact of the slightly declining oil price will continue. However, economic growth in 2013 should keep up with the pace of 2012, as it is expected to be supported by a recovery of the global economy and a normalization of Russian farm output. For 2014, we foresee no particular forces that might offset the further weakening of the oil price, which explains the expected slight dip in the growth rate (to 3.4%).

Private consumption will remain the main driver of economic growth and import expansion. However, there are signs that consumption growth is losing its strong momentum again as households' expectations have become somewhat less optimistic. A re-invigoration of capital formation is hampered by economic uncertainty. In 2013 and 2014, though, fixed investment growth should gain ground again as uncertainties in the global economy subside. Rising demand will also start calling for larger additions to capacity. The low growth of

export volumes is projected to continue in the forecast period. Exports of crude oil and petroleum products remain limited by constrained production growth, while domestic demand for these goods is growing briskly. Growth estimates of Russian gas exports have been revised down, given mounting competition through the production of shale gas and the transport of gas in liquefied form.

Our forecast is mostly saddled with downside risks relating to uncertainty in the global economy. An aggravation of looming problems could affect demand and depress oil prices as well as the volume of Russian exports. However, the development of global oil supplies is also uncertain, which could lead to an oil price rise that would benefit Russia. A deterioration of the global economy could impair Russian consumer confidence and delay the anticipated strengthening of fixed investments.

Croatia: Sagging Domestic Demand Continues to Depress Economic Activity

Following stagnation in 2011, economic output in Croatia will decline by 1.8% in 2012. In particular, private consumption will continue to recede due to persistent structural problems. At the same time, the necessary consolidation of public finances will put a strain on public consumption. Given the gloomy economic environment, investments will further decline. In combination with strongly falling private consumption, this will also bring down imports. As exports will decline more slowly than imports, the contribution of net exports to GDP growth will remain slightly positive in 2012.

In 2013, GDP growth is expected to remain subdued (0.5%) owing to depressed economic activity at the beginning of the year, followed by some positive signs of economic easing throughout the remaining year. Private consumption will remain weak due to ongoing structural problems, but will slightly pick up in the course of 2013 thanks to base effects arising from the VAT hike and positive consumer sentiment related to EU accession on July 1, 2013. As consolidation needs remain, there will be no leeway for public consumption to strengthen GDP growth. By contrast, investments in the private sector are expected to revive after having contracted for many years. A slight recovery in domestic demand will contribute to positive import growth; exports will recover more slowly, resulting in a minor negative contribution of net exports to GDP growth in 2013.

In 2014, economic activity is expected to pick up, with GDP growth amounting to 1.4%. The main growth drivers will be private consumption, provided that structural problems are addressed by policymakers and that investments gain ground. Public consumption, on the other hand, will remain depressed. The contribution of net exports to GDP growth will remain negative and prevent a more vivid recovery.

Annex: Detailed Result Tables

Table 12

Demand Components (Real Prices)

Chained volume data (reference year = 2005)

	2011	2012	2013	2014	2011	2012	2013	2014
	EUR million				Annual change in %			
Private consumption	144,294	144,705	145,360	146,910	+0.9	+0.3	+0.5	+1.1
Government consumption	49,798	50,212	50,670	51,195	+0.5	+0.8	+0.9	+1.0
Gross fixed capital formation	55,998	56,577	57,028	58,441	+6.3	+1.0	+0.8	+2.5
of which: Investment in plant and equipment	23,027	23,206	23,252	24,033	+10.4	+0.8	+0.2	+3.4
Residential construction investment	11,113	11,523	11,696	11,929	+1.9	+3.7	+1.5	+2.0
Investment in other construction	21,881	21,894	22,217	22,620	+4.7	+0.1	+1.5	+1.8
Changes in inventories (including statistical discrepancy)	5,137	4,492	4,230	4,476	x	x	x	x
Domestic demand	255,226	255,986	257,288	261,022	+2.3	+0.3	+0.5	+1.5
Exports of goods and services	153,432	156,203	160,487	169,395	+7.1	+1.8	+2.7	+5.6
Imports of goods and services	139,172	141,524	145,727	153,632	+7.0	+1.7	+3.0	+5.4
Net exports	14,261	14,679	14,761	15,764	x	x	x	x
Gross domestic product	269,487	270,665	272,049	276,785	+2.7	+0.4	+0.5	+1.7

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

Table 13

Demand Components (Current Prices)

	2011	2012	2013	2014	2011	2012	2013	2014
	EUR million				Annual change in %			
Private consumption	163,428	168,527	172,322	176,900	+4.4	+3.1	+2.3	+2.7
Government consumption	56,814	58,761	59,945	61,538	+2.5	+3.4	+2.0	+2.7
Gross fixed capital formation	64,229	66,265	67,617	70,345	+8.7	+3.2	+2.0	+4.0
Changes in inventories (including statistical discrepancy)	7,426	6,145	5,901	6,347	x	x	x	x
Domestic demand	291,896	299,697	305,785	315,130	+5.9	+2.7	+2.0	+3.1
Exports of goods and services	171,030	176,549	184,202	197,642	+11.0	+3.2	+4.3	+7.3
Imports of goods and services	161,790	167,185	174,829	187,349	+13.0	+3.3	+4.6	+7.2
Net exports	9,240	9,364	9,372	10,293	x	x	x	x
Gross domestic product	301,136	309,061	315,157	325,423	+5.1	+2.6	+2.0	+3.3

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

Table 14

Deflators of Demand Components

	2011	2012	2013	2014	2011	2012	2013	2014
	2005 = 100				Annual change in %			
Private consumption	113.3	116.5	118.5	120.4	+3.5	+2.8	+1.8	+1.6
Government consumption	114.1	117.0	118.3	120.2	+2.1	+2.6	+1.1	+1.6
Gross fixed capital formation	114.7	117.1	118.6	120.4	+2.3	+2.1	+1.2	+1.5
Domestic demand (excluding changes in inventories)	113.7	116.7	118.5	120.4	+2.9	+2.6	+1.5	+1.6
Exports of goods and services	111.5	113.0	114.8	116.7	+3.7	+1.4	+1.5	+1.7
Imports of goods and services	116.2	118.1	120.0	121.9	+5.7	+1.6	+1.6	+1.6
Terms of trade	95.9	95.7	95.7	95.7	-2.0	-0.2	+0.0	+0.0
Gross domestic product	111.7	114.2	115.8	117.6	+2.4	+2.2	+1.5	+1.5

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

Table 15

Labor Market

	2011	2012	2013	2014	2011	2012	2013	2014
	Thousands				Annual change in %			
Total employment	4,138.9	4,184.4	4,200.2	4,229.1	+1.7	+1.1	+0.4	+0.7
of which: Private sector employment	3,607.1	3,653.3	3,669.8	3,699.4	+2.0	+1.3	+0.5	+0.8
Payroll employment (national accounts definition)	3,591.3	3,634.7	3,649.4	3,675.0	+2.0	+1.2	+0.4	+0.7
	% of labor supply							
Unemployment rate (Eurostat definition)	4.2	4.4	4.7	4.7	x	x	x	x
	EUR per real output unit x 100							
Unit labor costs (whole economy) ¹	63.4	65.7	67.2	68.0	+0.9	+3.7	+2.3	+1.1
	EUR thousand per employee							
Labor productivity (whole economy) ²	65.1	64.7	64.8	65.4	+0.9	-0.7	+0.1	+1.0
	EUR thousand							
Real compensation per employee ³	36.4	36.5	36.7	37.0	-1.5	+0.2	+0.6	+0.6
	At current prices in EUR thousand							
Gross compensation per employee	41.3	42.5	43.6	44.5	+1.9	+3.1	+2.4	+2.2
	At current prices in EUR million							
Total gross compensation of employees	148,165	154,546	158,959	163,549	+3.9	+4.3	+2.9	+2.9

Source: 2011: Eurostat; 2012 to 2014: OeNB December 2012 outlook.

¹ Gross wages divided by real GDP.

² Real GDP divided by total employment.

³ Gross wages per employee divided by the private consumption expenditure (PCE) deflator.

Table 16

Current Account

	2011	2012	2013	2014	2011	2012	2013	2014
	EUR million				% of nominal GDP			
Balance of trade	6,149.0	5,333.3	5,910.3	7,424.8	2.0	1.7	1.9	2.3
Balance on goods	-7,501.0	-9,292.0	-9,396.4	-9,438.6	-2.5	-3.0	-3.0	-2.9
Balance on services	13,650.0	14,625.3	15,306.7	16,863.4	4.5	4.7	4.9	5.2
Balance on income	-2,489.0	309.1	223.4	272.5	-0.8	0.1	0.1	0.1
Balance on transfers	-1,919.0	-293.8	-1,301.3	-1,394.3	-0.6	-0.1	-0.4	-0.4
Current account	1,741.0	5,348.6	4,832.5	6,303.1	0.6	1.7	1.5	1.9

Source: 2011: OeNB; 2012 to 2014: OeNB December 2012 outlook.

Table 17

Quarterly Outlook Results

	2012	2013	2014	2012				2013				2014			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<i>Annual change in %</i>															
Prices, wages and costs															
HICP	+2.5	+1.7	+1.6	+2.7	+2.3	+2.4	+2.6	+2.1	+1.8	+1.7	+1.4	+1.5	+1.6	+1.6	+1.6
HICP (excluding energy)	+2.2	+2.0	+1.8	+2.3	+2.1	+2.1	+2.4	+2.3	+2.0	+2.1	+1.8	+1.8	+1.8	+1.8	+1.9
Private consumption expenditure (PCE) deflator	+2.8	+1.8	+1.6	+3.0	+2.8	+3.0	+2.6	+2.2	+1.9	+1.4	+1.6	+1.7	+1.6	+1.6	+1.5
Gross fixed capital formation deflator	+2.1	+1.2	+1.5	+2.2	+2.8	+1.8	+1.7	+1.3	+0.6	+1.5	+1.5	+1.5	+1.5	+1.5	+1.5
GDP deflator	+2.2	+1.5	+1.5	+2.2	+2.2	+2.3	+2.0	+1.8	+1.5	+1.2	+1.3	+1.4	+1.5	+1.5	+1.5
Unit labor costs	+3.7	+2.3	+1.1	+3.3	+3.7	+4.0	+3.9	+3.4	+2.8	+1.8	+1.2	+0.9	+0.9	+1.2	+1.4
Nominal wages per employee	+3.1	+2.4	+2.2	+2.5	+2.9	+3.4	+3.4	+3.0	+2.6	+2.1	+2.0	+1.9	+2.0	+2.3	+2.5
Productivity	-0.7	+0.1	+1.0	-0.8	-0.8	-0.6	-0.5	-0.4	-0.2	+0.3	+0.8	+1.0	+1.1	+1.1	+1.0
Real wages per employee	+0.2	+0.6	+0.6	-0.5	+0.2	+0.5	+0.8	+0.8	+0.7	+0.7	+0.4	+0.3	+0.4	+0.7	+1.0
Import deflator	+1.6	+1.6	+1.6	+2.5	+1.5	+1.2	+1.4	+1.3	+1.6	+1.7	+1.6	+1.6	+1.6	+1.7	+1.7
Export deflator	+1.4	+1.5	+1.7	+2.1	+1.4	+1.0	+1.0	+1.3	+1.5	+1.7	+1.7	+1.6	+1.6	+1.7	+1.8
Terms of trade	-0.2	+0.0	+0.0	-0.4	+0.0	-0.1	-0.3	-0.1	-0.1	+0.0	+0.1	-0.1	+0.0	+0.0	+0.1
<i>Annual and/or quarterly changes in % (real)</i>															
Economic activity															
GDP	+0.4	+0.5	+1.7	+0.3	+0.1	-0.1	-0.1	+0.1	+0.2	+0.4	+0.4	+0.4	+0.5	+0.5	+0.5
Private consumption	+0.3	+0.5	+1.1	+0.0	+0.0	+0.0	+0.2	+0.1	+0.1	+0.1	+0.2	+0.3	+0.3	+0.4	+0.4
Government consumption	+0.8	+0.9	+1.0	+0.2	+0.4	+0.5	-0.8	+0.6	+0.5	+0.4	+0.3	+0.2	+0.2	+0.2	+0.2
Gross fixed capital formation	+1.0	+0.8	+2.5	+0.0	-0.3	-0.2	-0.1	+0.2	+0.5	+0.6	+0.6	+0.6	+0.6	+0.6	+0.6
Exports	+1.8	+2.7	+5.6	+0.4	+0.6	+0.9	+0.2	+0.4	+0.9	+1.1	+1.2	+1.4	+1.5	+1.6	+1.6
Imports	+1.7	+3.0	+5.4	+0.1	+0.7	+1.2	+0.1	+0.5	+1.0	+1.0	+1.2	+1.4	+1.5	+1.5	+1.5
<i>Contribution to real GDP growth in percentage points</i>															
Domestic demand	+0.5	+0.6	+1.3	+0.1	+0.0	+0.1	-0.1	+0.2	+0.2	+0.3	+0.3	+0.3	+0.3	+0.4	+0.4
Net exports	+0.2	+0.0	+0.4	+0.2	+0.0	-0.1	+0.0	+0.0	+0.0	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2
Changes in inventories	-0.2	-0.1	+0.1	+0.1	+0.1	-0.1	+0.0	-0.1	+0.0	+0.0	+0.0	+0.0	+0.0	+0.0	+0.0
<i>% of labor supply</i>															
Labor market															
Unemployment rate (Eurostat definition)	4.4	4.7	4.7	4.2	4.3	4.5	4.6	4.7	4.7	4.7	4.7	4.8	4.7	4.7	4.7
<i>Annual and/or quarterly changes in %</i>															
Total employment	+1.1	+0.4	+0.7	+0.3	+0.1	+0.2	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.2	+0.3	+0.3
of which: Private sector employment	+1.3	+0.5	+0.8	+0.4	+0.2	+0.2	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.3	+0.3	+0.4
Payroll employment	+1.2	+0.4	+0.7	+0.3	+0.3	+0.2	+0.1	+0.1	+0.1	+0.1	+0.1	+0.2	+0.2	+0.3	+0.3
<i>Annual and/or quarterly changes in % (real)</i>															
Additional variables															
Real disposable household income	+0.4	+0.3	+1.4	-0.9	+0.9	-2.5	+0.3	+0.5	+0.4	+0.6	+0.4	+0.2	+0.3	+0.3	+0.5
<i>% of real GDP</i>															
Output gap	-0.7	-1.5	-1.3	-0.1	-0.3	-0.8	-1.3	-1.6	-1.6	-1.5	-1.3	-1.3	-1.3	-1.3	-1.2

Source: OeNB December 2012 outlook (based on seasonally and working-day adjusted data).

Table 18

Comparison of Current Economic Forecasts for Austria

Indicator	OeNB			WIFO		IHS		OECD			IMF		European Commission		
	December 2012			September 2012		September 2012		November 2012			October 2012		November 2012		
	2012	2013	2014	2012	2013	2012	2013	2012	2013	2014	2012	2013	2012	2013	2014
Key results															
<i>Annual change in %</i>															
GDP (real)	+0.4	+0.5	+1.7	+0.6	+1.0	+0.8	+1.3	+0.6	+0.8	+1.8	+0.9	+1.1	+0.8	+0.9	+2.1
Private consumption (real)	+0.3	+0.5	+1.1	+0.6	+0.7	+0.8	+1.1	+0.2	+0.4	+1.0	x	x	+0.2	+0.5	+1.1
Government consumption (real)	+0.8	+0.9	+1.0	+1.5	+0.0	+0.3	+0.0	+1.2	+0.2	+0.1	x	x	+1.3	+0.8	+1.3
Gross fixed capital formation (real)	+1.0	+0.8	+2.5	+1.1	+1.5	+1.2	+1.4	+1.6	+1.2	+3.0	x	x	+1.6	+0.9	+2.9
Exports (real)	+1.8	+2.7	+5.6	+0.8	+4.2	+1.6	+4.0	+1.7	+3.5	+6.9	+1.2	+2.6	+1.5	+3.9	+5.9
Imports (real)	+1.7	+3.0	+5.4	+0.5	+3.7	+1.1	+3.6	+1.0	+2.9	+6.1	+1.0	+3.3	+1.1	+3.4	+5.6
GDP per employee	-0.7	+0.1	+1.0	-0.9	+0.3	-0.6	+0.8	x	x	x	x	x	-0.3	+0.2	+1.2
GDP deflator	+2.2	+1.5	+1.5	+1.9	+1.5	+2.0	+1.7	+2.0	+1.7	+1.4	x	x	+2.0	+1.6	+2.2
CPI	x	x	x	+2.3	+2.1	+2.3	+2.0	x	x	x	x	x	x	x	x
HICP	+2.5	+1.7	+1.6	+2.4	+2.2	x	x	+2.4	+1.9	+1.6	+2.3	+1.9	+2.4	+1.8	+1.9
Unit labor costs	+3.7	+2.3	+1.1	+4.1	+1.8	x	x	x	x	x	x	x	+3.2	+1.9	+0.8
Payroll employment	+1.1	+0.4	+0.7	+1.5	+0.5	+1.4	+0.5	x	x	x	+1.3	+0.4	+1.1	+0.7	+0.9
<i>% of labor supply</i>															
Unemployment rate (Eurostat definition)	4.4	4.7	4.7	4.4	4.8	4.4	4.6	4.4	4.7	4.7	4.3	4.5	4.5	4.7	4.2
<i>% of nominal GDP</i>															
Current account	1.7	1.5	1.9	2.3	2.6	x	x	1.8	2.0	2.5	1.9	1.6	1.1	1.2	1.6
Budget balance (Maastricht definition)	-3.0	-2.1	-1.8	-2.9	-2.6	-2.9	-2.3	-3.1	-2.7	-2.1	-2.9	-2.1	-3.2	-2.7	-1.9
External assumptions															
Oil price in USD/barrel (Brent)	111.7	105.0	100.5	110.0	110.0	112.0	117.0	110.0	115.0	120.0	106.2	105.1	112.5	109.1	103.1
Short-term interest rate in %	0.6	0.2	0.3	0.7	0.7	0.6	0.5	0.6	0.2	0.1	0.6	0.2	0.6	0.3	0.5
USD/EUR exchange rate	1.28	1.28	1.28	1.25	1.25	1.27	1.24	1.27	1.27	1.27	1.27	1.24	1.29	1.30	1.30
<i>Annual change in %</i>															
Euro area GDP (real)	-0.6 to -0.4	-0.9 to +0.3	+0.2 to +2.2	-0.4	+0.4	-0.4	+0.5	-0.4	-0.1	+1.3	-0.4	+0.2	-0.4	+0.1	+1.4
U.S. GDP (real)	+2.2	+1.9	+2.6	+2.2	+1.8	+2.3	+2.0	+2.2	+2.0	+2.8	+2.2	+2.1	+2.1	+2.3	+2.6
World GDP (real)	+3.1	+3.3	+4.0	+3.1	+3.3	x	x	+2.9	+3.4	+4.2	+3.3	+3.6	+3.1	+3.3	+3.9
World trade	+3.0	+4.1	+7.0	+3.5	+4.8	+2.8	+4.0	+2.8	+4.7	+6.8	+3.2	+4.5	+3.5	+4.3	+5.9

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

The Cross-Border Movement of Euro Banknotes and Austria's TARGET2 Liabilities

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In the public and academic discussion on the payment system TARGET2, the high claims and liabilities of some euro area countries have mostly been associated with the financial crisis. The implicit assumption that TARGET2 balances would be close to zero without the financial crisis is both theoretically and empirically wrong, though. This study looks into the payment mechanisms that have caused the TARGET2 liabilities of the Oesterreichische Nationalbank (OeNB) to rise to a substantial level over the past ten years. The increase can be attributed to a structurally-induced inflow of banknotes to the OeNB, which is partly due to tourism but above all to the physical shipment of euro cash from countries outside monetary union into Austria. This central bank money, which comes to Austria as cash, leaves the country in cashless form, causing an equivalent increase in the OeNB's TARGET2 liabilities. Structurally-induced in- and outflows of central bank money (in cashless form or as banknotes) can be observed in other euro area countries, too. Understanding these flows is essential for a correct interpretation of TARGET2 balances during and after the current crisis.

JEL classification: E42, E52, E58, F32, F33

Keywords: Austria, EMU, TARGET2, currency abroad, banknote migration, balance of payments, payment system, financial crisis

TARGET2 is the most important payment system for euro-denominated large value transactions (Kokkola, 2010). It is operated jointly by the national central banks (NCBs) that form the Euro-system; cross-border payments between participants in the euro area are reflected in the balance sheets of the NCBs. At end-November 2012, the OeNB reported a EUR 39.2 billion TARGET2 liability in its balance sheet – this is the amount by which euro transfers from Austria via TARGET2 and its predecessor TARGET have exceeded such transfers into Austria since the inception of monetary union.

The TARGET2 claims and liabilities of some euro area countries have increased sharply during the current financial and economic crisis, sparking a public debate in which some maintain that the high balances are problematic

in themselves, while others interpret them as mere side effects of the banking and sovereign debt crisis and emphasize that they do not deserve special consideration.² What the two positions have in common is that they associate the high TARGET2 liabilities with the financial and economic crisis. The ECB itself writes in its 2011 Annual Report: “Before the financial and sovereign debt crisis, the NCBs’ TARGET2 claims and liabilities were relatively stable. This is because the cross-border payment flows tended to be broadly balanced across euro area countries.” (ECB, 2012a, p. 35).

Even though the current size of claims and liabilities is without doubt connected to the crisis, the assertion that TARGET2 balances would be close to zero or at least stable without the crisis is both theoretically and empirically wrong (Jobst, 2011; Jobst et al.,

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² The literature in this field has become very extensive. For the view that high TARGET2 balances pose a problem in themselves, see above all Sinn and Wöllmershäuser (2012) and most contributions in *ifo Schnelldienst* (2011). For the argument that large TARGET2 balances are a side effect of the banking and sovereign debt crisis, see e.g. Allen and Moessner (2012), Bindseil and König (2012), Buiter et al. (2011), Cecchetti et al. (2012) and Ulbrich and Lippuner (2011). An econometric analysis that comes to the same conclusion can be found in Auer (2012).

Refereed by:
Jens Ulbrich,
Alexander Lippuner,
Deutsche Bundesbank

2012; Boeckx and König, 2012).³ After all, the OeNB's TARGET2 liabilities have not surged all of a sudden during the crisis but have grown slowly and continuously since the inception of monetary union.

This study examines the structural mechanisms of cross-border banknote flows and cashless payments that have caused the OeNB's TARGET2 liabilities to increase to a substantial level over the past ten years. In order to understand TARGET2 balances we have to look at central bank money in both cash and cashless form, i.e. banknotes as well as balances held with an NCB which can be used in TARGET2 transactions. In fact, the increase in the OeNB's *TARGET2 liabilities* has been accompanied by an accumulation of roughly equivalent *claims* in cash due to *banknote inflows*: At the end of November 2012, the OeNB disclosed claims of EUR 41.5 billion in its balance sheet related to the adjustment of banknotes in circulation, which means that, since the beginning of monetary union, most of the time more cash has been returned to the OeNB than the OeNB has put into circulation. This contribution shows that the OeNB's TARGET2 balance can be largely explained by these structural inflows, which, in turn, are associated with the large role tourism plays in the Austrian economy and, even more so, with the specific role of Austrian banks and the OeNB in the physical shipment of euro banknotes to and from countries outside the euro area.

This empirical result is not only relevant for an interpretation of Aus-

tria's TARGET2 balance. It also shows that intra-Eurosystem claims and liabilities will not disappear after the end of the current crisis – for structural reasons positions can be expected to diverge ever more in the long run. At the same time, this result makes clear that restrictions on, or periodic settlement of, TARGET2 balances – as proposed e.g. by Sinn and Wollmershäuser (2012) – would not only be impractical but would also seriously impair the normal functioning of monetary union. Surprisingly, there are only few studies on the determinants of cash and cashless payment flows in monetary union.⁴ A better understanding of these flows is indispensable if we wish to avoid the misinterpretation of claims and liabilities between the Eurosystem central banks.

1 Migration of Central Bank Money to and from Austria

TARGET2 transactions must be settled in central bank money. To initiate a payment, a commercial bank participating in TARGET2 must have sufficient funds in its current account (or an adequately collateralized credit line) with its home central bank.

In case of a domestic TARGET2 transaction, the respective NCB simply debits the current account of the sending bank and credits the amount to the current account of the receiving bank. No cross-border claims or liabilities arise, as only one central bank is involved. In case of cross-border transactions, however, the ECB functions as the central counterparty.⁵ While the NCB that debited the current account of

³ See Haran and Bailey (2012) for some additional factors that may have an impact on TARGET2 balances but are unrelated to the crisis.

