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Opinions expressed by the authors of studies do not necessarily reflect the official viewpoint of the OeNB.

ANALYSES

Economic Growth in Austria at 3¼% in 2007

Economic Outlook for Austria from 2007 to 2009
(June 2007)

Gerhard Fenz,
Christian Ragacs,
Martin Schneider

1 Summary

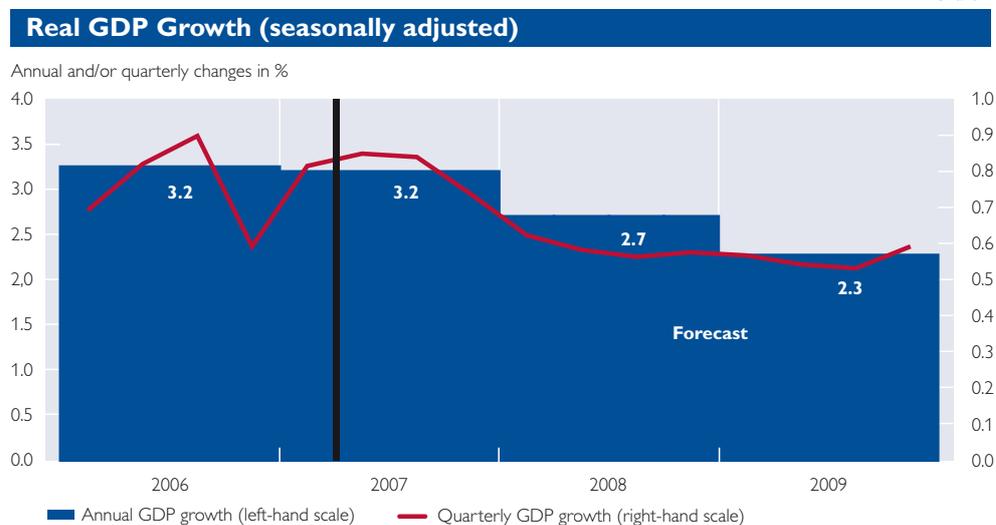
According to the economic outlook of the Oesterreichische Nationalbank (OeNB), Austria's real GDP will grow by 3.2% in 2007, by 2.7% in 2008 and by 2.3% in 2009. The OeNB's growth forecasts for 2007 and 2008 have been revised upward by 0.4 and by 0.3 percentage point, respectively, since the December 2006 outlook. At 1.7%, the inflation rate in 2007 will stay unchanged against the previous year. In 2008, inflation will come to 1.8% and rise to 1.9% in 2009. Employment growth will continue to remain animated, significantly reducing the unemployment rate from 4.8% in 2006 to 4.2% in 2009.

The pace of global economic growth will ease marginally, but will remain robust from 2007 to 2009. The cooling of the U.S. economy is expected to be only temporary. Globally speaking, the main drivers of

growth are particularly the Asian economies; for Austria, the most important impetus will come from livelier economic activity in Germany and Italy and the robust growth of the new EU Member States. On the back of strong investment growth, economic activity in the euro area has become self-sustaining and will be more vigorous than in the U.S.A. in 2007. The healthy economic development in the euro area is primarily driven by Germany's performance, but growth prospects of the other major euro area economies have also improved.

Austria's export activity thrived in 2006 and, based on the assumed development of world trade, will abate only slightly, thus remaining an important pillar of overall economic activity. The current account surplus of 3.2% of GDP in 2006 will continue to increase as a result of further improvements in the goods and ser-

Chart 1



Source: Eurostat, OeNB.

JEL classification: C5, E17
Keywords: forecast,
Austria.