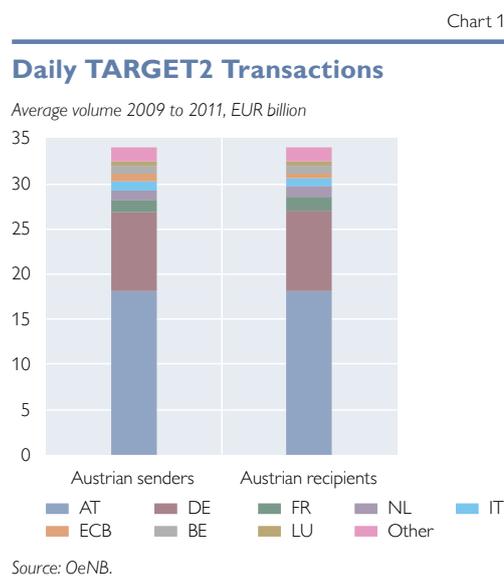
⁴ See Schautzer (2006), Schneeberger and Süß (2007) as well as Bartzsch et al. (2011a, 2011b) on banknote migration in monetary union.

⁵ This is a simplified description. In reality, all bilateral claims and liabilities are netted out and the resulting balance is transferred to or from the ECB at the end of each day. See Jobst et al. (2012) for a detailed description.

the sending bank now has a liability to the ECB, the NCB that credited the amount to the current account of the receiving bank now has a claim on the ECB.⁶ The sum total of all these balances (net assets and liabilities) of the 18 Eurosystem central banks (including the ECB) is zero, as these balances simply reflect the cross-border flows of available euro liquidity within a closed system. The existence of net balances between the NCBs and the ECB is a consequence of the decentralized nature of the organization of payments transfers in the euro area. If the euro area had only one central bank (as many other single currency regions do), all payment system participants would hold their accounts at this central bank, where all transactions would sum to zero.

The value of payments settled every day in TARGET2 is substantial: Transactions involving Austrian participants alone have an average daily value of more than EUR 60 billion; the value of payments sent and received in the euro area as a whole is EUR 2,385 billion per day.⁷ This means that the average weekly value of TARGET2 transactions involving Austrian participants is roughly equivalent to the Austrian annual GDP. One-half of these transfers are domestic, while in cross-border transactions Germany is by far Austria's most important TARGET2 partner, both in terms of payments sent and payments received (chart 1).

Most of the time, payments sent and received tend to balance each other out over the course of a day. But if an NCB systematically records more incoming than outgoing payments (or vice versa), its claims (or liabilities) vis-à-vis the ECB increase over time. This is happening e.g. in Austria. In the first few years after the start of monetary union in 1999, the OeNB's TARGET balance was positive most of the time.⁸ Since 2002, however – with the exception of the period between 2007 and 2010 – the OeNB has in most months transferred higher amounts to other euro area countries than the other way around (chart 2). As a result, the OeNB's TARGET2 liabilities stood at EUR 39.2 billion by the end of November 2012.⁹



⁶ While this transaction leads to a shift in liabilities for the first central bank (lower current account liability, higher TARGET2 liability), it is a balance sheet expansion for the second central bank (higher current account liability, higher TARGET2 claim).

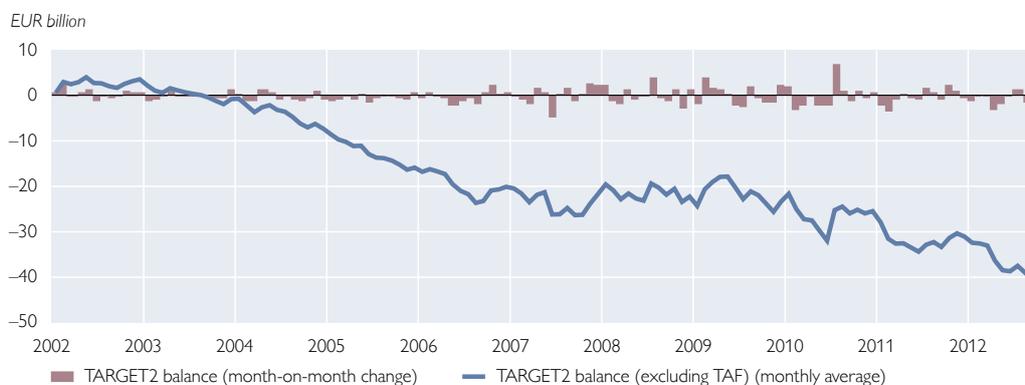
⁷ See the ECB's TARGET Annual Report 2011; the data on Austria were provided by the OeNB.

⁸ See Brandner and Grech (1999) for an overview of Austria's TARGET claims and liabilities in the first year of monetary union.

⁹ Chart 2 shows the OeNB's TARGET2 balance excluding the Term Auction Facility (TAF). TAFs are liquidity-providing operations in U.S. dollar conducted as swap operations between the ECB and the NCBs. The Federal Reserve Bank of New York provides U.S. dollar liquidity to the ECB, which in turn provides it to the NCBs. The resulting non-interest bearing liabilities within the Eurosystem are included among the NCBs' TARGET balances. Given that TAF balances are merely the result of a technical agreement (as they do not reflect cross-border payments in central bank money), the Austrian TARGET2 balances have been adjusted for TAFs.

Chart 2

The OeNB's TARGET2 Balance



Source: OeNB.

Besides credit institutions' central bank balances, banknotes are the second form of central bank money.¹⁰ Like central bank balances, banknotes can also move freely in a monetary union. Banknotes withdrawn in one country can be used for payment in another country. Unlike transfers of electronic central bank money in TARGET2, this banknote migration goes undetected at first, though. Cash is anonymous, and it is impossible to tell which NCB originally issued a banknote and when the banknote moved across borders.¹¹ The migration from one country to another becomes at least partly evident, however, when banknotes are returned to another country's NCB: The corresponding amount is credited to the current account of the commercial bank that returned the banknotes, and the current

account liabilities of this country's NCB increase. As it is impossible to tell which NCB originally issued the banknote, the total value of banknotes in circulation declines in the balance sheets of *all* NCBs and the ECB. The country's NCB to which the banknote was returned and whose liabilities have increased by the value of the banknote now receives a claim on the other Eurosystem central banks that is related to the adjustment of banknotes in circulation.¹² If the net value of banknotes put into circulation by an NCB (i.e. banknotes issued minus banknotes withdrawn from circulation) is higher than its share based on the banknote allocation key, it reports a net liability arising from the adjustment of banknotes in circulation. If an NCB issues fewer banknotes than that, it accumulates a net claim.

¹⁰ There are many forms of money, which – depending on their characteristics – can be allocated to different monetary aggregates (M1, M2 etc.). Central bank money (or M0) is the narrowest aggregate. By definition, its holders have a direct claim on the central bank. Other forms of money, e.g. current account balances, represent a claim vis-à-vis a commercial bank or a savings bank. Converting such deposits into central bank money takes another step (withdrawal). Coins are not included here, as in the euro area they are not issued by the central banks and thus do not constitute central bank liabilities (in line with Article 106 paragraph 2 of the EC Treaty).

¹¹ The first character of a banknote's serial number is a letter that uniquely identifies the NCB that commissioned the printing of the banknote. This country code does not indicate which NCB first issued (or re-issued) the banknote, and is therefore unsuited for identifying the issuing central bank.

¹² This is a simplified description. An example highlighting the effects on the NCBs' and the ECB's balance sheets is provided in the annex. For further details, see e.g. Handig and Holzfeind (2007) as well as Krsnakova and Oberleithner (2012).

The volume of banknote flows – like that of cashless payments – is substantial: In 2011, the OeNB put banknotes worth EUR 66.4 billion into circulation, and banknotes in the amount of EUR 73.1 billion were returned to it. For the euro area as a whole, the value of banknotes taken out of circulation was EUR 1,108 billion, while that of banknotes put into circulation was EUR 1,128 billion. Chart 3 shows the monthly value of banknotes issued by and returned to the OeNB. In almost all months since 2002 – with the exception of a few months around the introduction of euro cash in 2002 and the onset of the financial crisis in 2008, which led to an extreme peak in the demand for banknotes in October 2008 (see also section 3.2) – more banknotes were returned to the OeNB than it put into circulation. A similar phenomenon was observed within Austria during the schilling era, with banknotes mi-

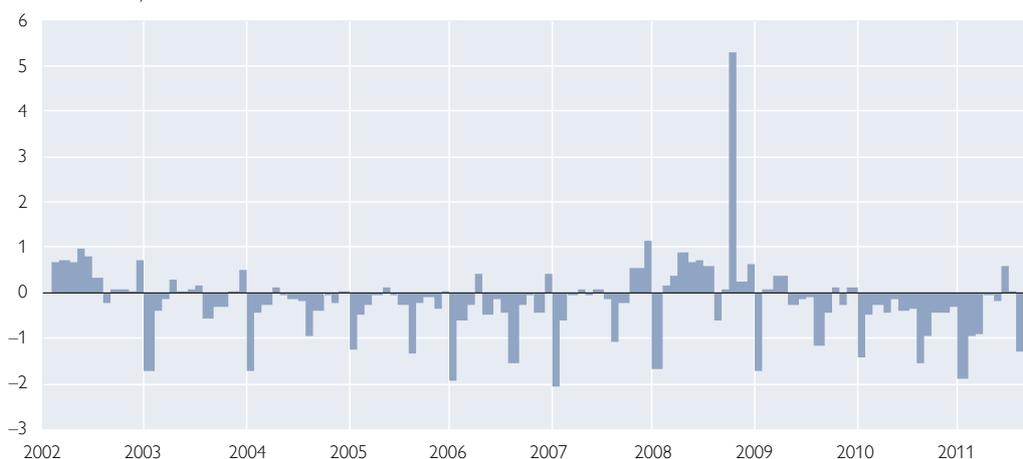
grating from Vienna and Lower and Upper Austria to the Tyrol and Carinthia due to differences in the regional demand for cash.¹³ Today, similar banknote flows can be observed in monetary union, with Germany reporting net outflows and Austria reporting net inflows (see also box 1).

Chart 4 displays how banknotes issued and returned are reflected in the OeNB's balance sheet. The graph for schilling banknotes in circulation shows an upward trend until the end of 2000, with typical seasonal fluctuations (above all due to the stronger demand for cash at the turn of the year). After the introduction of euro cash in early 2002, the value of schilling banknotes in circulation declined quickly. Since January 1, 2003, schilling banknotes have no longer been disclosed as banknotes in circulation.¹⁴ As described earlier, euro banknotes in circulation are allocated to the NCBs and the

Chart 3

Banknotes Issued by and Returned to the OeNB

EUR billion, monthly data



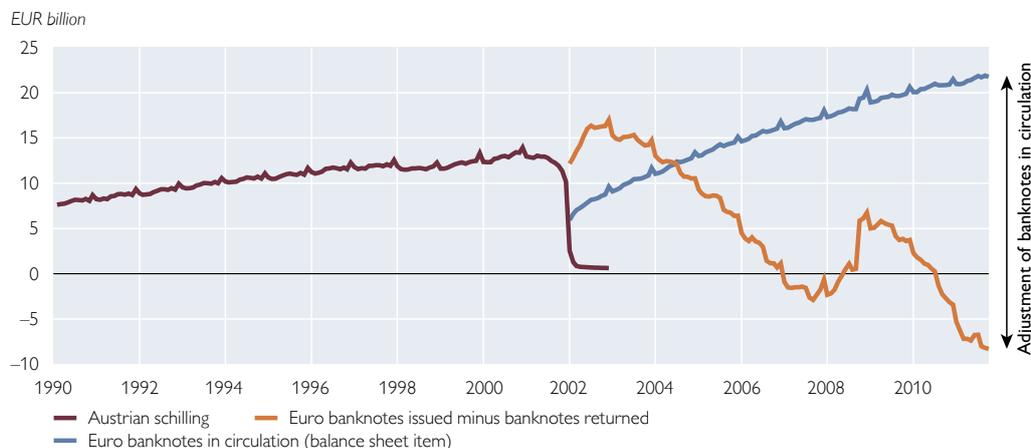
Source: OeNB.

¹³ Based on 1999 data.

¹⁴ In 2002, schilling banknotes and coins lost the status of legal tender, and new rules were established regarding the treatment of Eurosystem banknotes in the balance sheets of the Eurosystem NCBs (ECB/2001/15, as amended by ECB/2010/29).

Chart 4

The OeNB's Banknotes in Circulation



Source: OeNB. Monthly average values until end-2001, month-end values from 2002.

ECB based on the banknote allocation key. The blue line represents the OeNB's share in the sum total of euro banknotes in circulation, as disclosed in the balance sheet, whereas the orange line represents the actual net value of banknotes the OeNB put into circulation (i.e. banknotes put into minus those taken out of circulation). Starting in 2003, this net value declined quickly (chart 3), and even turned negative in 2006. In other words, between January 1, 2002, and the time of observation, more euro banknotes had been redelivered to the OeNB than it had put into circulation. In 2007 and 2008, this net value increased markedly, given the heightened demand for euro cash above all in Eastern and Southeastern Europe at the onset of the financial crisis (see also section 3.2). Since 2009, though, more euro cash has again been returned to the OeNB than it had put into circulation.

Overall, the analysis of the cross-border movement of central bank money to and from Austria reveals systematic net inflows of cash as well as net outflows in the form of cashless transactions in TARGET2.

2 The Link between Banknote Migration and TARGET2

A comparison of Austria's TARGET2 balances with data on the adjustment of banknotes in circulation reveals a remarkably parallel development (chart 5). In periods characterized by high net banknote inflows into Austria, more central bank money tends to be transferred abroad via TARGET2, and vice versa (chart 6).

This need not be the case, though. Cross-border movements of banknotes are determined by payment habits and other characteristics of cash payments. Likewise, TARGET2 transfers result from a multitude of transactions and motivations. In principle, the two are independent of each other, and the correlations between TARGET2 balances and the adjustment of banknotes in circulation as currently observed in other euro area countries are not high (box 1).

If, however, banknote inflows are substantial relative to the size of a country's economy – as has verifiably been the case for Austria – these inflows must at least partly be offset by outbound TARGET2 transactions.

Chart 5

The OeNB's Claims and Liabilities



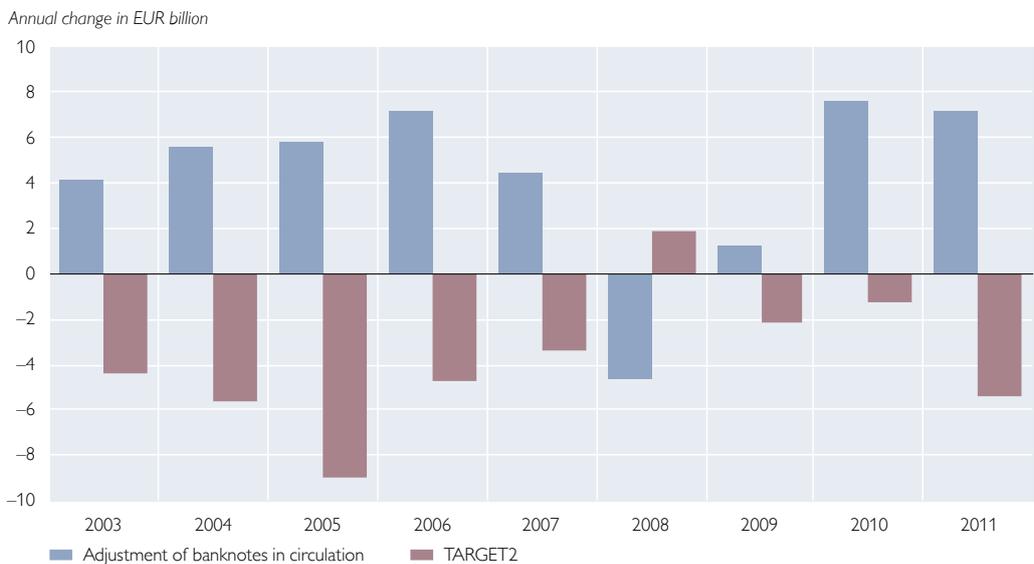
Source: OeNB.

The argument goes like this: When a commercial bank delivers banknotes to the OeNB, the corresponding amount is credited to its current account with the OeNB. However, commercial banks need only relatively

small amounts of funds in their accounts with the central bank. This amount is determined above all by the minimum reserves the banks are required to hold on average with the central bank over the maintenance

Chart 6

Correlation of Intra-Eurosystem Balances



Source: OeNB. This chart shows year-on-year changes of fourth-quarter averages.

period.¹⁵ It does not make sense for a commercial bank to hold larger deposits than that, as they are remunerated below market rates. As failure to comply with minimum reserve requirements results in penalty interest, however, commercial banks will aim at fulfilling their reserve requirements as precisely as possible on average over the reserve maintenance period, and at quickly withdrawing any excess funds.¹⁶

In the last pre-crisis year, 2006, the reserve requirements of all Austrian banks came to EUR 5.0 billion on average. In the four years preceding the onset of the current crisis (2003 to 2006), the average net value of banknotes migrating to Austria was around EUR 5 billion per year. If the Austrian banks decided to deposit these banknotes and increase their balances over the course of one year, their reserves would be twice as high as necessary and desirable at the end of the year. Therefore it is only logical that the banks will seek to reduce their deposits. One way of doing this is by purchasing securities or granting loans

to domestic customers, but this would just lead to a transfer of central bank deposits between Austrian banks without reducing excess reserves deposited with the OeNB in the aggregate.

For the banking sector as a whole, there are only two options available for reducing excess reserves: The banks can either repay their outstanding loans to the OeNB or transfer the funds abroad (e.g. to purchase securities or repay loans). There are limits to the use of the first option, though: In the period from 2003 to 2007, Austrian banks had debt outstanding to the OeNB in the amount of EUR 8.9 billion on average. Even if the banks delivering banknotes to the OeNB were identical with those that had debt outstanding to the OeNB – which is not necessarily the case – it would have taken them only two years to repay all liabilities. Further inflows would have again led to an accumulation of excess reserves. Therefore, only the second option remains in the long run, i.e. transferring the funds abroad. Cross-border transactions (such as the

Box 1

Banknote Migration and TARGET: A Look at the Balance Sheets of Other Eurosystem Central Banks

The OeNB is not the only central bank in the Eurosystem to record systematic in- or outflows of central bank money in cash or cashless form. Especially for banknotes, continuous flows in one or the other direction can be observed for several countries. For instance, the net value of banknotes put into circulation (banknotes issued minus banknotes taken out of circulation) by the Deutsche Bundesbank since 2002 has exceeded the share allocated to it in accordance with the banknote allocation key by almost EUR 200 billion. The respective figure for the Banque de Luxembourg is EUR 70 billion. In contrast, a few other countries besides Austria have recorded net banknote inflows (or disproportionately low issuance): France (EUR 75 billion),

¹⁵ The main reason why commercial banks hold central bank deposits (apart from the fulfillment of reserve requirements) is their role in the settlement of payment system transactions. As mentioned earlier, large value payments in TARGET2 must be settled in central bank money. This is why banks' deposits can fluctuate greatly in the course of a day.

¹⁶ In 2006, the reserves held by Austrian banks came to EUR 5.1 billion on average, which is 2.7% or EUR 133 million more than would have been required complying with the minimum reserve requirements. In the euro area, too, the liquidity situation was balanced until the fall of 2008, with reserves held by the banking sector being only negligibly higher than necessary. The situation changed when the full allotment policy was implemented in 2008. Therefore, the examples given above all refer to the years prior to 2007; see also box 1.

the Netherlands (EUR 30 billion) and Portugal (EUR 25 billion). For the smaller euro area countries, the respective balances from the adjustment of banknotes in circulation can be substantial as a ratio of nominal GDP: They are slightly above 10% for Portugal, almost 10% for both Austria and Ireland (albeit with a different sign) and 150% for Luxembourg. Interestingly, these in- and outflows have remained constant over time and have hardly changed at all during the financial crisis. The only exceptions are Belgium and Spain, where banknote flows reversed in 2008 (which is not necessarily connected to the financial crisis, however).

In- or outflows caused by structural factors can be observed for some countries also in TARGET, albeit at a significantly lower level. The chart below only shows the period up until 2007 for TARGET, i.e. the years before the crisis started to have a strong impact on TARGET balances. Until 2007, both Austria and Belgium were usually net exporters of central bank money in cashless form, whereas Italy was a net importer in most years. A comparison between banknote flows and TARGET balances shows, however, that a negative correlation between the two seems to have existed only in Austria and, to a somewhat lesser extent, in Belgium and Portugal. One possible explanation for the lacking correlation could be that in the other countries, banknote in- or outflows have so far not reached proportions that would make it necessary to offset them via TARGET.¹

Intra-Eurosystem Claims and Liabilities of Selected NCBs

Annual average in EUR billion and in % of nominal GDP for 2007 and 2012



Source: IMF International Financial Statistics. 2012 data refer to the period from January to August.

It should be noted that this mechanism is effective only if the liquidity situation in the euro area aggregate is balanced, with central bank reserves held by commercial banks being broadly equivalent to the amount necessary for the fulfillment of aggregate reserve requirements. In contrast, when the situation in the euro area is characterized by excess liquidity, as has been the case since fall 2008, banks have no (or much less) incentive to reduce excess reserves. On aggregate, the excess liquidity must show in the deposit facility. In this case, net liquidity provision can also turn negative (on a large scale), as was observed e.g. for the Deutsche Bundesbank at the end of 2012. As soon as the crisis-related nonstandard measures have expired, though, the effects of structural payment flows should become visible again in the NCBs' balance sheets.

¹ The mechanism described in section 2 works asymmetrically. High cash inflows must be offset via TARGET as soon as the refinancing volume with the central bank has dropped to zero. This limit does not exist for cash outflows, however, as the banks can increase their refinancing volumes as long as they fulfill the requirements for refinancing operations of the Eurosystem. This is why the Deutsche Bundesbank's and the Banque centrale du Luxembourg's liabilities from the adjustment of banknotes in circulation were not offset with TARGET claims but with higher claims stemming from monetary policy operations.

purchase of assets or the repayment of loans) are made via TARGET2, however, and when central bank money is transferred abroad via TARGET2, the OeNB's TARGET2 liabilities increase. This can explain why in Austria, TARGET2 balances and the adjustment of banknotes in circulation move (or rather, have to move) in tandem over a one- or two-year horizon.

A correct interpretation of the OeNB's TARGET2 liabilities and their evolution over time requires that we examine the reasons for banknote migration into Austria.

3 Reasons for Banknote Migration into Austria

In the following, we distinguish between two main channels through which banknotes can move across borders. The first channel is persons traveling to Austria on business or vacation who pay their expenses in euro banknotes which they had earlier withdrawn from a bank

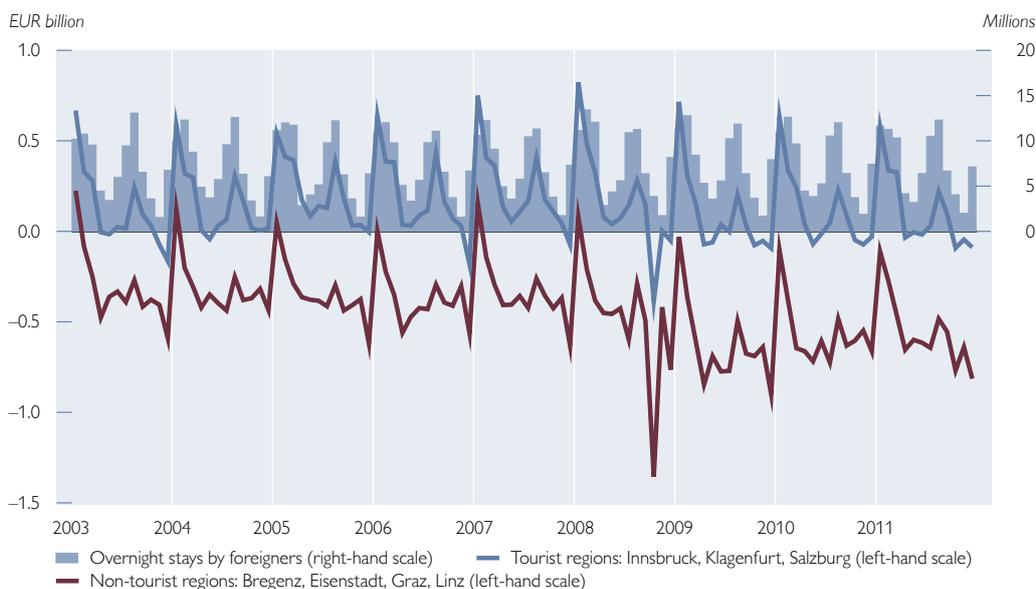
in their country of origin (or somewhere else outside Austria). This cash spent on consumption is first credited to the bank account of the Austrian retailer or services provider; from there, it is passed on to the OeNB. The second channel is banks providing foreign exchange trading services ("wholesale banks"), which supply euro banknotes and coins to central banks, commercial banks and currency exchange offices outside the euro area. They do not only ship cash abroad but also return it to Austria, which is another possible source of banknotes returned to the OeNB.