Table 1

OeNB June 2007 Outlook for Austria – Key Results¹

	2006	2007	2008	2009
Annual change in % (real)				
Economic activity				
Gross domestic product	+3.2	+3.2	+2.7	+2.3
Private consumption	+1.9	+2.2	+2.2	+2.1
Government consumption	+1.2	+2.1	+2.8	+0.0
Gross fixed capital formation	+3.9	+4.9	+3.2	+2.2
Exports of goods and services	+8.7	+7.2	+7.1	+6.9
Imports of goods and services	+6.8	+7.0	+7.3	+6.8
Percentage points of GDP				
Contribution to real GDP growth				
Private consumption	+1.1	+1.2	+1.2	+1.2
Government consumption	+0.2	+0.4	+0.5	+0.0
Gross fixed capital formation	+0.8	+1.1	+0.7	+0.5
Domestic demand (excluding changes in inventories)	+2.1	+2.7	+2.4	+1.6
Net exports	+1.4	+0.6	+0.4	+0.5
Changes in inventories (including statistical discrepancy)	-0.3	-0.1	-0.1	+0.1
Annual change in %				
Prices				
Harmonized Index of Consumer Prices (HICP)	+1.7	+1.7	+1.8	+1.9
Private consumption expenditure (PCE) deflator	+1.7	+1.7	+1.8	+1.8
GDP deflator	+1.5	+1.7	+1.9	+2.0
Unit labor costs in the total economy	+0.7	+1.4	+1.1	+1.0
Compensation per employee (at current prices)	+2.5	+3.0	+2.9	+2.6
Productivity (whole economy)	+1.8	+1.5	+1.8	+1.5
Compensation per employee (real)	+0.8	+1.2	+1.1	+0.8
Import prices	+2.9	+0.9	+1.3	+1.3
Export prices	+2.2	+0.8	+1.4	+1.5
Terms of trade	-0.6	-0.1	+0.1	+0.2
Income and savings				
Real disposable household income	+2.5	+2.4	+2.1	+1.6
% of nominal disposable household income				
Saving ratio	9.8	10.5	10.6	10.2
Annual change in %				
Labor market				
Payroll employment	+1.7	+2.0	+1.0	+0.9
%				
Unemployment rate (Eurostat definition)	4.8	4.3	4.2	4.2
% of nominal GDP				
Budget				
Budget balance (Maastricht definition)	-1.1	-0.7	-0.5	-0.2
Government debt	62.2	60.8	59.0	57.5

Source: 2006: Eurostat, Statistics Austria; 2007 to 2009: OeNB June 2007 outlook.

¹ The outlook was drawn up on the basis of seasonally adjusted and working-day adjusted national accounts data. Therefore, the historical values for 2006 may deviate slightly from the nonadjusted data released by Statistics Austria.

vices balances. As enterprises are increasingly approaching their capacity limits, they already considerably stepped up their investments in 2006. The investment cycle is expected to peak in 2007. In addition to cyclically-sensitive investment in plant and

equipment, construction investment also developed very favorably in 2006 and further vigorous expansion in this sector is projected for 2007, not least as a consequence of the mild winter.

After surging in 2006, employment growth will accelerate further in 2007, thereby considerably improving households' income situation. Owing to the growing share of full-time employment in sectors with above-average wage levels and in view of the healthy economy, the increase in per capita wages in 2007 will be higher than the standard wage raises negotiated in fall 2006. Since available data on consumer spending point to an only moderate acceleration of consumption growth, income growth is likely to lead to a sharp rise of the savings ratio in 2007.

Thanks to powerful employment growth, the unemployment rate will fall by 0.5 percentage point to 4.3% in 2007. As strong employment growth in 2006 and 2007 was mainly driven by backlog effects, the OeNB's outlook predicts a cooling of the employment dynamics for 2008 and 2009. Accordingly, the unemployment rate is expected to fall only slightly to 4.2% in 2008 and to remain at that level in 2009. At 1.7%, inflation as measured by the Harmonized Index of Consumer Prices (HICP) will remain at the same level in 2007 as in the previous year. In 2008 and 2009, HICP inflation is projected to tick up slightly to 1.8% and 1.9%, respectively. The budget deficit (Maastricht definition) for 2007 is expected to decrease to 0.7% of GDP (from 1.1% in 2006) and is projected to narrow further to 0.5% of GDP in 2008 and to 0.2% of GDP in 2009.

2 Technical Assumptions

The current outlook for Austria is the OeNB's contribution to the June 2007 Eurosystem staff macroeconomic projections for the euro area. The forecast horizon ranges from the second quarter of 2007 to the fourth

quarter of 2009. May 14, 2007, was the cutoff date for the underlying assumptions on global economic trends and for the technical assumptions on 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 data from the quarterly national accounts computed by the Austrian Institute of Economic Research (WIFO), which were fully available up to the fourth quarter of 2006. Data for the first quarter of 2007 are based on the GDP flash estimate, but are only available for some of the national accounts aggregates.

The underlying short-term interest rate for the forecast horizon is based on market expectations for the three-month EURIBOR. It is set at 4.2% (2007), 4.5% (2008) and 4.4% (2009). Long-term interest rates, which are based on market expectations for ten-year government bonds, are set at 4.1% (2007), 4.3% (2008) and 4.3% (2009). A rate of U.S. dollar 1.36 to the euro is assumed for future USD/EUR exchange rate trends. Taking into account exchange rate values to date, we arrive at an average rate of USD/EUR 1.34 for 2007. The projected trend in crude oil prices is based on futures prices. For 2007 to 2009, we assume oil prices of USD 65.0, USD 69.9 and USD 69.6 per barrel (Brent) in each successive year. Compared to the OeNB's December 2006 economic outlook this means a revision of USD +0.4 (2007) and USD +2.8 (2008).

The budget forecast includes only those measures that had passed the legislative process and had been suitably specified at the time the OeNB outlook was prepared.

3 Continued Robust Growth of the World Economy Despite Cooling in the U.S.A.

3.1 Asia Remains the Engine of Global Economic Growth

Despite persistently high oil prices, *global economic growth* (excluding the euro area) was 6% in 2006 and will only marginally weaken to 5% in the forecast period. However, the primary locus of economic growth will continue to shift from the U.S.A. to Asia. Although *world trade growth* will slow considerably in 2007 after an extraordinarily strong 2006 (+9.1%), it will still reach a very high 5.8% and thereafter resume its advance. The cooling of the U.S. economy and the related low interest rates for U.S. government bonds continue to reflect a generally low level of worldwide long-term interest rates. Oil price levels have remained high since the fourth quarter of 2006.

In the first quarter of 2006, growth in the U.S.A. peaked after several above-average years and has since slackened significantly owing to the slowdown of the increase in real estate prices and the related decline in residential construction investment. In 2006, the U.S. economy – fueled by both favorable employment and wage growth – expanded by 3.3%. In terms of real estate prices, a soft landing and a gradual recovery of the real estate market are anticipated. Although the high budget and current account deficits will require a correction in the medium term, they do not represent an immediate cyclical risk. Owing to the healthy profit situation and favorable financing conditions, the U.S. economy is expected to resume its course to higher growth in 2008 and 2009.

In *Asia* (excluding Japan), growth will continue to remain very vigorous. After 9.0% in 2006, growth rates of 8.3% in 2007 and 7.9% for the remaining forecasting period are expected. India and China are currently expanding particularly dynamically, with domestic demand and exports driving *China's* growth. In both countries, a slight dampening of growth is anticipated in 2007 since economic policymakers are presently endeavoring to counter the overheating of the economy through restrictive measures. As for *Japan*, growth is being fueled by growing investment demand and the recovery of exports, while private consumption remains subdued. In 2006, the Bank of Japan abandoned its zero interest rate policy after having maintained it for five years. The country's precarious fiscal position (government debt is 1.75 times as high as GDP) also suggests a more restrictive fiscal policy strategy in the future. The positive effects of the Japanese yen's devaluation can also be expected to peter out gradually. A modest slowdown in economic growth is therefore anticipated in 2007 and 2008.

Following the stabilization of the *United Kingdom's* economy in 2006, which had been stoked by brisk investment demand and growing private consumption, GDP growth of 2.8% is expected in 2007, which will then weaken slightly to 2.5% (2008) and 2.7% (2009) owing to an anticipated modest decline in domestic demand.

In *Switzerland*, economic growth is expected to slow from 2007 after a strong performance in 2006.

The *new EU Member States*, which are particularly important for Austria's export economy, will exhibit sustained high levels of growth rang-