3.1 Cross-Border Cash Movements Due to Travel

International travel has traditionally been an important source of income for Austria. In 2011, visitors from abroad spent almost twice as much money in Austria as Austrian travelers spent abroad (EUR 14.3 billion against EUR

Chart 7

Net Value of Banknotes Returned to the OeNB and Overnight Stays by Foreigners



Source: OeNB, Statistics Austria.

7.5 billion).¹⁷ If these foreign visitors covered at least part of their expenses using cash they had brought from another country, this would be one possible explanation for the large volume of banknotes returned to the OeNB.

The seasonal fluctuations in the net value of banknotes returned to the OeNB provide first insights into the role of tourism. Chart 7 shows the monthly net value of cash delivered to the relevant OeNB offices. The seasonal pattern observed at offices in tourist regions (i.e. Innsbruck, Klagenfurt and Salzburg) differs markedly from that observed at the offices in the other regions (Bregenz, Eisenstadt, Graz and Linz). In regions attracting fewer tourists, net inflows are relatively constant over the year, and peaks are usually observed in December (when more banknotes are issued by the OeNB) and January (net backflows). These fluctuations are connected to the Christmas and year-end

holidays, and can be observed all across the euro area. The year-end effect is also notable in the tourist regions. In addition, however, there are seasonal peaks with strong backflows in the periods from January to March and from July to September. This pattern corresponds to the summer and winter tourist seasons, as is evident from the strong correlation with overnight stays by foreign tourists.

For an assessment of how much cash is transported to Austria by travelers from abroad, we need information on the payment habits of foreign and Austrian tourists. This information is only available to a limited extent, though. Still, given that German visitors account for the lion's share of net income from overnight stays in Austria (2011: 77%), the analysis is made easier by the fact that the Deutsche Bundesbank conducts regular surveys on the amount of cash carried by German travelers, which it uses in the compilation of the balance of payments (Deutsche Bundesbank, 2005). Based on the results of these surveys, Germans traveling across national borders in the euro area carry an estimated share of around 40% of their travel expenses in euro cash. For Austria, this means that German visitors bring around EUR 2.5 billion in cash to the country per year; for an estimate of the net amount of banknotes migrating to Austria this way, we would have to subtract the amount carried by Austrian travelers to Germany. Unfortunately, the relevant data for Austrian travelers are not available, but if we assume the two groups to have similar habits, the net annual inflow of banknotes to Austria would be EUR 1.5 billion to EUR 2 billion (chart 8).¹⁸

Chart 8

Estimated Net Cash Inflows from Tourism and Total Banknote Migration



Source: OeNB, Deutsche Bundesbank. See text for details on the calculation method used.

¹⁷ According to the OeNB's balance of payments statistics.

¹⁸ There are reasons to assume that cash usage habits vary widely across countries and population groups, so the estimates provided here should be interpreted with caution.

This gives us an approximate idea of the net amount of banknote inflows to Austria from travel and tourism. Austria's travel balance of payments with other euro area countries is roughly in equilibrium, as net inflows from the Netherlands and, to a lesser extent, also from Belgium, Slovenia and Slovakia are offset by net outflows to Italy, Greece and Spain. Assuming a cash ratio similar to that of German travelers, we estimate that the respective banknote flows between Austria and the euro area excluding Germany come to between minus and plus EUR 200 million (chart 8). Net cash inflows from these countries can play only a rather negligible role in explaining the extent of banknote migration to Austria.¹⁹

People traveling across borders for cheaper fuel are probably another source of cash inflows, as the comparatively low mineral oil tax in Austria is an incentive for car drivers from abroad (above all Germany and Italy) to refuel their vehicles in Austria. While it is safe to assume that some of these transactions are settled in cash, the sales are likely too small (estimated at around EUR 100 million annually) to provide a meaningful explanation for the extent of banknote migration to Austria.

Even though Austria does report cash inflows from tourism, chart 8 shows that this factor alone does not suffice: The estimated amount of around EUR 2 billion is well below the

approximately EUR 5 billion to EUR 6 billion in banknotes that have migrated to Austria in most years since 2002. Moreover, cash inflows from tourism have been stable over time and cannot explain the reversal in banknote migration patterns between 2007 and 2009. While changes in travelers' payment habits are conceivable (e.g. due to higher credit card use), such changes would occur slowly over time and would not lead to cyclical peaks in banknote movements as observed between 2007 and 2009 and again between 2010 and 2012.²⁰

In the following we therefore take a closer look at the second channel of banknote migration to Austria: banks' foreign exchange trading services.

3.2 Cross-Border Cash Movements Due to Foreign Currency Trading

The euro is the currency of one of the world's largest and most developed economic areas with a financial sector of international significance, and consequently the euro's importance extends far beyond the euro area. This international role of the euro is not limited to its use as an electronic means of payment, but also applies to euro cash (ECB, 2012b). Above all in Central, Eastern and Southeastern Europe (CESEE), the euro is considered to be a safe and stable parallel currency and is used as a store of value and partly also as a means of payment alongside local currencies (Ritzberger-Grünwald and Scheiber, 2012).

¹⁹ Distinguishing between day trips and longer stays may lead to different results, as day trip visitors possibly carry a large share of their travel expenses in cash than people who stay longer. Given the lack of other data, we had to use the German cash ratio estimate for all other countries. If in the group of travelers from countries other than Germany the share of day trips in total trips is larger than the day trip share in the group of German travelers, Austria's net cash inflows from these countries may be higher than estimated above. According to the results of OeNB household surveys in combination with relevant estimates by the statistical offices of other countries, however, Germans again account for the by far largest share of net cash inflows due to day trip visitors. Even if visitors from euro area countries excluding Germany carried a larger share of their travel expenses in cash, the resulting net inflows would still be too low to have a substantial impact on the results described above.

²⁰ The fact that the seasonal patterns observed in the volume of banknotes returned in Austria's tourist regions have hardly changed at all (chart 7) also suggests that cash inflows due to tourism have been broadly stable.

While it is impossible to tell exactly how many euro banknotes are in circulation outside the euro area, an estimate can be made based on the total value of euro banknotes shipped to destinations outside the euro area since 2001 minus the total value of euro banknotes returned. According to this estimate, the value of euro banknotes in circulation outside the euro area was around EUR 117 billion at end-December 2011, which equals around 13% of euro currency in circulation (chart 9) (ECB, 2012b, p. 20). This estimate is clearly a lower bound since there are many other channels apart from the banking system through which banknotes leave the euro area, e.g. tourism or workers' remittances. There is reason to assume that euro cash outflows through these other channels exceed inflows. According to broader estimates, as much as 20% to 25% of euro cash (EUR 180 billion to EUR 225 billion) may be in circula-

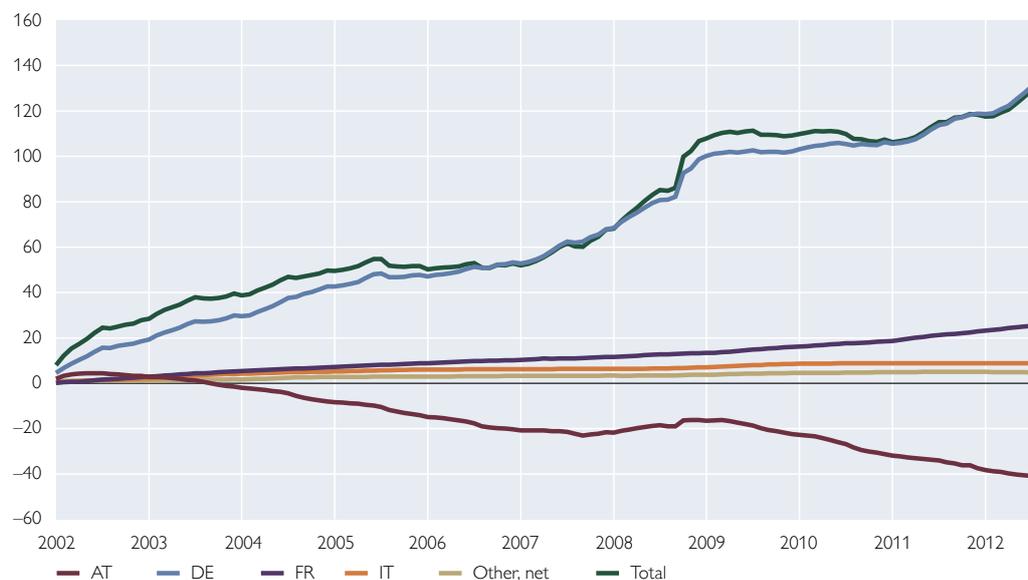
tion outside the euro area (ECB, 2012b, p. 20).

The volume of net shipments of euro banknotes to banks outside the euro area has varied markedly over the years: Immediately after the adoption of the euro, legacy currency cash held outside the euro area (above all Deutsche mark) was converted into euro. Banknote exports continued to be strong until the end of 2004, however, and then stagnated until early 2007. As the financial and economic crisis unfolded, foreign demand for euro banknotes rose again markedly, and showed a sharp spike when Lehman Brothers failed in fall 2008. While these banknotes were not shipped back to the euro area over the following months, the volume of additional net shipments abroad, too, was negligible until end-2010. A return to the 2002 to 2005 trend of continual net euro banknote shipments abroad has been observed since the beginning of 2011.

Chart 9

Net Shipments of Euro Banknotes to Destinations Outside the Euro Area

Selected NCBs and total, in EUR billion



Source: ECB.

The bulk of banknote shipments to and from banks outside the euro area is handled by specialized banks. Given the high logistical effort and security requirements involved, this market has significant economies of scale, which is reflected in the small number of large, internationally active players. Only around ten banks, in cooperation with very few Eurosystem NCBs, manage the supply (and return) of euro banknotes to (from) destinations outside the euro area. In the period from 2002 to 2009, almost three-quarters of all euro banknotes sent to destinations outside the euro area were provided by the Deutsche Bundesbank. Its share in return deliveries, at two-thirds, was slightly lower but still dominant.²¹

In the Eurosystem, the OeNB ranks second in terms of banknote shipments both to and from countries outside the euro area, accounting for slightly more than 10% of banknotes supplied and for one-quarter of banknotes returned between 2002 and 2009. Taken together, the two central banks accounted for almost 90% of international euro cash shipments, while the other Eurosystem NCBs were hardly involved at all. The prominent role of the Deutsche Bundesbank can be attributed above all to (i) the fact that Frankfurt airport is a major international hub and (ii) to its geographical proximity to Switzerland, whose banks play an important role in the global trading of foreign currency (Bartzsch et al., 2011a, p. 10–11). The comparatively large role played by the OeNB is also largely due to geographical factors, especially Austria's

proximity to CESEE – a region in which euro cash is used extensively – and the good flight connections to the region through Vienna airport.

This focus on CESEE also explains the notable difference between the OeNB's relatively small share in banknote shipments to, and its relatively large share in backflows from, destinations outside the euro area: According to the results of surveys among wholesale banks about the origin and destination of their banknote shipments (which the ECB has published since 2006 in its annual *Review of the International Role of the Euro*), fewer banknotes have been shipped to CESEE and Turkey than have been shipped back from these regions, with some fluctuations over the years.²² One probable explanation for these net backflows is that part of the banknotes do not enter the region via the banking channel but are instead carried by tourists and migrant workers. These banknotes are ultimately returned to the banking system and shipped back to the Eurosystem.²³ In light of the focus of Austrian wholesale banks on this region, the OeNB, too, records overall significantly higher backflows than shipments.

The different roles played by the Deutsche Bundesbank (supply) and the OeNB (backflows) in the global supply of euro banknotes become apparent in chart 9, which shows a breakdown by NCB of the wholesale banks' net shipments. The Deutsche Bundesbank clearly emerges as the largest net supplier of euro cash, followed by the Banque de

²¹ This calculation is based on data provided in Bartzsch et al. (2011a, p. 11–12) and ECB (2010, p. 34).

²² These figures should be interpreted with some caution, as not all relevant banks participate in the surveys or provide information at the same level of detail about the destination and origin of their banknote shipments.

²³ Another factor could be a decline in cash hoarding thanks to increasing confidence in the banking system and easier access to banking services in the region, with people converting their euro cash holdings into euro or local currency deposits. These excess banknotes would also be shipped back to the Eurosystem via the banking system (Ritzberger-Grünwald and Scheiber, 2012).

France and the Banca d'Italia. In contrast, the OeNB is by far the largest net recipient of euro banknotes returned.²⁴ Since the introduction of euro cash, backflows from abroad to the OeNB have outpaced cross-border shipments involving the OeNB by more than EUR 40 billion cumulatively. The NCBs' different roles are also reflected in their balance sheets: While the Deutsche Bundesbank has built up liabilities arising from the adjustment of banknotes in circulation, the OeNB has recorded increasing claims.

Cumulative net backflows to the OeNB (in the amount of EUR 40 billion) are in a similar range as the OeNB's claims arising from the adjustment of banknotes in circulation, and chart 10 shows that the two also move in tandem over time.

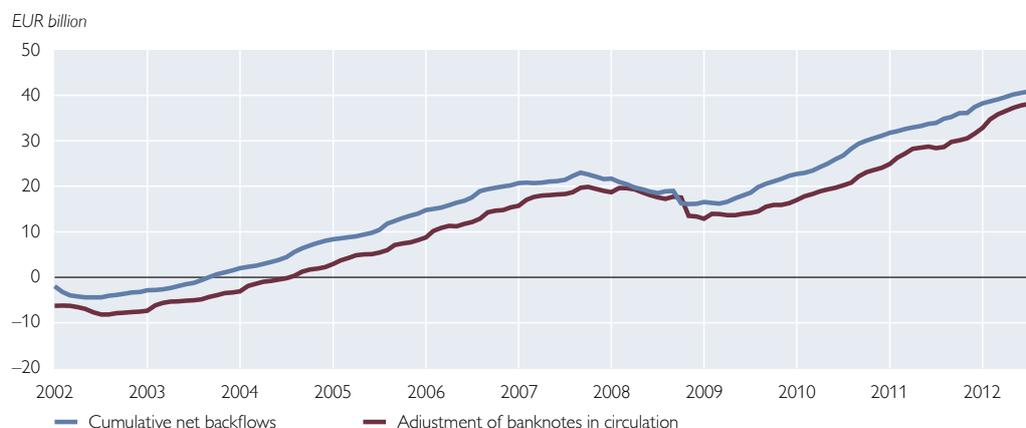
To conclude, international shipments of euro banknotes seem to be the most important factor in explaining cash inflows to Austria. Tourism and other channels, like migrant workers carrying cash, play a subordinate role, at least with regard to banknote inflows. Indi-

rectly, these channels are potentially very significant, though, as they may be responsible for euro banknotes being transported to CESEE, from where they are later shipped back to the OeNB.

Looking at the role of foreign exchange trading also helps clarify the connection discussed in section 2 between banknote migration and TARGET2 transactions. The banks offering wholesale banknote services are specialized service providers. The banknotes they ship back to the OeNB were provided to them by other banks, therefore the banks trading in foreign currency have to quickly pass on to their customers the balances received through the shipment of notes to the OeNB. Many of these customers (commercial banks) are probably located outside Austria. Therefore, cross-border TARGET2 transfers will follow shortly after banknotes have been returned to the OeNB. This specific mechanism may explain the close connection between banknote shipments and TARGET2 balances in Austria.

Chart 10

Net Backflows of Banknotes to the OeNB and Adjustment of Banknotes in Circulation



Source: OeNB.

²⁴ For an analysis of these data at the regional level, see Schautzer (2006).

4 Conclusions

High claims and liabilities between Eurosystem NCBs and the ECB in the payment system TARGET2 have sparked a heated public debate about the reasons and consequences of these balances. What is often overlooked, however, is that significant TARGET2 balances can arise even if national banking sectors are not facing funding difficulties that lead to greater dependence on central bank financing. In fact these balances arise in the normal functioning of monetary union. A case in point is the OeNB's accumulation of TARGET2 liabilities in the amount of EUR 39.2 billion (as at end-November 2012) over the past ten years; at the same time, the OeNB holds similar-sized claims arising from the adjustment of banknotes in circulation.

Austria's TARGET2 liabilities result from structural inflows of central bank money in the form of cash, which leaves the country again in cashless form via TARGET2. While foreign tourists carrying cash account for some of these banknote inflows, international wholesale trading of euro banknotes plays a much bigger role. A substantial share of these transactions is handled via the OeNB, and the value of banknotes returned to the OeNB every year exceeds that of banknotes it puts into circulation. This means that macroeconomic factors – which are frequently cited in the literature on TARGET2 balances – hardly play a role in explaining the OeNB's large TARGET2 liabilities. Rather, microeconomic and structural factors in the payment system are of key importance.

From this, we can draw the following conclusions that are relevant beyond the specific case of Austria: First, an analysis of TARGET2 balances must

take into account both cross-border banknote flows and cashless transactions. While several recent studies on TARGET2 in fact mention banknotes, a more integrated analysis would be desirable.²⁵ Second, there is no reason to assume that TARGET2 balances in the euro area will go back to zero after the end of the current banking and sovereign debt crisis. At present, the structural factors are masked by the crisis, but as soon as the crisis-related imbalances have been resolved, structural factors will become more visible again. It is important to note that there is no limit on TARGET2 balances. If the trend observed in Austria remained the same (annual banknote inflows in the amount of EUR 5 billion to EUR 8 billion and comparable TARGET2 outflows), the OeNB's TARGET2 liabilities would be between EUR 90 billion and EUR 120 billion in ten years' time. An understanding of the structural development of TARGET2 balances requires in-depth knowledge about the structure of banknote logistics and the role of centralized liquidity management in international banking groups as well as an understanding of different regional or transaction-related preferences in the use of cash. All these factors are subject to change, and the trend in Austria's TARGET2 balances may reverse again over the next ten years. The most important economic policy conclusion from all this is that any restrictions on, or periodic settlement of, TARGET2 balances (as has been proposed several times) would make no sense and, more importantly, would severely impair the normal functioning of monetary union, which requires the unrestricted flow of central bank money.

²⁵ Jobst (2011), Boeckx and König (2012), Burgold and Voll (2012), Jobst et al. (2012), Whelan (2012).

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Annex: Balance Sheet Presentation of Banknotes in Circulation in the Eurosystem – An Example

The presentation of euro banknotes in circulation in the NCBs' and the ECB's balance sheets follows a specific rule: The total value of euro banknotes in circulation is determined by subtracting the total value of banknotes taken out of circulation from that put into circulation by all Eurosystem NCBs. This net amount is then allocated among the members of the Eurosystem in accordance with the banknote allocation key. First, a share of 8% is allocated to the ECB, even though the ECB does not, in fact, put any banknotes into circulation. Then the remaining 92% are distributed among the Eurosystem NCBs in accordance with the capital key. This key is based on the NCBs' shares in the fully paid-up capital of the ECB under Article 29 of the ESCB/ECB Statute. The NCBs' capital shares – which reflect, in equal weighting, the respective country's share in the total population and its share in the GDP of all 27 EU Member States – are adjusted every five years and whenever a new country joins the EU to reflect up-to-date statistical data. Any changes in the adjusted total value of banknotes in circulation also cause changes in the intra-Eurosystem balances arising from the adjustment of banknotes in circulation. These balances represent the difference between the individual NCBs' shares in circulating banknotes as

reported in the balance sheet on the one hand, and the net value of banknotes they actually put into circulation (minus those returned to them) on the other.

This is best explained using an example. Let us assume that the Eurosystem consists of the ECB and two NCBs (A and B) only and that the two NCBs each hold 50% of the ECB's capital. The NCBs conduct refinancing operations that allow commercial banks to obtain current account holdings, which are used for the fulfillment of reserve requirements and for purchasing banknotes. Let us assume further that the two NCBs each issued banknotes in the amount of 500 currency units, while their current account balances come to 50 units each, and the volume of refinancing operations is 550 units, respectively.

Table A1 shows the balance sheets of the NCBs and the ECB as well as the consolidated financial statement of the Eurosystem. The total value of banknotes in circulation is 1,000 currency units. In line with the rule described above, 8% of that (i.e. 80 currency units) is allocated to the ECB. The other 920 units are distributed among NCB A and NCB B in proportion to their assumed shares in the capital key (i.e. 50% each in our example), so that the balance sheets of the two NCBs now disclose an amount of 460 units, respectively, under the liability item "banknotes in circulation." In fact, however, both NCBs issued banknotes with a value of 500 currency

Table A1

Stage 1: Starting Point**National central bank A**

Claims		Liabilities	
Refinancing operations	550	Banknotes	460
		Current account balances	50
		Adjustment of banknotes in circulation	40
Total	550	Total	550

National central bank B

Claims		Liabilities	
Refinancing operations	550	Banknotes	460
		Current account balances	50
		Adjustment of banknotes in circulation	40
Total	550	Total	550

ECB

Claims		Liabilities	
Adjustment of banknotes in circulation	80	Banknotes	80
Total	80	Total	80

Consolidated financial statement Eurosystem

Claims		Liabilities	
Refinancing operations	1,100	Banknotes	1,000
		Current account balances	100
Total	1,100	Total	1,100

units, whereas the ECB did not issue any banknotes at all. The difference between the banknotes allocated to the NCBs and the net value of banknotes they actually put into circulation gives rise to a claim or liability related to the adjustment of banknotes in circulation. In our example, the ECB discloses a claim in the amount of 80 units, whereas the NCBs report a liability of 40 units each. A look at the consolidated financial statement of the Eurosystem shows that these intra-Eurosystem claims and liabilities cancel each other out. The balance sheet items that appear in the consolidated statement are “refinancing operations”, “banknotes in circulation” and “current accounts.”

What happens if an NCB puts more banknotes into circulation than it withdraws from circulation (or the other way around)? At first, this net issuance (or net withdrawal) will only have an effect on the balance sheet of the NCB in question. Let us assume that NCB A issues additional banknotes in the amount of 120 currency units (table A2). As a result, it discloses a banknote liability in the amount of 580 units (the 460 units reported in the last balance

sheet plus 120). To purchase these banknotes, the commercial banks in country A will increase their refinancing volume by 120 units to 670 units. Let us assume further that the value of banknotes returned to NCB B exceeds that of banknotes it put into circulation by 20 currency units. NCB B’s liability item “banknotes in circulation” declines by 20 to 440 units. The commercial banks returning the banknotes record a corresponding increase in their current account balances with NCB B. In our example, the commercial banks use these balances to repay their outstanding loans to NCB B, so that their refinancing volume declines from 550 to 530 currency units. The ECB’s balance sheet remains unchanged at first, as it does not put banknotes into (or withdraw them from) circulation. For the time being, the adjustment of banknotes in circulation does not change either in all three balance sheets. A balance sheet expansion by 100 currency units is disclosed in the consolidated financial statement of the Eurosystem.

Due to the issuance of new notes by the NCB A and the withdrawal of notes

Table A2

Stage 2: NCB A Issues Additional Banknotes**National central bank A**

Claims		Liabilities	
Refinancing operations	670	Banknotes	580
		Current account balances	50
		Adjustment of banknotes in circulation	40
Total	670	Total	670

National central bank B

Claims		Liabilities	
Refinancing operations	530	Banknotes	440
		Current account balances	50
		Adjustment of banknotes in circulation	40
Total	530	Total	530

ECB

Claims		Liabilities	
Adjustment of banknotes in circulation	80	Banknotes	80
Total	80	Total	80

Consolidated financial statement Eurosystem

Claims		Liabilities	
Refinancing operations	1,200	Banknotes	1,100
		Current account balances	100
Total	1,200	Total	1,200

by the NCB B, the allocation of banknotes in circulation to the Eurosystem central banks no longer corresponds to the banknote allocation key. The necessary adjustment is made on the last working day of each month (table A3).