Table 2

Underlying Global Economic Conditions				
	2006	2007	2008	2009
Annual change in % (real)				
Gross domestic product				
World excluding the euro area	+6.0	+5.1	+5.0	+5.1
U.S.A.	+3.3	+2.0	+2.7	+3.2
Japan	+2.2	+2.2	+1.9	+1.9
Asia excluding Japan	+9.0	+8.3	+7.9	+7.9
Latin America	+5.2	+4.2	+3.5	+3.4
United Kingdom	+2.8	+2.8	+2.5	+2.7
New EU Member States	+6.1	+5.7	+4.9	+4.8
Switzerland	+2.7	+1.9	+1.8	+1.9
Euro area ¹	+2.8	+2.3 to +2.9	+1.8 to +2.8	x
World trade (imports of goods and services)				
World economy	+9.1	+5.8	+6.9	+7.3
Non-euro area countries	+9.4	+5.9	+7.4	+7.8
Real growth of euro area export markets	+10.2	+5.6	+6.9	+7.1
Real growth of Austrian export markets	+10.0	+7.3	+6.5	+6.5
Prices				
Oil price in USD/barrel (Brent)	65.4	65.0	69.9	69.6
Three-month interest rate in %	3.1	4.2	4.5	4.4
Long-term interest rate in %	3.8	4.1	4.3	4.3
USD/EUR exchange rate	1.26	1.34	1.36	1.36
Nominal effective exchange rate of the euro (euro area index)	103.63	106.90	107.41	107.41

Source: Eurosystem.

¹ Results of the Eurosystem's June 2007 projections. The ECB presents the results in ranges based on average differences between actual outcomes and previous projections.

ing between 5.7% (2007) and 4.8% (2009) over the forecast period and will therefore grow much faster than the euro area (see also the box entitled "Economic Outlook for Central and Eastern European Countries").

3.2 Domestic Demand Fuels Euro Area Economy

In 2006, the euro area economy strengthened: At 2.8%, it registered its strongest growth since 2000. At 7.3%, the unemployment rate was even lower than during the boom at the turn of the new millennium. The forecast period will see a moderate slowdown in growth owing to continued positive profit performance, favorable financing conditions, the stronger rise in disposable income and currently weakening, albeit still high global demand. The Eurosystem expects economic growth to range

between 2.3% and 2.9% in 2007 and between 1.8% and 2.8% in 2008. Although domestic demand will be also the mainstay of the economy over the next few years, growth in exports to the extra-euro area will fall slightly in 2007, which is in line with the trend in global demand.

At 2.7%, Germany's economy in 2006 exhibited its fastest growth momentum since 2000 and a marked increase in employment. Exports remained the growth engine, but domestic demand also made a positive contribution. Although the burst of buying anticipating the 2007 increase in VAT on consumer durables from 16% to 19% fueled private consumption in 2006, it is dampening consumer demand in 2007. Yet, as the German economy and particularly German consumer confidence are currently looking robust, only a tem-

porary dent in growth is anticipated in the first six months of 2007.¹ For the forecast period, growth is projected to continue developing dynamically, albeit at a slower pace.

Among the euro area countries, *France* ranks among those with the most stable domestic demand. Above all, private consumption will drive GDP growth over the entire forecast period, whereas the net exports' contribution to growth will continue to remain negative. After a relatively sharp increase in GDP growth in 2006, further acceleration is also expected in 2007.

After stagnating in 2005, *Italy's* economic growth in 2006 reached its highest levels since 2000. Also in Italy, domestic demand was the main growth driver of the economy, with net exports also making a positive contribution. Although growth trends are likely to deteriorate to some extent over the forecast period, they will continue to remain dynamic.

4 Austrian Exports Still Dynamic

In 2006, Austria's exports markets² expanded by 10%. The dynamic growth in demand meant that both goods exports and imports exceeded the EUR 100 billion mark in 2006 for the first time. Austrian exporters benefited, above all, from the euro area's economic recovery and partic-

ularly from the upswing in Germany and Italy. In addition, exports to the new EU Member States Bulgaria and Romania posted steep growth, as did exports to Poland and to oil-exporting countries such as Russia.³ However, export momentum has slowed slightly since peaking in the first quarter of 2006. Demand in Austria's export markets will, however, continue to remain very dynamic over the forecast period and, above all, prove to be stronger than that of the global economy.

Austria's dynamic export economy and robust growth in domestic demand are inducing a growing demand for imports. Although this means that the contribution to growth by net exports will weaken in 2007, net exports will still make a positive contribution over the forecast horizon as a whole.

In 2006, the competitiveness⁴ of Austrian export prices improved slightly as a result of continued wage moderation. A modest loss in price competitiveness is expected in 2007 due to the appreciation of the euro and the somewhat higher unit labor costs resulting from cyclical developments. Assuming constant nominal USD/EUR exchange rates, price competitiveness will stabilize in 2008 and 2009.