For this purpose, the total value of banknotes in circulation (1,100 currency units) is again reduced by 8% (i.e. 88 currency units), which are allocated to the ECB. The remaining 92% are distributed among the two

NCBs in proportion to their share in the ECB's paid-up capital (in this case, evenly). Both NCBs now disclose banknote liabilities in the amount of 506 currency units. This leads to a change in the claims and liabilities arising from the adjustment of banknotes in circulation: While the ECB discloses an equivalent increase in banknote claims and liabilities to 88 currency units, NCB A reports an increase in its liabilities arising from the adjustment

Table A3

Stage 3: Balance Sheets Are Adjusted**National central bank A**

Claims		Liabilities	
Refinancing operations	670	Banknotes	506
		Current account balances	50
		Adjustment of banknotes in circulation	114
Total	670	Total	670

National central bank B

Claims		Liabilities	
Refinancing operations	530	Banknotes	506
		Current account balances	50
Adjustment of banknotes in circulation	26		
Total	556	Total	556

ECB

Claims		Liabilities	
Adjustment of banknotes in circulation	88	Banknotes	88
Total	88	Total	88

Consolidated financial statement Eurosystem

Claims		Liabilities	
Refinancing operations	1,200	Banknotes	1,100
		Current account balances	100
Total	1,200	Total	1,200

of banknotes in circulation from 40 to 114 currency units, and NCB B's liability of 40 units turns into a small claim in the amount of 26 units. The divergent development of the two NCBs' balances from the adjustment of banknotes in circulation reflects the difference between the net value of banknotes issued by the two over the past month. This adjustment has no effect on the consolidated financial statement of the Eurosystem.

Table A4 illustrates a variant of the example, in which the commercial banks in country B use their additional

balances in the amount of 20 currency units (resulting from banknote redeliveries to NCB B) to transfer funds to their business partners in country A (instead of repaying outstanding loans to NCB B, as they did in the example above). The transaction is made via TARGET2, creating a TARGET2 liability for NCB B and a TARGET2 claim for NCB A. The commercial banks in country A use the additional balances to repay their outstanding loans to NCB A. The consolidated financial statement of the Eurosystem is still identical to the one presented in table A3.

Table A4

Stage 4: TARGET2 Transfers

National central bank A

Claims		Liabilities	
Refinancing operations	650	Banknotes	506
TARGET2	20	Current account balances	50
		Adjustment of banknotes in circulation	114
Total	670	Total	670

National central bank B

Claims		Liabilities	
Refinancing operations	550	Banknotes	506
Adjustment of banknotes in circulation	26	Current account balances	50
		TARGET2	20
Total	576	Total	576

ECB

Claims		Liabilities	
Adjustment of banknotes in circulation	88	Banknotes	88
Total	88	Total	88

Consolidated financial statement Eurosystem

Claims		Liabilities	
Refinancing operations	1,200	Banknotes	1,100
		Current account balances	100
Total	1,200	Total	1,200

The Use of Payment Instruments in Austria

A Study Based on Survey Data from 1996 to 2011

This study analyzes the results of the OeNB's methods-of-payment survey of fall 2011 and compares them with the results of similar surveys from the years 1996, 2000 and 2005. The rapid development of cashless payment options in the 15 years that have passed between the first and last analyzed survey and the more widespread availability of payment cards raise the question how consumer behavior has changed.

With a value share of some 65% of total payments, cash still remains the most important payment instrument. Debit cards have also risen in importance (to some 25%). While the share of debit card payments doubled between 2000 and 2005, their recent increase was far less significant. The value share of credit cards remains low at 5%.

Even though the use of payment instruments varies with education, income and age, in terms of value more than 50% of all payments are still made in cash in each of these socio-demographic subgroups. By contrast, gender and the size of a resident's home town do not have much impact on the use of cash. The use of payment instruments is determined by two further factors: the size of the payment and the type of the purchase. It is shown that card payments increased markedly in the period from 1996 to 2011 primarily for amounts exceeding EUR 20. Still, cash continues to be used intensively for larger-value payments as well, and it still accounts for a large share of payments in both the food and services sectors, as well as in restaurants and hotels.

By international comparison, Austrian payments are shown to be very cash-intensive. The available data suggest that this situation is not solely the result of a low POS terminal density. Rather, this tendency may also be attributable to the fact that Austrian consumers have a positive view of cash. Moreover, a relatively high ATM density and the possibility to withdraw cash free of charge may positively influence the use of cash. On the supply side, the survey results indicate that card acceptance is low for small-value payments.

JEL classification: E41, E58, D12

Keywords: usage of payment means, payment behavior, retail payments, demand for money, survey data

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The previous 15 years have witnessed considerable changes in payment options in Austria: payment cards are now widespread and there are substantially more POS terminals. Innovative forms of payment such as payment via mobile phone or online payment solutions were not around 15 years ago; credit cards are now accepted in some grocery stores. These changes raise a number of fundamental questions. How are Austrians reacting to the greater variety

of payment options? How do these options affect the use of cash? How is the demand for cash changing?

Aggregate data can and, in many cases, will be used to analyze the aforementioned changes. Detailed statistics relating to the number of payment cards issued, the transactions effected with these cards and the number of POS terminals are available. Despite the information content of these statistics, ultimately, they cannot map the

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Thomas Lammer,
Heiko Schmiedel, ECB

use of cash itself. This situation is unsatisfactory, as cash plays a key role in consumers' payment transactions. In addition, since the introduction of euro notes and coins in 2002, statistics relating to currency in circulation at a national level are no longer available. However, even if such statistics did exist, they would only offer indirect evidence on the use of cash for payment purposes, as the transaction demand for cash makes up only a relatively small fraction of total currency in circulation.² For these reasons, the developments in the use of payment instruments by private households can only be comprehensively assessed by using survey data. In the light of the above, this study therefore presents results derived from surveys relating to Austrian payment habits.

The data from the surveys offer further advantages. Apart from the portfolio of payment instruments that is being offered by payment service providers and apart from merchant behavior, the use of payment instruments depends on many other factors such as the relative costs or the preferences of households. Surveys can partially elicit information on these factors. In addition, microdata make it possible to identify structural shifts within sociodemographic groups, in specific sectors and for payment amount categories. As a result, conclusions can be drawn about the extent to which changes in payment habits are driven by supply or demand. The information collected in surveys also makes it possible to place the discussion about possible reasons for changes in cash demand on an empirically more robust basis. The findings obtained have implications that go fundamentally beyond

the narrower matter of the choice of payment instrument, e.g. for competition and regulatory policy. The level of costs incurred by payment systems is also of relevance from a macroeconomic perspective. Schmiedel et al. (2012) estimate the social costs of payment instruments, excluding consumer costs, at about 1% of GDP. Moreover, the insights gleaned from the data analysis can help foster our understanding of the demand for money and the transmission mechanism and facilitate an assessment of the effects of payment innovations on the cost of inflation.

For these reasons, the OeNB has carried out four in-depth payment surveys since 1996 (Mooslechner and Wehinger, 1997; Mooslechner et al., 2002 and 2006). The latest survey of fall 2011 not only provided a basis for comparison with the earlier surveys but also elicited more comprehensive information about the payment habits of the survey respondents. The present study refers primarily to the results of this latest survey and offers a detailed description of changes in payment habits, with a focus on cash, debit cards and credit cards as the most important forms of payment among consumers. The aim of our study is to present a descriptive analysis of how households have reacted to the massive change in the available payment infrastructure and thus in the range of payment instruments on offer. We will also discuss possible reasons for the change in the payment habits of Austrian households, a question which has increasingly come into the focus of international research in recent years. Available research shows that payment instrument markets are highly complex, with

² The ECB (2011) estimates that about one-third of the total amount of euro notes and coins in circulation is used for transactions.

many key aspects remaining not well understood. In this light, the present study can be regarded as one step along the way, though it cannot provide a comprehensive explanatory model.

Chapter 1 presents an overview of the structure and development of the Austrian payment card market. Chapter 2 summarizes the key results of the 2011 survey and discusses them in an international context. Chapter 3 examines sectoral differences and sociodemographic characteristics in greater detail. Chapter 4 discusses possible reasons for the continued high levels of cash usage. Chapter 5 presents the conclusions.

1 Development of Austria's Payment Infrastructure

The previous 15 years have witnessed a fundamental change in Austria's payment infrastructure. This chapter briefly presents the most important changes in the numbers of payment cards in circulation and available POS terminals.

1.1 Card Ownership

Overall, around 8.3 million debit cards (for both payment purposes and cash withdrawals) and some 2.7 million credit cards were issued by end-2011. This means that the number of debit and credit cards³ has increased by around one-quarter since 2005. Statistically, this implies that every Austrian resident possessed at least one debit card or credit card in 2011. Since, however, one person can hold several cards,

such average figures have only limited information content in relation to the actual distribution of payment cards among the population. Therefore, we present survey evidence derived from a representative sample of Austrians aged 15 and above.⁴

The relevant results show that 86% of respondents had a payment card in 2011, with debit cards being held by almost every respondent with a payment card (table 1). This value has doubled against the value observed 15 years earlier. Credit cards are far less widely disseminated with values below 30%.⁵

To obtain an overview of the use of payment instruments, the 2011 survey for the first time included questions on how many debit cards, credit cards and retailer loyalty cards with payment functionality respondents own. The average is 1.8 cards per person (median: 1). The survey results also reveal which payment instruments are actually used for expenditures. Evidence from payment diaries shows that an average of 1.15 different payment instruments (including cash) were used per week in 1996.⁶ This value rose steadily to 1.75 until 2011. Although the number of POS terminals (and also that of payment cards available to consumers) increased considerably between 1996 and 2011, 45% of respondents still used only one payment instrument during the week under review.

Chart 1 shows that the share of respondents owning a debit card in-

³ See appendix for a glossary of the terms.

⁴ The OeNB commissions representative surveys on the possession and use of payment cards at regular intervals.

⁵ The statistical variance is larger for credit cards owing to their lower share. The results for credit cards should therefore be interpreted with caution. It should also be borne in mind that the results shown in table 1 and chart 1 reflect respondents' subjective assessments.

⁶ The underlying data (payment survey) are explained in greater detail in chapter 2. All payments are recorded with the exception of regularly transacted payments, which are mostly carried out in cashless form (for instance, transfers or standing orders). The 2011 survey included a total of 11 payment options. The usage of debit cards here refers to their use for payment purposes.

Table 1

Card Ownership in Austria

	1996	2000	2005	2011
Share of respondents with a				
payment card	44.1	69.2	78.2	85.9
debit card	41.5	62.0	76.1	84.9
credit card	16.9	25.2	28.4	23.0 ¹
Number of payment cards owned by respondents				
mean	1.76
median	1
Number of payment instruments that are used according to the payment diary				
mean	1.15	1.36	1.60	1.75
median	1	1	1	2
Share of respondents who use only one payment instrument according to the payment diary	87.0	69.1	50.9	45.8

Source: OeNB (payment surveys).

¹ This value might be attributable to a statistical outlier. This is a plausible assumption, especially since the statistical variance of the credit card share is larger as the latter is rather small. A comparison with similar surveys from the years 2010 and 2012 reveals that the value shown is lower than in Q3 10 (31%) but roughly as high as in Q2 12 (24%).

creased in every age, income and educational group, registering the steepest growth for those aged 60+, for those under the age of 24, for persons who have completed their compulsory secondary education or vocational schooling and for persons with a low personal net income. In the period from 1996 to 2011 taken as a whole, the share of respondents owning a credit card rose primarily for higher-income persons and for those with higher education. Chart 1 shows, however, that the share of credit cards in these population groups declined in the period from 2005 to 2011. This development might however be attributable to a statistical outlier in the survey data.⁷

1.2 Payment Infrastructure

Since debit cards can be used for both payments and cash withdrawals, information on their frequency of use for payments is particularly relevant. Chart 2 shows that although total debit card payments have risen steadily in absolute terms (chart 2, left-hand figure), annual growth rates, which topped 30% until 2002, have since slowed to between 5% and 10%.

This development reflects the steep growth in the number of POS terminals. In 1989, debit card payments were possible at only some 200 debit card POS terminals throughout Austria. In 2011, by contrast, the number of terminals had risen to more than 100,000.

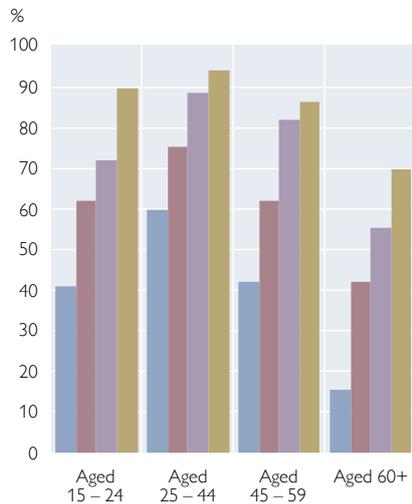
⁷ It is not easy to find a conclusive explanation for this result. For one thing, the decrease in the ownership of credit cards in the groups of higher-educated and higher-income respondents might be attributable to statistical outliers. To verify this conjecture, the results in chart 1 were compared with those taken from another survey conducted in the second quarter of 2012. The corresponding value for “high school leaving certificate or higher” was 52% (Q2 2012) as compared to 42% in chart 1 and was 44% for income in the third tercile (as compared to 39% in chart 1). These findings indeed suggest that the mean values for 2011 shown in chart 1 are underestimated. Second, the decrease could also be due – at least in part – to the financial and economic crisis. For the period from 2008 to 2009, Foster et al. (2011) note a decline in credit card ownership at least for the U.S.A. (more up-to-date information from this source is not available). For Austria, this explanation is however speculative and cannot be supported by data. Unlike the survey data, statistics relating to the number of credit cards issued in Austria show a rise of 9.7% for the period from 2006 to 2011. All in all, therefore, an argument for a statistical outlier exists.

Chart 1

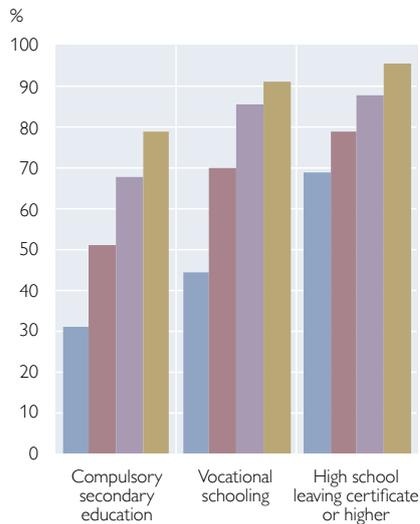
Card Ownership by Sociodemographic Characteristics

Debit card

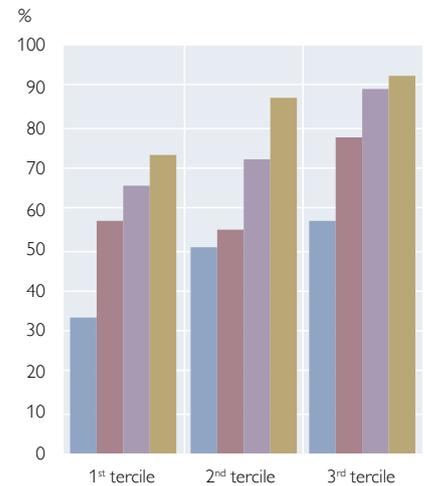
By age



By education

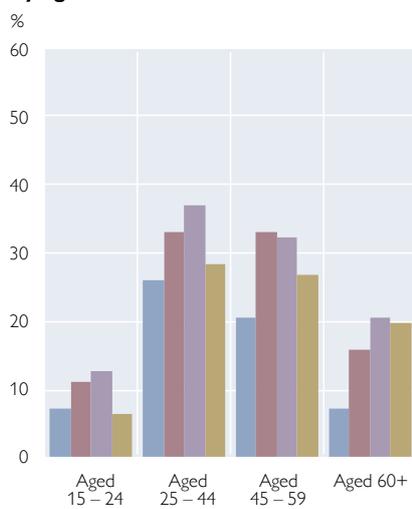


By personal income

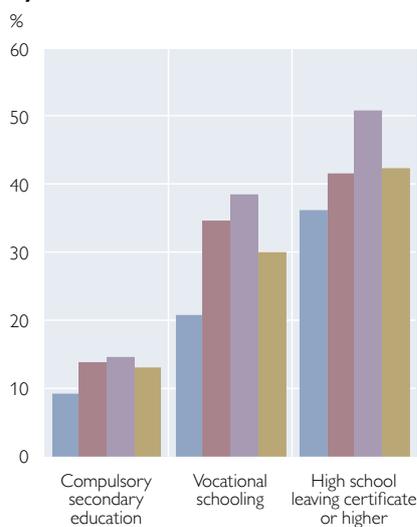


Credit card

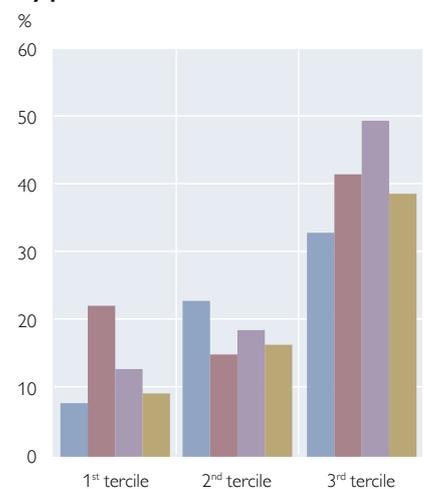
By age



By education



By personal income



Legend: 1996 (blue), 2000 (maroon), 2005 (purple), 2011 (gold)

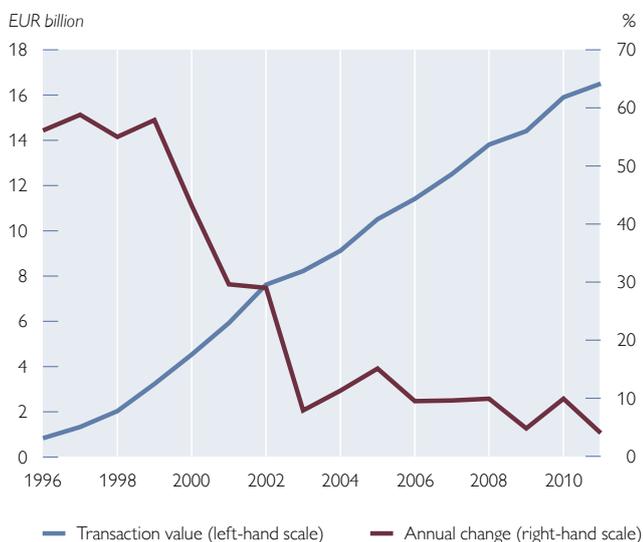
Source: OeNB (2011 payment survey).

Whereas the relevant total transactions rose almost linearly with the number of POS terminals (or vice versa) until roughly 2006, lately only total transactions per terminal have continued to increase (chart 2, right-hand figure).

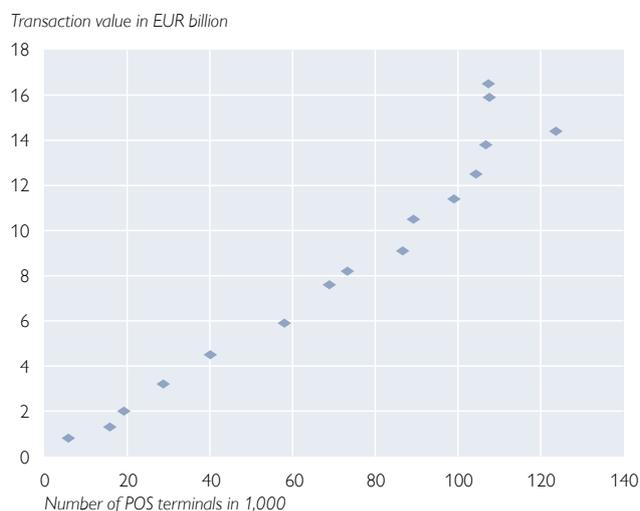
Payments made with credit cards issued in Austria totaled EUR 4.4 billion in 2011. A clear growth trend cannot be discerned, with growth rates fluctuating between +1.3% and +13% in the last five years under review.

Debit Card Payments and POS Terminals

Transaction value



Transaction value and number of POS terminals¹



Source: ECB Blue Book; older data: Europay Austria.

¹ The one-off decrease from some 120,000 POS terminals to about 107,000 POS terminals is attributable to a statistical adjustment.

1.3 Card Transactions in Selected Euro Area Countries

Table 2 summarizes some key data on card transactions in Austria as compared to the euro area, Germany, the Netherlands and Finland.⁸ The table shows that Austria has a lower density

of POS terminals per million inhabitants than the euro area. This picture is also confirmed in terms of the number of card payments and the total payment volume per inhabitant that is processed with cards. Overall, the figures indicate that Austrian payments are far

Table 2

International Comparison of Key Figures on Card Transactions

	Austria	Germany	Netherlands	Finland	Euro area
Number of POS terminals per 1 million inhabitants	12,754	8,693	16,752	37,681	19,390
Number of annual transactions per inhabitant					
Debit card	39.0	29.4	139.8	184.7	29.6
Credit card	4.5	0.5	6.6 ¹	18.0 ¹	1.0
Total annual payment value per inhabitant in Euro					
Debit card	1,959.6	1,701.4	5,099.4	5,658.1	1,397.4
Credit card	523.5	394.6	666.9 ¹	1,042.6 ¹	90.2

Source: ECB (Statistical Data Warehouse).

¹ Cards with a credit/delayed debit function.

Note: The data are derived from the year 2011 and relate to payment cards issued in the relevant country.

⁸ Germany was selected in this instance, as the OeNB survey data are also compared below with data from Germany. The Netherlands and Finland are both countries where payment cards are used frequently.

less card-intensive than those in the Netherlands and Finland but somewhat more card-intensive than in Germany.

2 Survey Results on the Payment Transactions of Austrian Households

This chapter presents the results of the survey relating to the payment habits of Austrian households (payment survey), which the OeNB conducted in fall 2011.⁹ This survey is based on a random sample of persons resident in Austria and aged 15+. The respondents were personally interviewed about general aspects of their payment habits (card ownership, cash withdrawals etc.). They then received a payment diary for recording all purchases and the usage of their payment instruments for the period of seven successive days, including all expenditures they had made for themselves, for others and for their household as a whole. The scope of transactions comprised point-of-sale transactions as well as online, mail order, phone order and person-to-person payments (e.g. pocket money, charitable donations). Recurrent payments (e.g. rent, operating expenditure, insurance, phone bills, loan payments) were not to be recorded. Payments thus recorded were transacted in the period from September 2011 to January 2012, with most payments being made in the months of September and October. This is important insofar as earlier surveys from the years 2000 and 2005 were also carried out in the months of September and October.¹⁰

Of the 2,271 respondents surveyed, 1,165 actually kept a payment diary.

Overall, 12,811 payment transactions totaling EUR 347,864 were recorded, which is equivalent to an average of some 11 transactions per person per week, or 1.6 transactions per day.

2.1 Key Figures Indicate Good Data Quality

To indicate the quality of the sample, table 3 summarizes some key figures compiled from the surveys from the years 1996, 2000, 2005 and 2011. The 2011 survey recorded mean weekly expenditures per respondent of EUR 307.6. An extrapolation of this amount onto annual expenditures and onto the aggregate economy results in a projection of roughly 75% of aggregate private consumption (national accounts definition). This figure indicates good survey coverage since (under the national accounts definition) private consumption includes housing costs (rental payments, power, gas etc.) and insurance services, which account for around one-third of expenditures by private individuals and were not recorded in the payment diary.¹¹

Compared with the previous surveys, however, it is apparent that the coverage of payments in the diaries fell over time. This relates to both average weekly expenditure per person and the median of the number of recorded transactions. Owing to the lack of comparable figures available for Austria, we cannot assess whether this decline is plausible. In terms of the average number of payments, at the very least, the results for Austria are roughly comparable with those of other studies. As shown in Jonker et al. (2012), the

⁹ This survey was commissioned by the OeNB and conducted by the Institute for Empirical Social Research (IFES).

¹⁰ For further information on the sample design and the field work, see the section entitled "Statistical Background Information" in the appendix.

¹¹ However, it should be noted that many problems (e.g. how to assess expenditure for children) are inherent in this extrapolation so that it provides only a rough indication.

Table 3

Key Figures on Card Transactions in Austria

	1996	2000	2005	2011
Transactions				
Total number of transactions	14,255.0	14,973.0	14,075.0	12,811.0
Average number of weekly transactions per person	12.8	12.5	11.7	11.1
Average number of daily transactions per person	1.8	1.8	1.7	1.6
Median number of weekly transactions per person	12.0	12.0	11.0	10.0
Median number of daily transactions per person	1.7	1.7	1.6	1.4
Mode of the number of transactions	13	10	9	7
Payment amount				
Total value of recorded transactions	503,251.6	425,675.4	408,041.6	355,905.3
Mean value of transactions per person (weighted)	451.3	354.7	339.8	307.6
Median value of weekly transactions per person	268.2	279.0	255.6	219.4
Median value of daily transactions per person	38.3	39.9	36.5	31.3

Source: OeNB (payment surveys).

Note: The payments of 1996, 2000 and 2005 were inflated with the CPI to the value of September 2011.

values for Austria do largely correspond to those of other countries: the number of payments per person per day is 1.6 in the Netherlands, 2.2 in Australia, 1.7 in Canada and 1.6 in Germany.¹²

The exact reason for the decline in the payments recorded cannot easily be determined. One possibility is that the sociodemographic structure of the persons included in the sample has changed compared with previous surveys. Since payment diaries are sent in by respondents themselves, the final structure of the sample cannot be controlled ex ante. Although the results presented below were weighted so that the sample is representative for the target population in terms of age, gender and federal province, the weighting cannot entirely correct major distortions in the sample. This should be borne in mind particularly when survey results are compared across time.

Table A1 in the appendix summarizes the sociodemographic structure of the samples. The 2011 sample in-

cludes somewhat more elderly people than that of 2005. Likewise, the 2011 sample comprised far fewer people from small towns and more people from large cities. This factor could influence results. In particular, results relating to the temporal evolution of aggregate shares of payment instruments should be considered as rough estimates. For this reason, we will also present evidence for sociodemographic subgroups below, which minimizes but does not entirely eliminate possible distortions owing to different sample structures.

In addition to its sociodemographic composition, the sample can be analyzed also in terms of the structure of the recorded payments. The results arising from this analysis are very robust. An analysis of the structure of expenditures (section 3.1, table 8) reveals that the share of transactions for expenditures at gas stations (between roughly 7% and 8%) and in restaurants/hotels (between some 21% and 22%) was very

¹² In view of major differences in the sample design, as well as in the type and volume of the recorded payments, these international studies – apart from that commissioned by the Deutsche Bundesbank – are only to a limited extent comparable with the OeNB's survey.

constant in the period from 1996 to 2011. Also the shares of transactions in other sectors fluctuated only slightly in all four surveys.

Similarly, a comparison of the distribution of payments over time (table 4) shows little change in the period from 2000 to 2011.

For debit card payments, furthermore, population data about the average transaction amount are available. A comparison of the actual average payment amount with that of the samples indicates good data quality in respect of the 2005 and 2011 surveys. For instance, an average value determined from the survey data of some EUR 48 for debit card payments can be compared with the actual value of some EUR 50.

2.2 Cash Remains the Most Widely Used Payment Instrument

The OeNB's 2011 payment survey shows that cash remains the most important payment instrument at 82.1% of transactions and 65.3% of total payment volume. Debit cards are used to process one-fourth of total payments (in value terms). Although credit cards account for only 1.7% of transactions, they make up almost 5% in terms of payment value (table 5). In addition, payments by transfer/direct debit account for a value share¹³ of about 4%. All other payment options play only a minor role.

Table 6 shows the usage of payment instruments broken down by payment amounts. 96% of payments up to EUR 10 were transacted in cash in the period under review. The corresponding share for debit cards was only 3%. Debit cards were important for pay-

Table 4
Distribution of Recorded Payment Amounts

	1996	2000	2005	2011
EUR				
Minimum	0.3	0.4	1.1	0.2
p5	1.5	1.8	2.3	2.0
p25 (1 st quartile)	5.7	6.5	6.8	6.3
Median	13.2	14.5	14.7	14.8
p75 (3 rd quartile)	28.7	31.8	31.7	32.6
p90 (9 th decile)	54.1	56.8	56.6	60.3
p95	81.4	90.0	89.3	86.5
Maximum	4,066	6,091	3,959	830

Source: OeNB (payment surveys).

Note: This table shows the distribution of payment amounts recorded by respondents in the years 1996, 2000, 2005 and 2011. The payments of 1996, 2000 and 2005 were inflated with the CPI to the value of September 2011. "p25" denotes, for instance, the amount, below which 25% of all payments range (e.g. 25% of all payments were less than EUR 6.3 in 2011).

Table 5
Shares of Payment Instruments in 2011

	Volume shares %	Value shares
Cash	82.12	65.33
Debit cards	13.65	24.96
Credit cards (including online orders)	1.67	4.75
Retailer loyalty cards with payment functionality	0.09	0.16
Quick-enabled cards	0.16	0.06
Direct debit payments/transfers	1.51	3.72
Online payment systems ¹	0.13	0.23
Payments by mobile phone	0.04	0.01
Prepaid cards	0.10	0.15
Other (e.g. coupons)	0.55	0.65

Source: OeNB (2011 payment survey).

¹ This item includes payment schemes that can only be used online (e.g. PayPal, ClickandBuy).

ments of more than EUR 20 – about one-fourth of payments between EUR 20 and EUR 50 were made by debit cards. Credit cards accounted for a share of more than 5% only for amounts exceeding EUR 50. To be highlighted is the fact that, even in the case of payments of more than EUR 100, almost half of transactions were still processed in cash (table 6).¹⁴

¹³ In this article "value share" refers to the percentage share of a given payment instrument in the total value of overall transactions, whereas "volume share" is used to denote the share of a given payment instrument in the total number of overall transactions.

¹⁴ Essentially, this result corresponds to findings of ECB (2011), which are derived however not from actual transaction data but from questions relating to respondents' average payment behavior.

Table 6

Shares of Payment Instruments in Different Amount Categories

	Cash	Debit cards	Credit cards	Other
	%			
Up to EUR 10	95.7	3.1	0.2	1.0
EUR 10 to EUR 20	86.7	11.1	0.7	1.5
EUR 20 to EUR 50	70.9	24.4	1.9	2.8
EUR 50 to EUR 100	55.5	33.4	6.4	4.6
EUR 100 or more	48.9	33.6	8.2	9.3

Source: OeNB (2011 payment survey).

Note: This table shows the share of the relevant payment instrument in total payment transactions within the amount category indicated. The rows add up to 100%.

Payment cards are primarily used for larger-value amounts. Accordingly, the median transaction size of cash payments was EUR 11.2 (i.e. 50% of all cash payments were lower than EUR 11.2) and the median transaction size of debit card (credit card) payments EUR 34.9 (EUR 59.7).¹⁵ Chart 3 depicts the

entire distribution of cash, debit and credit card transactions.

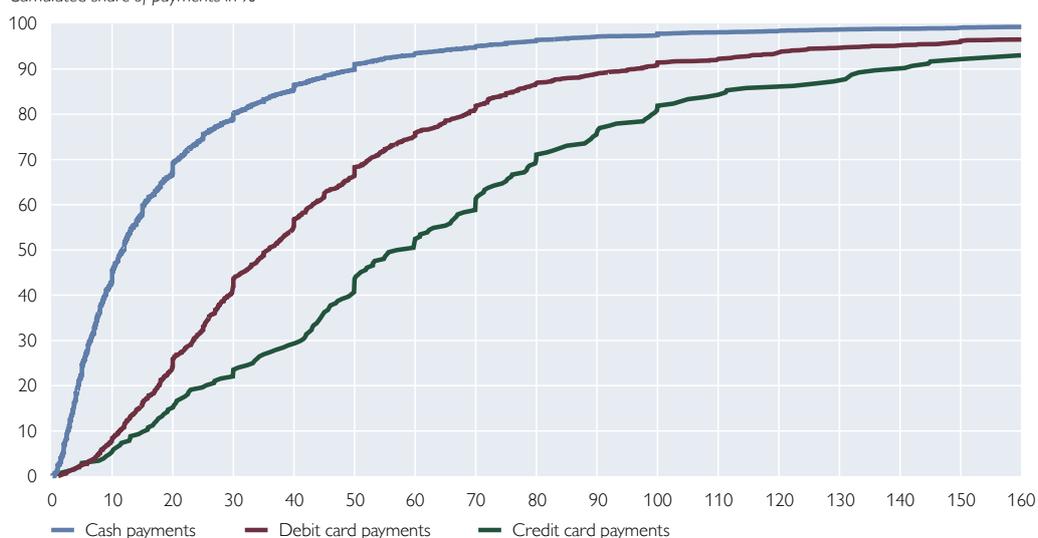
When analyzing the changes in payment habits for the period from 1996 to 2011, we exclude bank transfers for reasons of comparability. This is why the results for 2011 shown in charts 4a and 4b differ slightly from those in table 5. The comparison over time shows that debit cards continued to gain in importance in the period under review. However, while the share of debit card payments doubled between 2000 and 2005, its recent increase was less steep, accelerating by just 2 percentage points to about 14% between 2005 and 2011. The share of credit cards as a percentage of total payments remains small.

In terms of value shares, cash has further contracted (to 68%) although its decline in the period from 2006 to 2011 (–2.5 percentage points) was far

Chart 3

Distribution of Payment Amounts in 2011

Cumulated share of payments in %



Source: OeNB (2011 payment survey).

Note: The distribution of credit card payments is based on a relatively small number of observations.

¹⁵ The average payment amounts per payment instrument are shown in table 9.

less pronounced than in the period from 2000 to 2005 (–11 percentage points) – the years which saw the switch from the Austrian schilling to euro notes and coins. While one-fourth of overall payment volumes were settled with debit cards in 2011, the importance of credit cards remained small at just 5% in terms of payment value (chart 4a).

2.3 Usage of Cash in an International Comparison

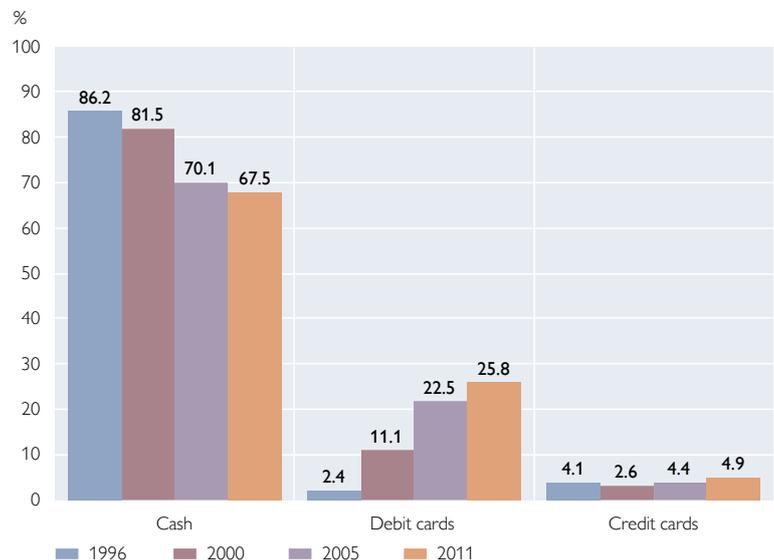
As far as we know, only a few central banks/research institutions are currently gathering data that are based on payment diaries. Most notably, a survey which was methodically largely comparable with its Austrian counterpart was carried out in Germany in 2011 (Deutsche Bundesbank, 2012).

A closer comparison reveals that the data for both countries are very similar in many respects. This factor may be seen as an additional validation of the Austrian (and vice versa also the German) findings. For instance, the average payment amount for cash payments in Austria and Germany is EUR 21 and EUR 20, respectively (median: EUR 11 and EUR 10). The shares in the overall number of transactions also show a surprisingly similar picture for both countries (table 7). By contrast, there are larger differences in terms of value shares: The cash share in Austria significantly exceeds that in Germany, while the share of payments by credit card and transfers is considerably larger in Germany.¹⁶

The differing results for Germany and Austria are leveled out to some extent if only cash, debit card and credit card payments are compared (exclud-

Chart 4a

Share of Payment Instruments (in Value Terms)

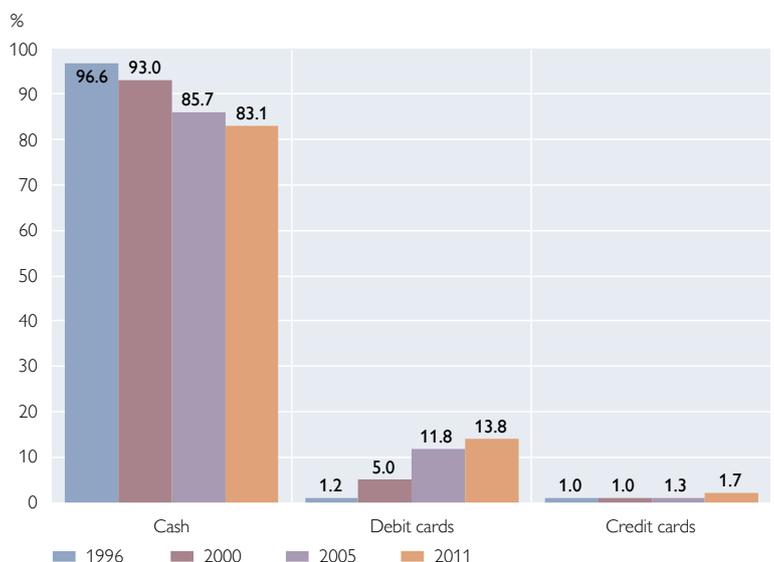


Source: OeNB (payment surveys).

Note: The chart shows the share of different payment instruments as a percentage of the overall payment volume the survey respondents recorded within a period of a week (payment diary).

Chart 4b

Share of Payment Instruments in Total Number of Transactions



Source: OeNB (payment surveys).

Note: The chart shows the share of different payment instruments as a percentage of all payment transactions that the survey respondents recorded within a period of a week (payment diary).

¹⁶ The fact that the volume share of credit cards and transfers is relatively similar in both countries suggests that the respective value shares are influenced by some larger value payments in Germany.

Table 7

Comparison with the Results for Germany

	Austria	Germany
	%	
Volume shares		
Cash	82.1	82.0
Debit cards	13.6	13.4
Credit cards	1.7	1.8
Direct debit payments/transfers	1.5	1.6
Other	1.1	1.2
Value shares		
Cash	65.3	53.1
Debit cards	25.0	28.3
Credit cards	4.7	7.4
Direct debit payments/transfers	3.7	8.9
Other	1.3	2.3
Value shares (excluding direct debit payments/transfers and other)		
Cash	68.7	59.8
Debit cards	26.3	31.9
Credit cards	5.0	8.3

Source: OeNB (2011 payment survey), Deutsche Bundesbank (2012).

Note: Both surveys were conducted at the same time. The underlying survey methodology and the design of the questionnaire for both surveys are largely comparable.

ing transactions by transfers or other means of payment). In this case, the value share of cash is some 60% in Germany and around 69% in Austria.

To assess whether cash is as dominant in other countries as it is in Austria, the results were compared with data for two additional countries that share a similar degree of economic development: the Netherlands and Canada (Jonker et al., 2012; Arango and Welte, 2012). However, it should be borne in mind that, for these countries, both the methodology of the data collection and the scope of the recorded payments diverge from those in Austria and Germany, which means that results are only roughly comparable.¹⁷ The share of cash in total payment value is 42% in the Netherlands and 23% in Canada. Debit card payments have a share of 54% in the Netherlands and 30% in Canada. Both countries thus have a far

higher value share of card payments, with cash payments in the Netherlands having been replaced almost exclusively by debit card payments and, in Canada, by both debit and credit card payments. In the Netherlands, as in Austria and Germany, the share of credit card payments is relatively small (3%), whereas in Canada it is 41%.

3 A More Disaggregated Analysis of the Development of Payment Transactions from 1996 to 2011

The development over time for different sociodemographic and transaction-specific subgroups is presented below for the period from 1996 to 2011.

3.1 Some Sectors Show Major Changes in Payment Instrument Use

Most of the recorded transactions were conducted in two sectors (food: 46%; restaurants/hotels: 22%). While debit cards were hardly used to pay for food in 1996, over the course of time (after 5% in 2000 and 13% in 2005) their share had risen to 16% by 2011. The clothing and shoes sector recorded the steepest decline in the share of cash transactions. In 1996, 87% of payments had still been transacted in cash in this sector. In 2011, however, cash payments accounted for only slightly more than half of all payments (57%). By contrast, the share of debit card payments increased – more than one-third of payments (36%) for clothing and shoes were processed with a debit card in 2011. Major changes were also seen in a second sector. At gas stations, 79% of transactions had still been cash payments in 1996, whereas in 2011 only 57% of all payments were made in cash.

¹⁷ The survey in the Netherlands was conducted online in 2010. The Canadian survey was conducted both online and via face-to-face interviews in 2009.

Table 8

Selected Results by Type of Purchase

Sector		Payment instrument share in volume terms in the relevant sector, %				Payment instrument share in value terms in the relevant sector, %			
		1996	2000	2005	2011	1996	2000	2005	2011
Total share of expendi- ture	Food	45.0	47.4	43.4	46.0	44.0	41.6	39.9	45.3
	Tobacconists/newsstands	14.2	12.9	11.7	10.4	5.5	5.1	6.0	5.6
	Clothing, shoes	6.0	7.0	6.0	6.6	16.4	18.8	15.4	13.9
	Gas stations	6.6	7.1	7.6	7.2	11.1	12.0	12.5	12.6
	Restaurants/hotels	21.1	21.0	22.3	22.1	17.1	13.0	15.0	12.9
	Leisure activities	5.6	4.5	5.6	2.7	6.0	9.3	7.9	3.3
Cash	Food	98.8	94.5	86.9	82.9	95.6	89.3	78.7	70.8
	Tobacconists/newsstands	99.7	99.4	97.7	92.6	98.8	97.9	95.1	83.6
	Clothing, shoes	86.6	78.5	67.7	56.8	73.3	63.2	51.3	38.7
	Gas stations	79.0	74.6	62.7	56.9	74.9	70.3	56.1	49.6
	Restaurants/hotels	99.4	99.0	98.5	95.9	88.9	96.9	94.7	91.6
	Leisure activities	98.1	94.6	83.7	82.1	92.8	73.4	68.1	60.4
Debit cards	Food	0.4	5.0	12.5	15.9	1.1	10.0	20.5	26.8
	Tobacconists/newsstands	0.0	0.4	2.3	6.5	0.0	1.6	4.9	15.6
	Clothing, shoes	1.7	13.3	26.8	35.7	3.2	21.8	35.2	47.2
	Gas stations	14.0	14.5	25.7	33.0	15.4	15.6	29.5	37.0
	Restaurants/hotels	0.0	0.2	0.8	2.2	0.0	0.3	2.0	4.1
	Leisure activities	0.7	2.3	12.6	11.7	1.9	11.0	16.0	19.4
Credit cards	Food	0.1	0.1	0.2	0.3	0.4	0.2	0.4	0.8
	Tobacconists/newsstands	0.2	0.1	0.0	0.5	0.9	0.5	0.0	0.6
	Clothing, shoes	4.9	6.1	5.3	5.6	8.6	10.3	12.8	12.2
	Gas stations	5.1	7.0	6.8	7.8	6.2	7.5	8.6	10.7
	Restaurants/hotels	0.6	0.4	0.6	0.9	11.1	1.1	3.3	3.2
	Leisure activities	0.5	1.0	2.6	3.5	2.7	1.9	13.6	15.7

Source: OeNB (payment surveys).

This development was also mostly attributable to a shift in the direction of debit card payments, whose share more than doubled from 14% in 1996 to 33% in 2011.

An analysis of the shares in terms of payment value reveals a largely similar picture, although the changes were even more pronounced. In the period from 1996 to 2011, the value share of cash payments fell by 25 percentage points in the food sector and by 35 percentage points in the clothing and shoes sector. In both sectors, this market share was absorbed by debit card payments (food: +26 percentage points; clothing and shoes: +44 percentage points).

Credit cards play a role primarily in sectors where larger-value amounts are paid: the share of credit cards as percentage of payment value rose from 6% (1996) to 11% (2011) at gas stations, from 9% to 12% in the clothing and shoe sector (table 8).

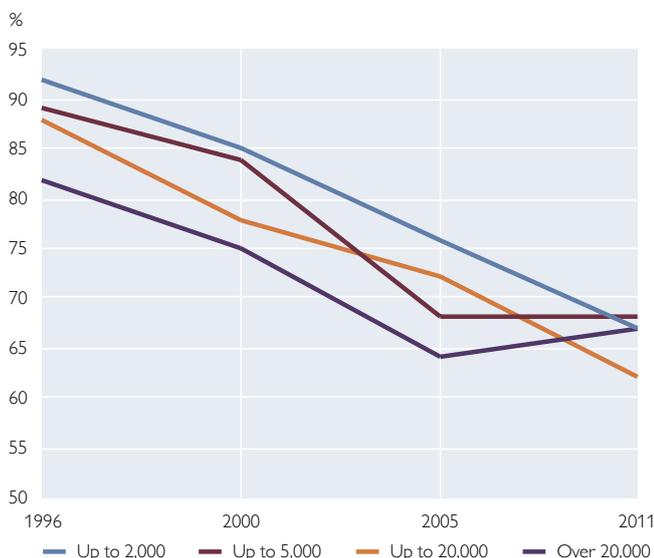
3.2 Decline in Cash Payments Particularly Marked among Young Respondents

Charts 5 and 6 show shares of cash payments (in terms of payment value) over time for different sociodemographic subgroups.¹⁸ A first look at differences between subgroups observed in 2011 reveals that particularly income, education and age are correlated with cash

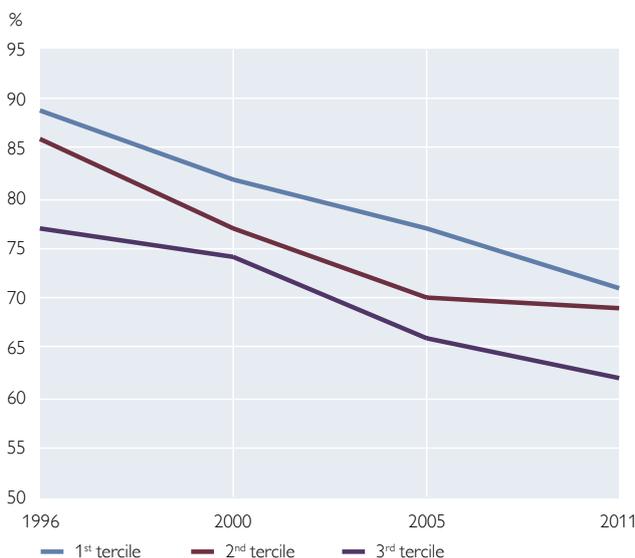
¹⁸ These calculations are based on only a relatively small number of respondents, implying that results could be distorted by larger-value payments. This is why we interpret only the larger trend, disregarding smaller fluctuations.

Share of Cash Payments by Sociodemographic Characteristics

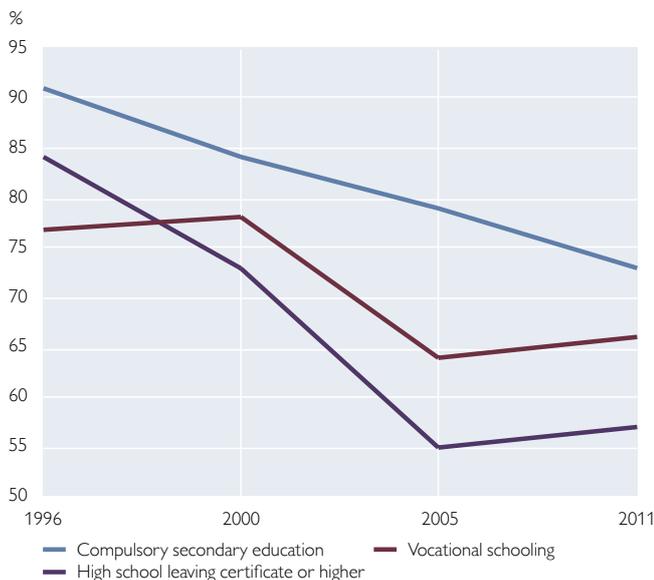
By size of respondent's home town



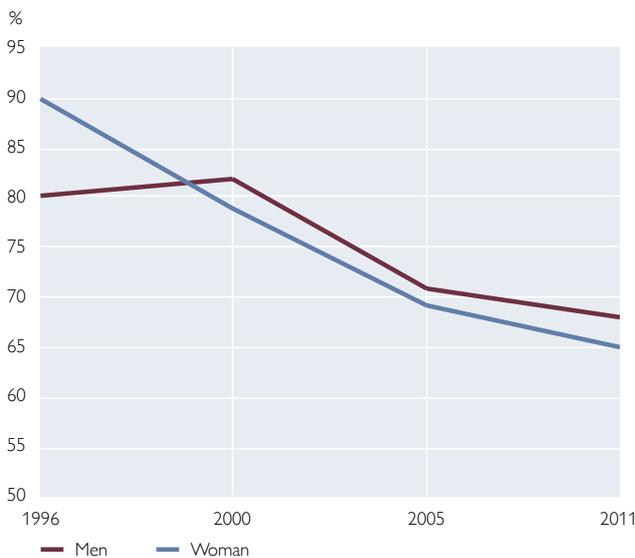
By income



By secondary education



By gender

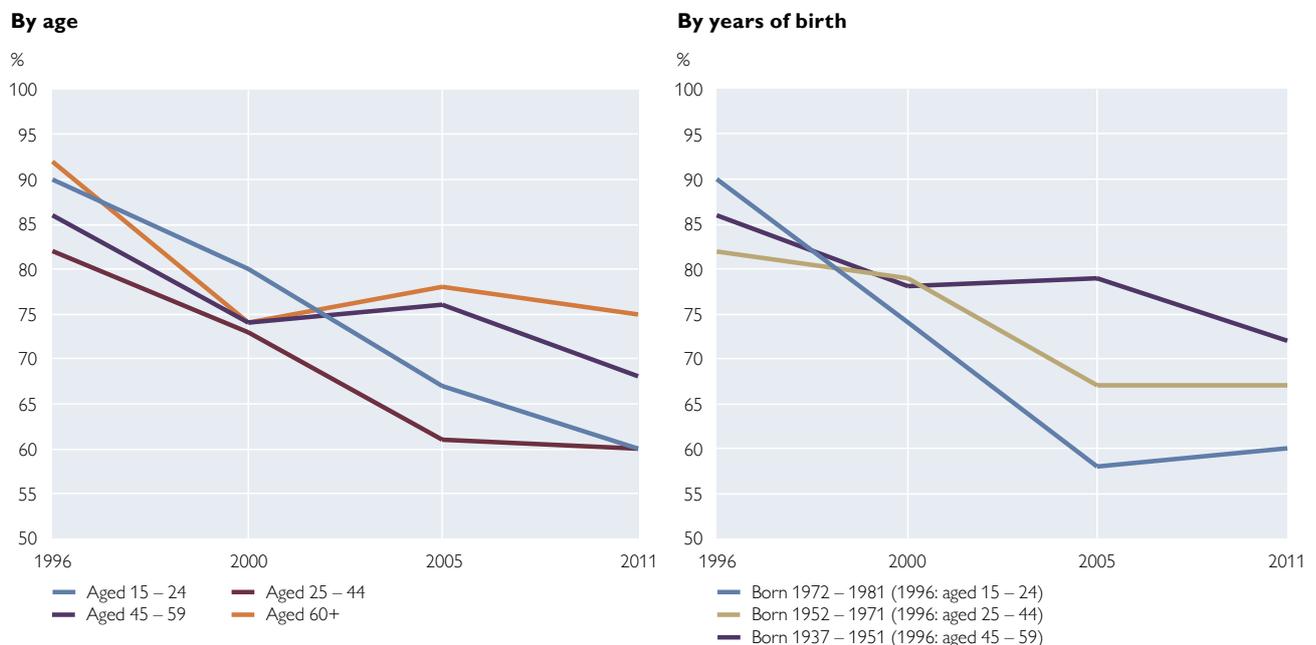


Source: OeNB (payment surveys).

usage, with the latter falling in inverse proportion to income and educational levels. By contrast, the older the respondents are, the higher their level of cash use is – the largest share of cash as a percentage of total expenditure was recorded by respondents aged 60+. Gender or size of home town only play a secondary role.

Over time, the decline in the share of cash payments was about equally strong in all income tertiles (e.g. the third tertile comprises the highest personal net income). Higher-educated persons (high school leaving certificate or higher) also reacted very strongly: they reduced their share of cash payments from 84% to 57% (for persons

Share of Cash Payments (in Value Terms) by Sociodemographic Characteristics



Source: OeNB (2011 payment survey).

who had completed only compulsory secondary education, the share still amounted to 73% in 2011). An analysis by age (chart 6, left-hand figure) shows that the share of cash payments over time slumped sharply (by 30 percentage points) for persons aged 15 to 24. At –17 percentage points, persons aged 60+ reduced their share of cash payments the least in relative terms. The difference between older and younger respondents has widened over time.

Alternatively, the effect of age can also be analyzed by looking at birth cohorts (chart 6, right-hand figure). Respondents who were young in 1996 (born 1972 – 1981) had a share of cash payments of 90% back then, which in the course of time fell to about 60%. The development was quite different for respondents who were already middle-aged to elderly in 1996: although

the share of cash payments for this group of respondents (born 1937 – 1951) also fell, it only declined from some 86% to 72%. A cohort effect is therefore discernible: the changes in payment infrastructure (especially, the increase in POS terminal density), which are likely to have affected everyone more or less equally, had an impact of varying strength on cash usage depending on the birth cohort.¹⁹

Analyzed in terms of gender-specific differences, the share of cash payments was significantly higher for women (90%) than for men (80%) in 1996. Since 2000, however, the difference in the share of cash payments between women and men has ceased to be of real significance. A catching-up process in POS terminal density could be the reason behind the finding that the share of cash payments slumped the most

¹⁹ Based on the assumption that all birth cohorts experienced similar changes with regard to the number of POS terminals.

sharply in smaller towns – with the decline topping 20% in villages and small towns (up to 20,000 inhabitants). In contrast, the decline in the cash share was only 14 percentage points in towns of more than 20,000 inhabitants.

3.3 Debit Cards Increasingly Used for Amounts Exceeding EUR 10

To understand the important role of cash, it is useful to analyze the overall distributions of payment amounts (table 4): 50% of the payments re-

corded are below EUR 15 and 75% are below EUR 33. These results imply that the relative importance of cash will not change much unless smaller-value amounts are settled with alternative payment instruments. For this reason it is important to analyze how the share of card payments has developed for small-value amounts.

Results show that the average payment amount of cash transactions fell over time, although the changes were not large: whereas an average cash payment amounted to EUR 26.4 (inflation-adjusted) in 1996, it was EUR 20.9 in 2011. In parallel with this development, the payment amount of debit card transactions also fell from EUR 59.2 to EUR 48.1 (table 4).

The changes are also observable over the distribution as a whole, with clear shifts emerging (chart 7). The use of debit cards considerably gained in importance for larger-value payment amounts. Until 2000, only 5% of payments were made with debit cards for

Table 9

Average Payment Amounts

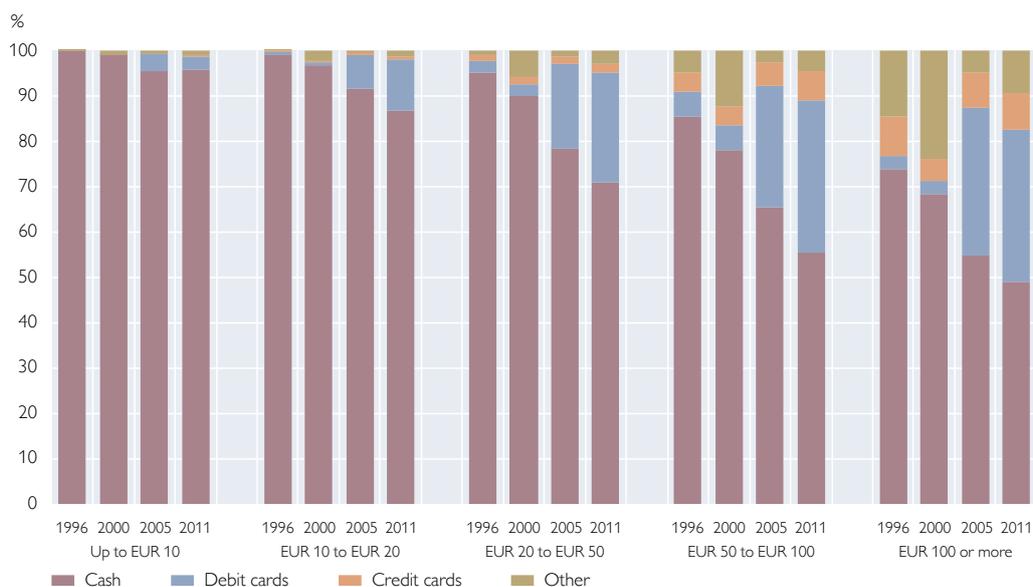
	1996	2000	2005	2011
EUR				
Cash	26.4	25.1	23.4	20.9
Debit cards	59.2	63.9	54.5	48.1
Credit cards	126.2	76.1	99.5	74.8

Source: OeNB (payment surveys).

Note: The payment amounts for the years 1996, 2000 and 2005 were inflated with the CPI to the value of the year 2011. The average values for credit card payments are based on a small number of observations, which means that their standard error is relatively large.

Chart 7

Share of Payment Instruments by Payment Amount from 1996 to 2011



Source: OeNB methods-of-payment surveys.

Note: Payment amounts for the years 1996, 2000 and 2005 were inflated with the CPI to the value of the year 2011.

amounts between EUR 50 and EUR 100. In 2011, by contrast, one-third of all payments in this range were made by debit cards. The share of debit card payments also grew for small-value amounts – however, shifts were only small for payments between EUR 10 and EUR 20 and barely evident for payments of up to EUR 10.

Overall, therefore, the results show that although debit card payments have substituted cash payments to some extent, cash payments have not been concentrated on specific amount ranges (small-value amounts, for instance). As for the question whether payment cards are also making inroads into the territory of low transaction amounts, it is clear that payment cards (particularly *debit cards* and *Quick-enabled cards*) have not succeeded in doing so in the 15 years under review. This situation may be attributable to both consumer and merchant behavior, with the latter being critically influenced by the service charge they have to pay for card transactions.

4 Reasons for High Cash Usage in Austria

This chapter discusses the possible reasons why cash in Austria is still widely used for payments. In general, cash usage can be supply- and/or demand-side driven. As an example, one could raise the question whether cash is largely used because cashless payment

instruments are not (always) accepted and/or whether the use of cash reflects consumer preferences and cost considerations.

To explore the significance of these explanations for Austria, descriptive survey evidence is discussed below. However, it should be emphasized that our analysis is indicative only and does not possess any informative value with regard to causal relationships.²⁰ Despite these qualifications, the results nevertheless help to shed light on the principal reasons underlying high cash usage in Austria.²¹

4.1 Card Acceptance and Market Structure

For each individual cash transaction, the payment diary recorded whether the transaction could also have been made in cashless form. On the basis of the relevant results, we analyze whether high cash usage is attributable to insufficient payment card acceptance.

Table 10 summarizes results concerning the share of transactions for which cashless payments were or would have been feasible (in the event that cash was paid). When interpreting these figures, it should be kept in mind that they are based on the subjective assessment of respondents, which means that the figures could be biased. For instance, a distortion would arise if cash-only users did not realize whether payment cards are accepted or not.²²

²⁰ Two cases are cited as examples of problems that may arise in the interpretation of the results. First, a low level of payment card acceptance by merchants could be interpreted as an explanation for the high share of cash payments. The acceptance of payment cards, however, is itself endogenous and depends on consumer behavior. Second, cash usage depends on the costs of cash withdrawals. We will only touch upon this aspect.

²¹ The processing of payments in cash in order to avoid taxes may also be of relevance. Since we cannot furnish any evidence for such behavior, this factor is not considered below. However, we assume that this motive is unlikely to strongly influence payment habits in volume terms (although it could be pertinent for specific ranges of amounts). This assessment derives from the fact that the overwhelming majority of payments recorded in the survey are relatively small (95% of the payments are less than EUR 90).

²² A further limitation is that this answer was not provided in quite a number of cases. Such missing answers are not included in table 10. Their inclusion generally results in the acceptance rate being lower – around 64% (instead of 76%). The underlying pattern of the results in table 10, such as those relating to different expenditure categories or payment amounts, remains largely unaffected, however.

Table 10

Perceived Acceptance of Payment Cards

	% of transactions
Total	76
By sector	
Food	89
Tobacconists/newsstands	81
Clothing, shoes	96
Gas stations	97
Restaurants/hotels	38
Leisure activities	44
By payment amounts	
Up to EUR 5	56
EUR 5 to EUR 10	71
EUR 10 to EUR 25	80
EUR 25 to EUR 50	85
Over EUR 50	89
By size of respondent's home town (inhabitants)	
Up to 2,000	72
Up to 5,000	74
Up to 20,000	80
Over 20,000	76

Source: OeNB (2011 payment survey).

Note: This table shows the share of transactions (in terms of overall transaction numbers) for which card payments were feasible. The values represent the respondents' subjective assessment. The category "Don't know" was not included.

Bearing this limitation in mind, we find that card payments would have been feasible for 76% of total transactions. Prima facie, this finding does not indicate that the high propensity for cash in Austria is solely the result of a low level of payment card acceptance.

Table 10 also includes a disaggregated sector-by-sector presentation – for two reasons: first, this makes it possible to check the plausibility of the results. Results confirm that payment cards are accepted for almost every transaction in the clothing and shoes sector and at gas stations, which concurs with the authors' perception. By contrast, payment card acceptance is the lowest in restaurants/hotels. It is

similarly low in the leisure activities sector, which is marked primarily by the provision of services. Second, the sectoral results allow us to draw more precise conclusions about payment habits. For instance, they show that some 90% of food purchases – the by far most important expenditure category of respondents – are payable by card. Nevertheless, the share of cash payments for food items stands at 71% (in terms of payment value). By contrast, the share of cash payments in the clothing and shoes sector, which also showed a very high card acceptance level, was only 39%. One reason for this difference could lie in differing payment amounts, with this factor potentially influencing both consumer behavior and merchants' acceptance of payment cards. As regards the latter, a classification by payment amounts confirms that the acceptance of payment cards is much lower for small-value amounts than for large-value amounts. This phenomenon points to the effect of costs which merchants incur for low-value card payments.²³

This survey includes far more transactions made by city dwellers than small town inhabitants, which means the figures shown might be distorted toward higher levels of payment card acceptance. This is why card acceptance was also analyzed by size of a respondent's home town. Although the data suggest that payment card acceptance is somewhat lower in small towns than in cities, the difference is relatively small.

It can be summarized therefore that the high propensity for cash payment is on average unlikely to be attributable to a low level of payment card acceptance even if this factor is certainly important

²³ This finding is also evident in Walter (2010), with merchants being asked in this study which payment instruments they would accept. Walter (2010) shows that payment card acceptance is positively correlated with the average payment amount.

in some sectors such as restaurants/hotels or for small-value amounts. Von Kalckreuth et al. (2009) reach a similar conclusion in their study for Germany. Using data derived from a similar survey for Germany, they show that the availability of alternative payment options reduced the share of cash by some 9 percentage points, a reduction which does nothing to change the dominance of cash.

Indirect evidence as to the effect increased payment card acceptance is likely to have in the short term can be derived from answers to the following question asked in the survey: “If cashless payments were possible everywhere – even for small-value amounts and at businesses which currently accept cash only – how would you pay?” Only some 19% of respondents stated that they would settle a higher share of their expenditure by cards. Walter (2010) also arrives at a similar result, albeit from a different angle. In a survey of consumers at Viennese shopping centers, respondents who had paid in cash for their most recent purchase specified a 75% probability that they would pay cash again even if other payment instruments were accepted.

An additional factor, which was excluded in the previous analysis, is the costs incurred by the use of payment instruments and, above all, by the use of cash. Cash usage depends on the costs of withdrawing cash, e.g. the travel time to an ATM. In this respect, Austria stands out for its relatively high ATM density,²⁴ and for the fact that most bank customers in Austria do not incur direct fees for ATM withdrawals. Both these factors favor the use of cash relative to the use of payment cards.

However, it is worth restating that the direction of causality remains unclear (are there many ATMs because cash usage is high, or vice versa?).

4.2 Preferences

A second important explanatory approach focuses on consumer preferences. To explore this aspect, the survey included questions relating to the characteristics of payment instruments. An initial question relating to this matter asked respondents which attributes of payment instruments they considered to be important. A follow-up question then elicited information about the extent to which cash, debit cards and credit cards satisfy these characteristics.

Table 11 summarizes the importance ascribed by respondents to the different attributes of payment instruments. The results reveal a consumer preference for payment transactions that are easy, quick and cost-effective for the consumer. In addition, potential consequences in the event of theft and the degree to which payment instruments allow consumers to keep track of expenditure play a role as well.

Based on these results, chart 8 shows the extent to which cash, debit cards and credit cards have those six payment instrument attributes that were rated most important by respondents.²⁵ The chart shows that cash is always better rated than the two card payment alternatives, although the gap between cash and debit cards is not large as regards ease of payment transaction. While 94% of respondents stated that cash payments were easy and practical, the comparable figure for debit card payments was 86%. The gap as regards speed of transaction was some-

²⁴ Austria: 960 ATMs per 1 million inhabitants; Germany: 1,008; the Netherlands: 475; Canada: 1,749 (all figures refer to the year 2010, source: BIS and ECB).

²⁵ This question was also answered by respondents who do not possess the relevant payment card to be assessed.

Table 11

Importance Attached to Payment Instrument Attributes

	% of respondents
The payment process is easy and practical	79.4
The payment process is fast	76.4
The payment instrument does not entail additional costs, e.g. account fees	69.8
The payment instrument allows me to keep track of my expenditure (e.g. through account statement entries)	67.8
The payment instrument offers the least possible inconvenience in the event of fraud or theft	66.9
The payment instrument is accepted by the greatest number of merchants possible	65.6
The payment instrument ensures my anonymity	56.8
The payment instrument keeps me from spending more than I planned	49.8
I don't need to pay attention to whether I can pay by card	49.3
I don't need to pay attention to whether I have enough cash on me	49.0
I receive discounts and/or rewards on payment	40.8
Delayed debit option for larger-value payments	32.8

Source: OeNB (2011 payment survey).

Note: This table shows the share of respondents to whom the relevant feature is "very important."

what wider (94% versus 82%). In analogy to the above, debit cards are better rated than credit cards in terms of every feature, which probably also reflects the fact that the latter are not very widespread.

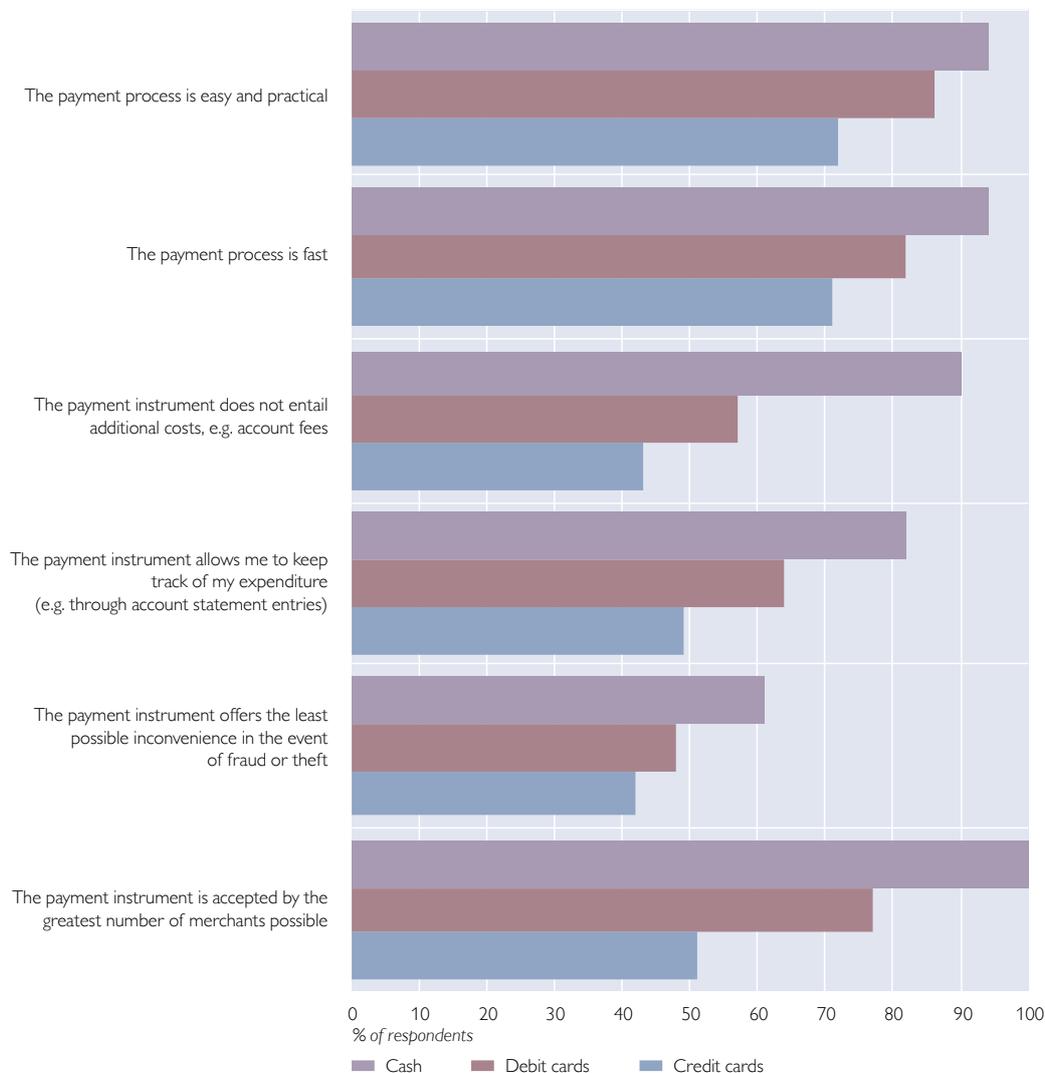
In summary, the results indicate that cash best satisfies users' expectations regarding those attributes of payment instruments that consumers rate most important.

Finally, consumers' behavioral persistence may represent another important explanation in this context. However, a conclusive assessment of this factor using cross-sectional data is rather difficult. For this purpose, data relating to the behavior of individual consumers over time would be necessary. At the very least, however, indirect evidence can be used for an assessment. Preliminary evidence was already furnished in the course of the cohort analysis (section 2.4). The results pointed to the existence of habit persistence. In addition, respondents were also asked directly whether their use of payment instruments today differs from their use ten years ago. Overall, about 40% of respondents answered in the negative. While we

cannot exclude that these answers suffer from memory bias, we also find, reassuringly, that answers are largely consistent if we compare them with current payment practices: most respondents who always pay cash today answered they have not altered their behavior in the previous ten years. By contrast, the overwhelming majority of respondents who were already using payment cards ten years ago (provided they had one in the first place) have altered their behavior and currently make card transactions more frequently than they did at that time. It can thus be concluded that there exists a certain behavioral persistence in the group of exclusive cash payers, who account for roughly one-quarter of respondents. However, it should be noted that the existence of habit persistence does not necessarily mean that agents act irrationally. Von Kalckreuth et al. (2011) show for instance that it can be rational for certain people to rely on cash transactions and to possess few payment cards. This behavior makes sense primarily for people who have strong incentives to keep track of their expenditure.

Chart 8

To What Extent Do Cash, Debit Cards and Credit Cards Have the Attributes Favored by Respondents?



Source: OeNB (2011 payment survey).

Note: The table only includes those six attributes of payment instruments that were rated most important by respondents. It shows the share of respondents who consider a payment instrument to have satisfied the relevant requirement "well" or "very well." With regard to payment instrument acceptance, we assumed that cash satisfies the latter requirement "very well" for every respondent.

5 Summary and Conclusions

The results of the OeNB's 2011 methods-of-payment survey, which are presented in this study, permit a detailed insight into which payment instruments are used by Austrian households. The comparison of four surveys, which were carried out from 1996 to 2011, provides an overview of the changes

that have taken place within this period. This comparison over time is important as cashless payment options have developed rapidly and payment cards have become more widespread in the 15-year period spanned by the surveys.

The results reflect this development and confirm, as expected, that the use of payment instruments by consumers

has undergone considerable changes. Debit cards have gained in importance significantly and check payments have disappeared completely, while credit card payments continue to play a role for larger-value amounts only. Although these changes have brought about a significant decline in the use of cash, it still remains the dominant payment instrument. Innovations such as mobile phone payments or online payment solutions play only a minor role in an aggregate perspective. All in all, therefore, a cashless society in Austria – as in many other developed countries – still looks to be a very distant prospect.

This picture is also confirmed in a more detailed analysis. The use of payment instruments correlates with education, income and age. Be that as it may, more than 50% of expenditure is still processed with cash in each of these sociodemographic subgroups. Next to education, income and age, there are two further determinants that have a significant effect on the use of payment instruments. The first is the sector in which the purchase is made. In this regard, results proved heterogeneous over time. In the clothing and shoes sector and at gas stations, for instance, there are now more cashless transactions than cash payments. However, cash still plays a central role in restaurants/hotels and the services sector. The second determinant, which is connected to the first, is the size of the payment. Here, the results show that debit cards have gained shares primarily for payments starting from EUR 10. Transactions ranging from EUR 100 and upward were mostly processed in cashless form in 2011. In the range below EUR 10, however, cashless payment alternatives continue to play an insignificant role. In order to assess future developments, the fact that most direct payment transactions made by

consumers comprise small-value amounts (50% of all payments were less than EUR 15 in 2011) is important. It therefore remains to be seen what impact the introduction of contactless payment systems for small-value amounts (using cards or mobile phones) will have. The present study shows that consumers appreciate payment instruments that are fast, easy and practical to use. Moreover, the acceptance of cashless payment instruments by merchants seems to be limited for small-value amounts. For these reasons, contactless payment systems probably have the potential to replace cash in small-value transactions. However, survey evidence also reveals that consumers tend to use only a small number of different payment options (cards and cash) on average.

Why cash remains of such importance will be the subject of further more in-depth studies. The literature has shown that consumers do react to changes in relative costs. Seen from this angle, it can be deduced that cash must continue to offer an edge over payment cards. Likely explanations could lie in the (lack of) acceptance of payment cards by merchants, in the density of the ATM network and in the preferences of households. In addition to pure cost considerations, some consumers may also use payment instruments out of sheer habit. Although we find some evidence for habit effects, they are unlikely to be the main drivers of the persistent importance of cash.

To sum up: cash as a payment instrument has lost ground, as expected, and will continue to do so in future. However, cash remains so dominant that even a future decline in usage will do little to challenge its position as an important payment medium. Furthermore, the results presented show that changes in payment habits do not occur

suddenly. We thus stand by the assessment of our study from the year 2006 (Mooslechner et al., 2006: “From a monetary policy perspective (...) the impact of structural changes on Austrian households’ payment habits can be expected to remain minor in the medium term.”)

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Appendix

Table A1

Sociodemographic Structure of the Samples

	1996	2000	2005	2011
Age				
Aged 15–24	17.5	15.3	15.2	12.3
Aged 25–44	35.3	38.7	36.4	33.9
Aged 45–59	21.7	20.3	24.0	26.8
Aged 60+	25.4	25.6	24.4	27.0
Gender				
Female	53.2	53.8	51.5	52.4
Male	46.8	46.2	48.5	47.6
Secondary education				
Compulsory secondary education	60.5	52.8	52.8	58.3
Vocational schooling	18.9	19.0	20.9	13.4
High school leaving certificate or higher	20.5	28.2	26.3	28.3
Personal net income				
1 st income tercile	45.3	49.6	33.5	35.3
2 nd income tercile	27.5	22.1	32.4	32.2
3 rd income tercile	27.2	28.3	34.0	32.4
Size of place of residence				
Up to 2,000 inhabitants	20.1	19.8	27.3	16.2
Up to 5,000 inhabitants	20.9	27.6	25.9	21.7
Up to 20,000 inhabitants	16.9	14.2	15.5	18.6
Over 20,000 inhabitants	42.2	38.4	31.3	43.5

Source: OeNB (payment surveys).

Statistical Background Information

Survey institute: Institut für empirische Sozialforschung GmbH (IFES, Institute for Empirical Social Research)

Survey period: September 2011 to January 2012, with 91.4% of the payment diaries maintained between September and November

Survey population: Persons aged 15+ who reside in Austria and speak German

Survey sample: 3,992 (less neutral nonresponses²⁶; adjusted sample 3,802) persons

Interviews held with: 2,271 persons

Response rate (based on the adjusted sample): 59.7%

Number of completed payment diaries returned: 1,165

Sample design: Stratified multistage clustered random sampling. Stratification is by federal province, political district and size (category) of municipality.

Weighting: By age, gender and federal province

Survey method: Computer-Assisted Personal Interviewing (CAPI). Following the interview, respondents who had not already indicated their unwillingness to complete a payment diary were given the payment diary together with a reply envelope (handed over to some 75% of respondents)

²⁶ False addresses, clearly unoccupied flats/houses and people who do not speak German or who are mentally unable to answer are designated as neutral nonresponses.

Glossary

Debit card

A debit card (ATM card, bank card, savings bank card) is a card that can be used for cashless payment purposes and for withdrawing cash at ATMs. The payer's account is directly and immediately debited following payment (unlike with credit cards).

POS terminal

A Point-Of-Sale (POS) terminal is a payment system infrastructure facility, which is used to carry out cashless transactions with a payment card at a physical (nonvirtual) point of sale. Actual credit card acceptance may however differ from POS terminal density.

Housing Cost Burden of Austrian Households: Results of a Recent Survey

Christian Beer,
Karin Wagner¹

This article presents the results of a survey carried out in spring 2012 to determine the level of housing costs incurred by Austrian households. The housing cost survey shows that the share of housing costs borne by homeowners (loan repayment plus operating expenses and energy costs) accounts for 25% (median: 19%) of their net household income and is thus far lower than that borne by tenants (rent plus operating expenses and energy costs), which accounts for 34% (median: 29%) of tenants' income. The burden of housing costs is significant in the lowest income quartile, in particular (tenants: 51% of their net household income, homeowners: 44%). This study compares the results of this survey with those of a comparable survey that was carried out in 2008. The results show that the share of housing costs as a percentage of income increased by 2 to 6 percentage points during the previous four years. The second part of this article analyzes the vulnerability of households. About 6% of households (8% of tenants, 38% of the unemployed and 12% in the lowest income quartile) state that they were in arrears with rent payments or operating expenses in the previous 12 months on at least one occasion owing to financial constraints. Around one-third of tenants are obliged to restrict their consumption to cover their housing costs.

JEL classification: D14, D31, R21, R31, R38

Keywords: housing, housing costs, housing cost burden, housing finance

Housing meets a basic need: individuals are dependent to a greater extent on this good than on other goods, which is why substitution is not possible. For most households, housing costs make up the largest category of consumption. In particular, low-income households spend a considerable portion of their income on covering their housing requirements. For these households, an increase in housing costs or a decline in income can mean that their own income can no longer cover their housing costs. Furthermore, households with outstanding loans issued to purchase housing can also be affected by an increase in the burden of housing costs since, despite often having a relatively high income, these households may no longer be able to meet their obligations on account of the loan they have taken out. The present article will also analyze this vulnerability of households vis-à-vis the burden of their living expenses on the basis of the survey data.

According to Statistics Austria, a total of 44% of Austrian households rented their main residence in 2011, with some 40% holding the lease as the main tenant, 1% holding a sublease and about 3% having another type of contractual arrangement. Owing to, among other factors, higher levels of uncertainty about the housing situation, the position of tenants has deteriorated in recent years. For instance, the share of fixed-term tenancy agreements in private housing has increased sharply. In 2004, 50% of newly concluded private tenancy agreements were for a fixed term. In 2010, by contrast, the share of these tenancy agreements had risen to 58%. For both cooperative and public housing apartments, however, the share of fixed-term tenancy agreements fell in this period from 14% to 9% and from 17% to 10%, respectively.² Overall, 38.6% (2004: 35.9%) of rental housing newly let as a main residence was for a fixed

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² Fixed-term tenancy agreements in cooperative and public housing are rare (they account for only about 16% of total fixed-term tenancy agreements) and the related number of cases is therefore small.

Table 1

Tenancy Agreements of Main Tenants

	Private			Overall		
	Built pre-1945	Built post-1945	Total	Built pre-1945	Built post-1945	Total
%						
Concluded in 2004 (as of 2005)						
Unlimited period	55.3	47.2	50.4	59.7	66.1	64.1
Fixed term	44.7	52.8	49.6	40.3	33.9	35.9
Concluded in 2010 (as of 2011)						
Unlimited period	52.7	34.8	41.8	58.3	62.5	61.4
Fixed term	47.3 ¹	65.2	58.2	41.7 ¹	37.5	38.6

Source: Tockner (2012).

¹ Small number of cases.

term (Tockner, 2012). In addition, the data shows that, for private rental housing, fixed-term tenancies are more expensive than tenancies for an unlimited period (in terms of the average costs per square meter, category A, i.e. highest standard).³

Unlike tenants, homeowners do not pay rent. However, homeowners are frequently indebted and are subject to interest rate fluctuations and, if they have taken out foreign currency loans, also to exchange rate risks. For homeowners with debt, the expenditure incurred to repay outstanding loans or to pay the loan interest should also be included in the burden of housing costs, in addition to the operating expenses and the energy costs. In Austria, housing purchases are settled with a relatively high share of equity. According to data compiled by the Eurosystem Finance and Consumption Survey (2010), some 36% of Austrian households hold debt, primarily by way of mortgage loans. 20% of indebted households hold debt in excess of EUR 67,000. Half of all indebted households have less than about EUR 14,000 of debt (Fessler et al., 2012). Even if no risk exists from a financial stability perspective, an analysis of the data at a disaggregated level shows that loan repayments account for a high percentage share of the disposable household income of lower-income households.

In view of both the sharp slump in subsidized new builds in recent years (owing, among other factors, to the discontinuation of ringfencing funds for homeownership assistance loans and to the rise in demand-side subsidies) and

the increase in housing prices, it appears expedient to highlight housing affordability to better estimate the vulnerability of households. The financial and economic crisis has very closely integrated the housing market with the real economy and the financial market. This is why the Oesterreichische Nationalbank (OeNB), in collaboration with the Institut für empirische Sozialforschung GmbH (Institute for Empirical Social Research – IFES), carried out a survey on housing costs in spring 2012.

This survey selected a representative sample of 2,156 households that were asked about their housing costs and how they pay these costs. Of these households, 1,933 were chosen for the analysis. For the selection of these households, see the annex. This study presents some descriptive analyses of these data and examines the extent to which housing costs are currently squeezing Austrian households and whether these costs have increased in

³ This is surprising insofar as for rental properties subject to the full implementation of the Austrian Tenancy Act, fixed-term tenancy agreements are typically granted a discount of 25%. One of the reasons for this is likely to be the benchmark system together with unclear rent ceilings owing to numerous additional payments (Tockner, 2012). An alternative explanation might be that fixed-term tenancy agreements include more recent rents that are closer to market rates whereas tenancy agreements for an unlimited period were concluded at a rent level that is excessively low compared with the current market situation.

recent years, leading to the restriction of other consumption.

The article first analyzes the burden of housing costs and the resulting differences between homeowners and tenants. Section 2 presents some analyses on financing housing purchases. Data on how households settle their housing costs, how they deal with a possible steeper increase in housing costs compared with a rise in income are presented in section 3. In addition, the results of a comparable survey from 2008 (Wagner, 2011) are used to analyze the growth in housing costs. Section 4 is devoted to households that have problems in settling their housing costs and that (are obliged to) respond by restricting their other consumption. Section 5 rounds off the analyses with some concluding remarks.

1 What Share of Income Do Tenants and Homeowners Spend on Housing?

The housing cost burden is defined below as the share of housing costs as a

percentage of net household income.⁴ The housing costs of tenants consist of rent inclusive of the operating expenses, those of homeowners of operating expenses and, for households with outstanding loans taken out to finance housing purchases, housing costs also include loan repayments.⁵ For both tenants and homeowners, energy costs (power, heating, hot water, oil, etc.) are added to these costs. For homeowners, furthermore, additional housing costs such as the consumption of fixed capital, maintenance costs, foregone interest, etc. and increases in the value of the housing should also be factored in. The different ways of measuring costs and the noninclusion of some factors should be taken into account when interpreting the results, particularly for comparisons between homeowners and tenants, as comparability is limited in this case.

The analyses show that the housing cost burden decreases in proportion to income for both homeowners and tenants (table 2). Tenants in the first income quartile use 51% (median: 42%) of their net household income for settling housing costs while for homeowners in this income quartile, housing costs are far lower at 44% (median: 28%). In this respect, it should be borne in mind that the share of homeowners in the first income quartile is relatively small (37%).

The share of homeowners increases in proportion to the level of income. In the fourth income quartile, about two-thirds of households are owner-occupiers. The major difference between the

Table 2

Housing Cost Burden in 2012

	Tenants			Homeowners		
	Mean	Standard error	Median	Mean	Standard error	Median
	<i>% of household net income</i>					
1 st quartile	51.3	(3.4)	41.5	43.6	(7.4)	28.2
2 nd quartile	32.1	(0.9)	30.5	28.9	(2.1)	21.8
3 rd quartile	26.1	(0.7)	25.1	22.9	(1.2)	18.6
4 th quartile	19.0	(0.7)	17.1	16.3	(0.8)	13.4
All households	34.0	(1.2)	29.1	24.9	(1.3)	19.0

Source: OeNB Housing Cost Survey 2012.

⁴ The imputation of household income is described in the annex. Data on housing cost levels are not available for a total of 356 households. For these households, therefore, the housing cost burden cannot be calculated. It made little sense to impute housing costs, as sufficient data on the housing situation are unavailable.

⁵ The survey defines loan repayment as the payment of both the principal and the interest, with only interest payments constituting true costs, however. The homeowner's burden might be overestimated depending on the perspective considered. However, opportunity costs (notional rent) as well as amortization and/or renovation, i.e. changes in housing value, are not included.

Table 3

Form of Housing

	Share %	Standard error
Tenants	47.3	(1.3)
Homeowners	52.7	(1.3)
Tenants		
1 st quartile	62.8	(3.1)
2 nd quartile	51.1	(3.0)
3 rd quartile	45.2	(2.8)
4 th quartile	33.3	(2.4)
Homeowners		
1 st quartile	37.2	(3.1)
2 nd quartile	48.9	(3.0)
3 rd quartile	54.8	(2.8)
4 th quartile	66.7	(2.4)

Source: OeNB Housing Cost Survey 2012.

median and the mean of the housing cost burden in the first income quartile is, among other things, attributable to the fact that a higher-than-average share of these households do not settle their housing costs exclusively from their own income but receive rent subsidies, for instance (section 4). Since the current survey did not record the level of these subsidies, a housing cost burden of more than 100% can result when measured against income. This may also be the case if the income at the time of the survey was particularly low in the short term and was less than the housing costs.

An analysis of the housing cost burden of households that fully bear their housing costs themselves reveals consistently similar results apart from slight changes in the first income quartile (mean burden of tenants in the first quartile: 49%).

Median and mean values diverge less sharply in the second income quartile. Tenants in this quartile spend around one-third of their income on housing costs. In both upper quartiles, the housing costs of tenants are no higher than around 25% of income and, for homeowners in the topmost quartile, the housing costs amount to 16% (median: 13%) of income.

An analysis of homeowners shows clear differences depending on whether loans for the purpose of financing housing purchases were outstanding. For homeowners in the first income quartile who still have an outstanding loan to repay, the average housing cost burden amounts to 92% (median: 87%) of household income. This heavy burden is explicable by the fact that younger homeowners whose income is still low at this stage and who are more likely to have outstanding loans are found in this quartile.

The housing cost burden of tenants is higher than that of homeowners across every income quartile. This phe-

Table 4

Housing Cost Burden in 2012

	Homeowners without loans			Homeowners with outstanding loans		
	Mean	Standard error	Median	Mean	Standard error	Median
% of household net income						
1 st quartile	33.4	(4.0)	27.9	92.2	(7.5)	86.9
2 nd quartile	22.6	(1.9)	20.6	54.9	(5.1)	48.1
3 rd quartile	17.6	(1.4)	16.4	35.2	(2.1)	31.5
4 th quartile	9.9	(0.7)	9.6	24.7	(1.4)	23.5
Total	19.2	(1.1)	17.2	38.3	(2.1)	30.4

Source: OeNB Housing Cost Survey 2012.

nomenon is also based on the fact that about two-thirds of homeowners in this survey do not have outstanding loans (anymore). The average burden of housing costs for homeowners who still have credit obligations, however, is around 38% and thus exceeds the average housing cost burden of tenants.

2 Financing Housing Purchases

The housing costs of homeowners are critically determined by the form of financing selected. In credit financing, interest is usually incurred as an additional cost. However, funds for loan repayments, which represent merely a shift in wealth, also have to be raised. The data on the financing of housing purchases, which were included in this survey, are therefore presented below.

Multiple answers were admissible to the question on the financing of housing purchases. Equity (e.g. household savings) contributed to the purchase of housing for around 80% of households. For about one-third of households, equity was made available via gifts or inheritances.⁶ In addition to equity, some 68% of owner-occupiers tapped debt financing (loans, homeownership assistance loans, other debt finance),

with debt financing increasing in importance as the level of income rises (survey data also confirm that higher-income households are more likely to have a loan approved).

More than half (about 55%) of all homeowners who have taken out a loan to finance housing purchases have a building loan,⁷ 35% have a euro-denominated bank loan. About 11% opt for a foreign currency loan, and an equally high share selects a loan from another institution (e.g. a salary advance, a loan from a private financial intermediary). About 50% of households that have taken out a home purchase loan have already repaid the loan.⁸ Overall, some 18% of households in the underlying sample and some 35% of borrowers therefore have an outstanding loan, according to the survey. A comparison of the mix of finance for financing housing purchases with the mix for outstanding loans reveals a somewhat higher share of foreign currency loans and the lesser importance of loans granted by a building and loan associa-

Table 5

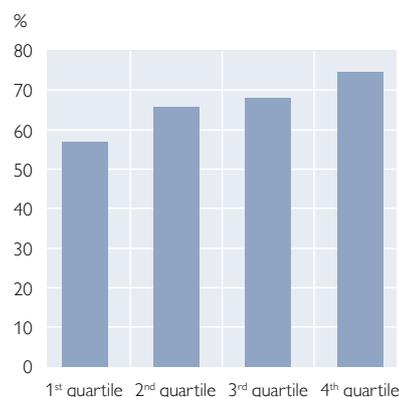
Forms of Financing for Housing Purchases

	Average %	Standard error
Equity, savings	78.9	(1.7)
Loans: banks, other credit institutions, other institutions	53.7	(2.0)
Home ownership assistance loans	35.7	(1.9)
Other debt financing (salary advances, loans from friends)	1.4	(0.4)
Gifted amounts, inheritances	33.7	(1.8)
No information provided	4.2	(0.9)

Source: OeNB Housing Cost Survey 2012.

Chart 1

Share of Owner Households with Debt Financing by Income Quartiles



Source: OeNB Housing Cost Survey 2012.

⁶ For information about the role of inheritances in the ownership of real estate in Austria, see Fessler et al. (2010).

⁷ Loan from another type of credit institution (e.g. loan granted by a building and loan association).

⁸ Data on other forms of debt financing are not available.

Table 6

Loan Financing of Housing Purchases

	Financing via			
	loans taken out		still outstanding loans	
	Share	Standard error	Share	Standard error
Euro bank loans	35.4	(2.5)	37.1	(3.2)
Foreign-currency bank loans	11.5	(1.7)	14.8	(2.3)
Other credit instruments (e. g. loans granted by a building and loan association)	54.6	(2.6)	41.3	(3.3)
Other institutions	11.6	(1.6)	8.9	(1.8)

Source: OeNB Housing Cost Survey 2012.

tion. About 7% of the outstanding loans are bullet loans. The most common forms of funding loan repayments are life insurance policies and mutual funds.⁹

3 Payment of Housing Costs

As expected, almost all households use their current income to pay their hous-

ing costs. About 5% of owner households and 7% of tenant households also use savings and rent subsidies, respectively, to (partly) pay their housing costs. For a closer analysis of the recipients of subsidies, see section 4.

The responses to the question of whether households would be able to settle their housing costs with just a single income provide information about potential problems in settling housing costs.¹⁰ If only a single income covers the housing costs, but a household receives more than one income, this household runs less of a risk of running into difficulty in the event of a fall in income.

About 87% of households would be able to settle their monthly housing costs with just a single income. In this regard, hardly any differences exist between tenants and homeowners. For owner households with outstanding loans, this figure is 81%. In other words, a loss of income (e.g. through unemployment) could give rise to loan repayment problems for 19% of owner households with outstanding loans.

Table 7
Funding of Housing Costs

	Share	Standard error
	%	
Income	99.2	(0.2)
Tenants	99.4	(0.2)
Homeowners	99.1	(0.3)
Savings	3.3	(0.5)
Tenants	1.3	(0.4)
Homeowners	5.0	(0.9)
Rental subsidy/ housing benefit	3.7	(0.4)
Tenants	6.7	(0.8)
Homeowners	1.0	(0.3)
Other	1.1	(0.3)
Tenants	0.8	(0.2)
Homeowners	1.3	(0.6)
Data unavailable	0.5	(0.1)
Tenants	0.4	(0.2)
Homeowners	0.5	(0.2)

Source: OeNB Housing Cost Survey 2012.

⁹ Owing to the small number of cases, this information is subject to a high degree of uncertainty.

¹⁰ Some 47% of households in the survey are single-income households. For these households, the question is "Could you cover your housing costs solely with your own income?" Not all these households can pay their monthly housing costs with their single income because some of these households pay only part of their housing costs themselves, some do not pay their housing costs solely from their income (part is covered e.g. by housing benefits/rent subsidies) or are in arrears with housing cost payments.

Table 8

Payment of Monthly Housing Costs Possible with a Single Income

	%	
All households	86.8	(0.9)
of which number of incomes in the household		
one person	92.3	(0.9)
two persons	82.5	(1.4)
three or more persons	82.7	(3.4)
Tenants	86.9	(1.1)
Homeowners	86.7	(1.3)
of which those with outstanding loans	80.9	(2.6)
of which number of incomes in the household		
one income	93.6	(3.3)
more than one income	77.1	(3.2)

Source: OeNB Housing Cost Survey 2012.

3.1 Change in Housing Costs

According to the residential property price index published by the OeNB in collaboration with the Institute for Urban and Regional Research (SRF) at the Vienna University of Technology (Institut für Stadt- und Regionalforschung der TU Wien), housing prices and rents have been rising relatively sharply for some years – especially in Vienna. In the housing cost survey, households were asked about the rise in housing costs in the previous three years. For the sake of comparison: according to the residential property price index, housing prices rose by 39% in Vienna and by 19% in the Austrian provinces from the first quarter of 2009 to the second quarter of 2012 (when the survey on housing costs was carried out). For private tenants, the rental price index shows an increase of 11% in this period (moreover, the CPI shows a 17% rise in rents including operating expenses in the same period). The present survey makes it possible to

Table 9

Housing Cost Burden in 2008

	Tenants	Homeowners
Mean		Mean
% of household net income		
1 st quartile	51.7	40.1
2 nd quartile	28.2	20.0
3 rd quartile	20.7	14.3
4 th quartile	13.0	8.5
Total	31.2	18.8

Source: OeNB Household Survey on Housing Wealth 2008, Wagner (2011).

analyze the increase in housing costs in two ways: first, by comparing this survey data with the corresponding data from the Household Survey on Housing Wealth 2008 and second, by using respondents' answers to questions about housing cost developments in the survey.

A comparison of the housing cost burden (table 2) with the 2008 survey data¹¹ (table 9), reveals that the average housing cost burden of tenants increased consistently by 2 to 6 percentage points, with clear differences between the income quartiles.

In the housing cost survey, some 62% of households stated that their housing costs had increased. 9% of households even recorded a steep rise, which is understood to mean an increase in housing costs well exceeding income growth. The percentage share of homeowners who registered such a rise is higher than that of tenants. However, for homeowners without outstanding loans, the rise in housing costs concerns only operating expenses, whereas for tenants, the increase in housing costs relates to rent including

¹¹ Uncertainties should be factored in when comparing the results of the 2008 and 2012 surveys (both within the surveys and between the surveys).

Table 10

Increase in Housing Costs

	Total	Tenants	Home-owners	1 st quartile	2 nd quartile	3 rd quartile	4 th quartile
	%						
Decreased	0.7 (0.6)	1.0 (0.4)	0.4 (0.3)	1.5 (0.8)	0.6 (0.5)	0.4 (0.3)	0.3 (0.2)
Roughly stayed the same	37.1 (1.3)	39.7 (1.7)	34.7 (1.9)	34.2 (2.8)	39.1 (3.1)	38.6 (2.7)	36.4 (2.6)
Increased somewhat	52.9 (1.3)	50.3 (1.7)	55.2 (2.0)	51.4 (2.9)	50.6 (3.1)	52.8 (2.8)	56.0 (2.6)
Increased steeply	9.4 (0.8)	9.1 (1.0)	9.7 (1.3)	12.9 (1.9)	9.7 (2.1)	8.2 (1.7)	7.3 (1.5)

Source: OeNB Housing Cost Survey 2012.

Note: Standard error in parentheses.

Table 11

Measures to Pay for More Expensive Housing

	Share	Standard error
	%	
Already taken		
Use of increased income	35.5	(1.6)
Use of a larger share of income	47.8	(1.7)
Borrowing/restructuring loans	0.6	(0.2)
Use of wealth (inheritances/savings)	4.2	(0.6)
Borrowing money	2.3	(0.5)
Moving house	1.4	(0.4)
Restricting consumption	27.0	(1.5)
Other	3.1	(0.6)
No information provided	3.6	(0.6)
May be required		
Higher income	35.1	(1.3)
Borrowing/restructuring loans	0.8	(0.3)
Wealth (inheritances/savings)	3.5	(0.5)
Rent subsidies/housing benefits	2.8	(0.4)
Borrowing money	1.6	(0.3)
Moving house	2.7	(0.4)
Restricting consumption	13.0	(0.9)
None of the above	53.8	(1.3)

Source: OeNB Housing Cost Survey 2012.

operating expenses and thus usually to a higher amount.¹²

Households whose housing costs went up more steeply than incomes reacted to this development primarily

by using a larger share of income for housing and by reducing other consumption. Only a handful of households took out a loan or restructured an outstanding loan to pay for more expensive housing; furthermore, 1.4% of households stated in the survey that they had sought to take out a loan for this purpose but had not received one. 1.4% households had to move, as housing costs were too high.

When asked about planned measures, a large share of respondents (35%) stated that they would have to earmark a larger share of income to fund housing costs in the short term, and 2.7% of households thought it necessary to move to other housing. To settle their increased housing costs, 1.6% of households sought to borrow money from their partner or family.

4 Problems in Paying for Housing

Low-income households, in particular, face a high housing cost burden (section 2). Some of these households are not able to pay for their housing from their current income and depend on financial support (e.g. rent subsidies)

¹² No conjectures can be made about whether the increase in housing costs for homeowners with outstanding loans is attributable to higher operating expenses alone or whether interest rate rises or increases in loan payments should also be considered, as respondents were asked only about the overall change in housing costs. Since, however, interest rates fell in the period under review, interest rate increases can be excluded.

Table 12

Payment Arrears: Rent or Operating Expenses

	Share	Standard error
	%	
Yes	5.8	(0.6)
Tenants	7.6	(0.9)
Homeowners	4.0	(0.9)
Outstanding loans	5.1	(1.6)
By income quartiles		
1	11.6	(1.7)
2	5.1	(1.2)
3	4.3	(1.2)
4	2.4	(0.9)
By employment status		
Fully employed	4.8	(0.8)
Partly employed	12.6	(3.9)
Student	4.1	(4.1)
Unemployed	37.9	(6.1)
Retired	3.2	(0.9)

Source: OeNB Housing Cost Survey 2012.

Note: small number of cases for partly employed, student, unemployed.

instead or are in arrears with rent payments (or other financial obligations related to housing). Other households also risk failing to fund their housing costs if their income declines (e.g. owing to unemployment).

About 6% of households stated that they had been in arrears with rent payments or the operating expenses on at least one occasion owing to financial constraints in the previous 12 months. As expected, this share is higher than average for low-income households. In a breakdown by employment categories, in particular households whose principal breadwinner is unemployed are affected. In the event of unforeseen unemployment, housing costs may not be immediately adjustable to the lower

Table 13

Rent Subsidies and Housing Benefits

	Share	Standard error
	%	
All households	3.7	(0.4)
Tenants	6.7	(0.8)
Homeowners	1.0	(0.3)
By income quartiles		
1	10.1	(1.5)
2	2.7	(0.9)
3	1.8	(0.6)
4	1.0	(0.5)
By employment status		
Fully employed	2.2	(0.4)
Partly employed	15.0	(4.2)
Student	25.2	(16.6)
Unemployed	30.3	(5.6)
Retired	2.1	(0.6)

Source: OeNB Housing Cost Survey 2012.

income, or such an adjustment may not be feasible owing to the household's or the local housing market's housing requirements. In the event of short-term unemployment, furthermore, it may be neither financially feasible nor would it make sense to move, given the high costs involved.

In Austria, EUR 255 million were granted in subsidies for the building and renovation of housing in 2010.¹³ In addition, EUR 143 million were allocated as general housing benefits in the same year.¹⁴ It is worth taking a closer look here at which households receive these subsidies and the extent to which the latter are an essential component for these households in paying for their housing. 15% of tenant households in the lowest income quartile receive rent benefits or housing benefits.

¹³ More up-to-date data were not available at the time this study was prepared.

¹⁴ In addition to the federal rent subsidies granted if rents increase as per the decision of the arbitration board following renovation work and the stipulation of a new rent price, various regional housing benefits (depending on the provisions of the respective province) also exist. Housing benefits are a subsidy granted to cover housing costs and are intended to support persons on a low income. Housing benefits are paid for housing whose construction or whose renovation was subsidized and for nonsubsidized (private) residential rental housing. Under certain conditions, owners of condominiums are also eligible for housing benefits.

Table 14

Restriction of Consumption to Pay for Housing

	Tenants		Homeowners	
	Mean	Standard error	Mean	Standard error
%				
2011				
1 st income quartile	43.9	(3.0)	37.8	(5.1)
2 nd income quartile	27.5	(3.1)	20.7	(3.7)
3 rd income quartile	26.3	(3.1)	16.8	(3.0)
4 th income quartile	11.9	(2.7)	15.4	(2.5)
Total	30.9	(1.4)	18.8	(1.4)
2008				
1 st income quartile	41.7	(1.3)	33.8	(1.5)
2 nd income quartile	31.4	(1.3)	28.4	(1.3)
3 rd income quartile	26.4	(1.3)	29.8	(1.1)
4 th income quartile	21.0	(1.3)	20.9	(1.0)
Total	31.4	(0.6)	27.5	(0.6)

Source: OeNB Housing Cost Survey 2012, OeNB Household Survey on Housing Wealth 2008.

30% of rent subsidy recipients are unemployed. Even if this figure covers only a small number of cases, the value does highlight the importance of the subsidies' cushioning effect for low-income households. Nevertheless, 24% of recipients of rent subsidies or housing benefits were in arrears with paying their housing costs on at least one occasion in the previous 12 months.

The question about the need to restrict other household consumption to pay for housing was answered in the affirmative by one-third of tenants (44% in the first income quartile) and 38% of homeowners in the lowest income quartile. Compared with the 2008 survey, the shares of households that restricted consumption in the first two income quartiles decreased overall (from 73% to 71% for tenants and from 62% to 59% for homeowners). Housing costs rose within the first income quartile, indicating increased vulnerability (given that housing for these households is a basic need and not a question of preferences, which play a greater role for higher income households).

As described above, around 68% of owner-occupiers tapped debt financing (loans, government housing loans, other debt finance), with debt financing increasing in importance in tandem with the level of income. As table 12 shows, 5% of households with outstanding loans were in arrears with paying their operating expenses on at least one occasion in the previous 12 months. Although data on arrears are currently not available for loan servicing, these households can also be expected to tend to have problems. For 19% of households with outstanding debt, a single income is not sufficient to

cover the burden of housing costs. In the event of a loss of income (e.g. through unemployment), these households could have problems repaying their loans.¹⁵

5 Final Remarks and Conclusions

Housing costs usually make up the largest category of household consumption. (Potential) problems in paying for housing are relevant from a sociopolitical perspective, as housing constitutes a basic need. In addition, they are significant from a financial policy perspective, as indebted owner households might fail to meet their credit obligations.

This article has analyzed data compiled by a survey commissioned in spring 2012 to ascertain the housing costs of Austrian households. The vulnerability of households owing to increased housing costs was analyzed, as well as whether these households took measures to cope with the increased costs (such as restructuring, bank loans and/or borrowing from

¹⁵ See Albacete and Fessler (2010) for analysis of households' ability to repay loans; for foreign currency loans, see Albacete et al. (2012).

the private/noninstitutional sector, etc.).

Housing costs rose by 2 to 6 percentage points from 2008 to 2012 and now account for 25% of income (median: 19%) for homeowners and 34% (median: 29%) for tenants. The housing cost burden is especially large in the lowest income quartile (51% of income for tenants, 44% for homeowners). Nevertheless, one-third of tenants cannot pay for their housing without restricting household consumption. The increase in housing costs is attributable not only to the rise in rents; in recent years, rate increases for utilities – sewer services, power, gas and garbage collection – were also a key factor for the surge in operating expenses, thereby contributing to the growth in the housing costs of Austrian households. However, the burden of interest payments on homeowners with (frequently variable rate) outstanding loans has decreased in recent years (the interest rate for residential construction loans with a maturity of more than five years fell from 5.6% in January 2008 to 2.9% in July 2012).

Owing to the singular importance of housing, it is not possible to allow the housing market to be subject to supply and demand effects alone. Instead, both economic policy measures and structural measures are required. Since housing covers a basic need, it is appropriate to conduct close and continuous monitoring of cost performance. In addition, improved statistics on the trend in both rents and housing prices and regular surveys with quickly available results are required to analyze the housing cost burden in a breakdown by socioeconomic characteristics and to identify vulnerable households.

Annex

Imputation of Income

The imputation of income is based on the question relating to the monthly net income of households, which the latter specified in 23 categories. Of the 2,156 households in the sample, 606 (28.1%) did not provide any data on income. The missing household income was imputed using the Stata program package for multiple imputations. Ordered logistic regressions (ordered logit) were factored in with the number of recipients of income in the household,¹⁶ data on the employment status of the target person, i.e. the person who contributes most to the household income (full-time or part-time employees, pensioners, students, household workers, civil servants, entrepreneurs, workers, managers), as well as age, age squared, gender, education and marital status. At a household level, the form of housing (private rental property as the main tenant, public housing, cooperative housing, a condominium or privately owned house, other), the holding of securities and equity investments are also included in the ordered logit. Furthermore, interaction terms take into account the combined influence of age, gender and a full-time position. The number of imputations is 20.

Size of the Sample

Since the aim of this study is to analyze the burden of households by way of their housing costs in relation to their household income, the analyses did not include households that do not pay their housing costs themselves. The latter number 223 households in the sample, the housing costs of which are assumed e.g. by relatives or employers or which for other reasons do not bear their

¹⁶ Missing data relating to the number of recipients of income were imputed using other data (number of persons aged 15+, etc.).

housing costs themselves. After excluding these observations, the size of the sample amounts to 1,933 households. 52 of these households do not bear their housing costs to the full extent, with most (40 households) being supported by family, relatives and friends. Unlike

households that do not pay for their housing costs at all, the former households which meet (at least) part of their housing costs are able to provide information on the total amount of their housing costs.

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Event Wrap-Ups

Financial Markets and Real Economic Activity

The current crisis has once more shown that financial markets and the real economy can strongly interact. This experience has sparked renewed interest in research on the linkages between financial markets and real economic activity. On September 28, 2012, the Oesterreichische Nationalbank hosted a workshop on this timely and important topic. This article provides a brief summary of the research that was presented at the workshop.

Burkhard Raunig¹

Until recently, questions concerning the link between financial markets and the real economy were not a high priority on the research agenda of most economists. Policymakers and economists probably agree that massive distortions in financial markets can affect real economic activity. However, the smooth business cycles throughout the 1980s, 1990s and the beginning of the new millennium did not suggest that any serious trouble would originate from financial markets. This period of low output volatility, which is sometimes referred to as “the Great Moderation,” came to an abrupt end in 2007, when turbulences in the U.S. subprime mortgage market triggered the most severe economic crisis since the “Great Depression” of the last century.

The current crisis demonstrates forcefully that the real effects of distortions in financial markets can be very strong. This experience has stimulated new research on the interplay between financial markets and the real economy. How does financial market integration affect real economic activity? Does a high level of stock market volatility have an effect on the business cycle? How can information from financial markets be exploited to improve economic models and forecasts? How does the market structure of financial markets shape risk-taking behavior, and what are the consequences for systemic risk? These and related questions were discussed in a workshop held at the

Oesterreichische Nationalbank (OeNB) on September 28, 2012.

Peter Mooslechner (Director of the Economic Analysis and Research Department of the OeNB) noted in his opening remarks that much of the older research on the linkages between financial markets and the real economy has been downplayed or neglected by most economists. In this context, he emphasized two specific forces that were among many other causes at work in the recent crisis. The first would be over-optimism, a typical ingredient of every financial bubble. Subprime mortgages were written on the assumption that housing prices would steadily keep on rising. This assumption turned out to be wrong, of course. The second force that contributed to the crisis was over-confidence in the understanding of markets. Most financial economists believed that their models were basically accurate and that efficient financial markets would generate “correct” asset prices. Consequently, it was propagated that financial markets would work best when they are deregulated. Furthermore, innovative financial instruments that help to complete markets were to be welcomed. Accordingly, complex derivatives for trading credit risk were designed and the pricing of these financial instruments was based on standard models and assumptions. Unfortunately, standard models tend to break down in times of high market turbulence.

Mooslechner further pointed out that the assumption of entirely rational

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utility-maximizing agents is obviously useful in economic model building, and that much of the interaction between financial markets and real economic activity can be explained without relaxing standard assumptions. However, possible explanations are not always plausible explanations. In a search for more realistic explanations of how the economy works, Mooslechner argued, we need to pay closer attention to the many emotional factors that drive human behavior – such as fear, corruption, bad faith, confidence and concerns for fairness. It would also be useful to reexamine older ideas that fell out of fashion over the last few decades and combine them with new thoughts and the modern methods we have access to today.

Just like the recent crisis, Japan's Great Recession from 1990 to 2000 originated from a massive asset bubble. After a sharp rise in interest rates at the end of 1989 the bubble collapsed and a debt crisis followed – Japan's "Lost Decade" had begun. At the workshop, *Mathias Hoffman (University of Zürich)* presented his research on the cross-regional spread and the long run determinants of Japan's Great Recession. He argued that, after 1990, growth rates in Japan were significantly lower in prefectures with a large number of small credit-dependent manufacturing firms. Moreover, the financially least integrated and most strongly credit-dependent prefectures experienced the largest decline in lending by nationwide banks. Thus, the degree of financial integration is able to explain much of the regional differences in the development of the Japanese economy. Silk, historically Japan's most important export good in the mid-19th century, played an important role in regional financial development. The silk industry was heavily credit-dependent, but

silk reelers, being located in the mountainous regions of Japan, could not easily borrow from large Japanese banks. Instead, local banks and cooperatives provided the necessary credits. As a consequence of this regional banking model, silk regions were less financially integrated with the rest of the country even more than 150 years later at the onset of the Great Recession. Empirically, it turns out that less financially integrated regions were hit harder during the Lost Decade.

Capital inflows into an economy do not only have beneficial effects. Inflows can also fuel an asset price bubble and amplify financial instability. The Asian economies experienced a considerable capital drain at the height of the crisis in 2008. Interestingly, foreign capital returned quickly in 2009, and the capital inflow already exceeded its pre-crisis level in 2010. *Peter Tillmann (Justus Liebig University of Giessen)* focused on the impact of capital inflows on property prices and stock prices in Korea, Hong Kong, Malaysia, Thailand, Taiwan and Singapore. His empirical investigation is based on a panel Vector Autoregression (VAR) approach. In contrast to many other VAR studies, capital shocks are identified with sign restrictions. According to Tillmann, this identification strategy has the advantage that no arbitrary triangular identification schemes need to be imposed. The empirical results show that capital inflow shocks lead to significant house price appreciations and even stronger equity price appreciations. The response to a capital inflow shock is particularly strong in Hong Kong, Korea and Singapore. As a consequence, large capital inflows as well as sudden capital flow reversals may endanger financial stability in these economies. The empirical findings further suggest that the different responses

to capital shocks are not attributable to housing market characteristics but to differences in the conduct of monetary policy in these countries.

Banks may face increasing loan losses, capital losses, or may for some other reason change their willingness to lend. Such a change in lending behavior could create an economic shock due to frictions in the credit supply. Shocks triggered by banks could be momentous enough to have an impact on the business cycle. *Timo Wollmershäuser* (*Ludwig-Maximilians-University of Munich; ifo Institute*) presented his research on the macroeconomic consequences of loan supply shocks in the euro area during the recent crisis. The aim of this research is to quantify the macroeconomic effects of negative loan supply shocks. As in the case outlined above, loan supply shocks are identified by means of a panel VAR model which uses sign restrictions and takes aggregate demand and supply shocks as well as monetary policy shocks into account. The empirical findings suggest that an important part of the decline in output in the euro area during the crisis can be attributed to loan supply shocks. Furthermore, there is considerable heterogeneity in the timing and magnitude of the shocks across the euro area countries. For a group of countries including Austria, Finland and Italy, the effects of loan supply shocks were particularly severe in 2008, whereas for the other euro area countries the negative effects did not occur until 2009 and 2010. Wollmershäuser argued that the heterogeneous responses may be explained by the different timing in the raising of new equity to improve the stability of the banking sector across countries.

There is a strong link between the bond market and real economic activity because the bond market is important

for large corporations and governments in financing their planned expenditures and investments. The latest research on the term structure of interest rates therefore incorporates macroeconomic factors into its models. At the same time, dynamic stochastic general equilibrium (DSGE) models try to integrate the financial sector. An important issue in this context is how to link macroeconomic and financial data in a consistent way. *Olaf Posch* (*University of Hamburg*) proposed a new macro-based model for the term structure of interest rates which takes the dynamics of macroeconomic factors into account. Using a general equilibrium approach, the model extends standard term structure models by including consumption and production variables. In this model, bond yields are linear in the short rate and in inflation, and macroeconomic variables provide information about structural parameters in the bond pricing equation. The new approach yields an analytically tractable model that can be estimated using standard affine term structure methods.

Stock market volatility is usually low in good times and high in bad times. This empirical observation suggests that stock market volatility may help to forecast future economic activity. Moreover, a high level of stock market volatility may reflect or sometimes even create uncertainty about the future course of the economy. This uncertainty may in turn lead economic agents to delay planned investment projects. If uncertainty is high, it may pay to wait until the uncertainty has been resolved. *Antonio Mele* (*University of Lugano; Swiss Finance Institute*) presented empirical results about the ability of U.S. stock market volatility to predict industrial production growth and probabilities of recessions for the U.S. economy. A slowly changing measure of stock market

volatility is used to capture long-run uncertainty in the capital markets. It turns out that this measure is successful in out-of-sample experiments where real economic activity is predicted over six month and one year ahead. The inclusion of stock market volatility improves forecasts of real economic activity based on traditional leading indicators and other financial variables, such as corporate bond spreads and term spreads. Long-run stock market volatility combined with the term spread predicts the business cycle particularly well. The question whether stock market volatility just anticipates or indeed drives the business cycle remains unsolved, however.

The near bankruptcy of Bear Stearns and the bankruptcy of Lehman Brothers in 2008 were cases in which counterparty risk (i.e. the risk arising from a counterparty's default or bankruptcy) had a very serious impact on financial markets. Stock market volatility skyrocketed and the global economic shock resulting from the Lehmann bankruptcy triggered a number of bank

failures and eventually forced governments and central banks to adopt rescue measures of an unprecedented scale to prevent a total collapse of the financial system. *Dale Rosenthal (University of Chicago)* compared how bilaterally cleared and centrally cleared derivatives markets differ in their reaction to bankruptcies on the basis of network models. His results suggest that even small bankruptcies may temporarily increase volatility. When a large initial bankruptcy occurs in a bilateral over the counter (OTC) market, counterparties may either be unable to save themselves, or an incentive to drive weaker survivors into follow-on bankruptcy may arise. Counterparty risk may then severely increase systemic risk. Moreover, volatility is higher in bilateral OTC markets than in centrally cleared markets. Rosenthal argues that bilateral markets encourage financial innovations due to the low startup costs involved, but when a financial instrument becomes more mature it may be beneficial to move on to centralized clearing.

Notes

List of Studies

Published in Monetary Policy & the Economy

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

Issue Q4/11

Crisis of Confidence to Trigger Marked Slump in Growth in 2012
Economic Outlook for Austria from 2011 to 2013 (December 2011)
Gerhard Fenz, Martin Schneider

Economic Governance Reform and Financial Stabilization in the EU
and in the Eurosystem – Treaty-Based and Intergovernmental Decisions
Sylvia Gloggnitzer, Isabella Lindner

Macro Coordination under the European Semester
Walpurga Köhler-Töglhofer, Peter Part

Europe 2020 – A New Framework for New Growth
Maria Auböck, Christina Burger, Elmar Mangler

What to Expect from the Latest Reform of the Stability and Growth Pact
Johannes Holler, Lukas Reiss

Prevention and Correction of Macroeconomic Imbalances:
the Excessive Imbalances Procedure
Sebastian Essl, Alfred Stiglbauer

Crisis Financing in the EU
Franz Nauschnigg, Paul Schieder

Issue Q1/12

The Economy has Bottomed Out
Martin Schneider, Josef Schreiner, Maria Silgoner

Euro Cash in Austria, Ten Years On
Alexandra Koch, Doris Schneeberger

Euro Cash in Central, Eastern and Southeastern Europe
Doris Ritzberger-Grünwald, Thomas Scheiber

The Euro – Public Opinion in the Ten Years after the Euro Changeover
Manfred Fluch, Sabine Schlögl

How Euro Banknotes in Circulation Affect Intra-Eurosystem Balances
Lenka Krsnakova, Maria Oberleithner

Understanding TARGET2: The Eurosystem's Euro Payment System
from an Economic and Balance Sheet Perspective
Clemens Jobst, Martin Handiq, Robert Holzfeind

The Pass-Through of Commodity Prices to Consumer Prices of Selected Products
Fabio Rumler

Price Level Convergence Before and After the Advent of EMU
Friedrich Fritzer

Issue Q2/12

Austrian Economy Prevails in Bleak International Environment
Economic Outlook for Austria from 2012 to 2014 (June 2012)
Christian Ragacs, Klaus Vondra

Business Cycle Synchronization in the Euro Area
and the Impact of the Financial Crisis
Martin Gächter, Aleksandra Riedl, Doris Ritzberger-Grünwald

Analyzing Corporate Loan Growth in Austria
Using Bank Lending Survey Data
Conceptual Issues and Some Empirical Evidence
Christian Beer, Walter Waschiczek

Savings Deposits in Austria – A Safety Net in Times of Crisis
Michael Andreasch, Pirmin Fessler, Martin Schürz

European Monetary Union: Lessons from the Debt Crisis
Summary of the 40th Economics Conference of the Oesterreichische Nationalbank
Ernest Gnan, Esther Segalla

Issue Q3/12

Sovereign Debt Crisis Delays Economic Recovery
Gerhard Fenz, Isabella Moder, Maria Silgoner

Eurosystem Household Finance and Consumption Survey 2010
First Results for Austria
Pirmin Fessler, Peter Mooslechner, Martin Schürz

Issue Q4/12

Austria Prevails in Bleak Environment
Economic Outlook for Austria from 2012 to 2014 (December 2012)
Gerhard Fenz, Martin Schneider

The Cross-Border Movement of Euro Banknotes
and Austria's TARGET2 Liabilities
Clemens Jobst, Martin Handiq, Doris Schneeberger

The Use of Payment Instruments in Austria
A Study Based on Survey Data from 1996 to 2011
Peter Mooslechner, Helmut Stix, Karin Wagner

Housing Cost Burden of Austrian Households: Results of a Recent Survey
Christian Beer, Karin Wagner

Financial Markets and Real Economic Activity
Burkhard Raunig

Periodical Publications

See www.oenb.at for further details.

Geschäftsbericht (Nachhaltigkeitsbericht) Annual Report (Sustainability Report)

German
English

This report reviews the OeNB's mandate, responsibilities and organization as well as the monetary policy of the Eurosystem, economic conditions and developments both in the financial markets and in financial market supervision during the reporting year. Furthermore, it contains the OeNB's financial statements, Intellectual Capital Report and Environmental Statement.

Konjunktur aktuell

German

This online report provides a concise assessment of the current state of the global economy and the economic situation in the euro area, Central, Eastern and Southeastern Europe (CESEE) and Austria. Furthermore, it analyzes major developments in financial markets and the performance of Austrian banks. The report is published in January, March, April, June, September, October and December; issues published at the end of a quarter additionally contain brief analyses of special economic and monetary policy topics.

Geldpolitik & Wirtschaft Monetary Policy & the Economy

German
English

Monetary Policy & the Economy provides analyses and studies on central banking and economic policy topics and is published at quarterly intervals.

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

German
English

This semiannual publication provides a snapshot of Austria's economy based on a range of real and financial variables, which are also put into an international perspective.

Financial Stability Report

English

This semiannual report contains analyses of Austrian and international developments with an impact on financial stability and studies designed to offer in-depth insights into specific financial stability-related topics.

Focus on European Economic Integration

English

This quarterly publication presents peer-reviewed studies on macrofinancial and monetary integration in Central, Eastern and Southeastern Europe (CESEE) as well as related country analyses and statistics. This publication reflects a strategic research priority of the OeNB.

Statistiken – Daten & Analysen

German, English summaries

This quarterly publication contains analyses of Austrian financial institutions, cross-border transactions and positions as well as financial flows. 14 tables provide information about macroeconomic, financial and monetary indicators. In addition, this series includes special issues on selected statistics topics published at irregular intervals.

Research Update

English

This quarterly newsletter is published online (www.oenb.at/research-update) and informs readers about selected findings, research topics and activities of the OeNB's Economic Analysis and Research Department.

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German, English

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English

These proceedings contain contributions to the OeNB's annual Economics Conference, an international platform for exchanging views and information on monetary and economic policy as well as financial market issues.

Conference Proceedings of the OeNB's Conference on European Economic Integration

English

These proceedings contain contributions to the OeNB's annual Conference on European Economic Integration (CEEI), which focuses on Central, Eastern and Southeastern European issues and the ongoing EU enlargement process.

Publications on Banking Supervision

German, English

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