In 2006, Austria suffered slight losses in its export market share. It is,

¹ The OeNB December 2006 economic outlook estimated the effects on Austria's GDP growth at -0.1 percentage point for 2007. This value represents an upper limit according to the current assessment.

² Austria's export markets are defined as a weighted sum of its trading partners' total imports weighted by Austrian export shares.

³ The above-average result of exports to the U.S.A. can partly be explained by statistical distortions in connection with the restitution of certain paintings by Austrian artist Gustav Klimt (some +EUR 250 million).

⁴ The competitiveness of exports is expressed by the ratio of competitors' prices in Austrian export markets to the prices of Austrian exports. Competitors' prices are determined by a two-stage weighting method. For every export market, the prices of all non-Austrian exporters to the country in question are aggregated with the relevant import shares as weights. In addition, the price of domestic products in the relevant export market is included. Competitors' prices thus calculated per Austrian export market are then aggregated with the shares of the respective market in total Austrian exports.

Table 3

Growth and Price Developments in Austria's External Trade				
	2006	2007	2008	2009
	Annual change in %			
Exports				
Competitors' prices in Austria's export markets	+2.3	+0.5	+1.3	+1.4
Export deflator	+2.2	+0.8	+1.4	+1.5
Changes in price competitiveness	+0.1	-0.4	-0.1	-0.1
Demand on Austria's export markets (real)	+10.0	+7.3	+6.5	+6.5
Austrian exports of goods and services (real)	+8.7	+7.2	+7.1	+6.9
Market share	-1.4	-0.1	+0.6	+0.4
Imports				
International competitors' prices on the Austrian market	+1.9	+0.8	+1.3	+1.4
Import deflator	+2.9	+0.9	+1.3	+1.3
Austrian imports of goods and services (real)	+6.8	+7.0	+7.3	+6.8
Terms of trade	-0.6	-0.1	+0.1	+0.2
	Percentage points of real GDP			
Contribution of net exports to GDP growth	+1.4	+0.6	+0.4	+0.5

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook, Eurosystem.

however, anticipated that domestic exporters will recoup some of these losses over the forecast horizon.

As the results of the current account⁵ reveal for 2006, favorable export growth generated a significant increase in the current account surplus. Despite higher energy prices, the goods balance improved by more than EUR 2 billion and, with a surplus of EUR 0.5 billion, can be de-

scribed as being balanced. The improvement in the services balance by EUR 1 billion is attributable to research and development, as well as to technical services. The travel surplus stabilized at almost EUR 6 billion. Overall, the current account improved to 3.2% of GDP.

In the forecast period, the goods balance will steady at approximately 0.5 percentage point of nominal GDP,

Table 4

Austria's Current Account				
	2006	2007	2008	2009
	% of nominal GDP			
Balance of trade	4.2	4.6	4.8	5.0
Goods	0.2	0.4	0.4	0.5
Services	4.0	4.2	4.4	4.5
Euro area	-3.2	-3.2	-3.1	-3.2
Non-euro area countries	7.4	7.8	7.9	8.2
Balance on income	-0.6	-0.5	-0.5	-0.4
Balance on current transfers	-0.4	-0.4	-0.4	-0.4
Current account	3.2	3.6	3.9	4.2

Source: 2006: OeNB; 2007 to 2009: OeNB June 2007 outlook.

⁵ As of January 1, 2006, the reporting system for compiling the Austrian balance of payments (which represents the basis for trade in services in the quarterly national accounts) was modified in line with international trends: cross-border payments are no longer reported by banks but are reported directly by economic agents. This change has caused a break in the time series.

Table 5

Selected Price Indicators for Austria

	2006	2007	2008	2009
	Annual change in %			
HICP	+1.7	+1.7	+1.8	+1.9
HICP energy	+6.3	+1.5	+2.8	+0.9
HICP excluding energy	+1.3	+1.7	+1.7	+2.0
Private consumption expenditure (PCE) deflator	+1.7	+1.7	+1.8	+1.8
Investment deflator	+1.9	+1.9	+1.7	+1.8
Import deflator	+2.9	+0.9	+1.3	+1.3
Export deflator	+2.2	+0.8	+1.4	+1.5
Terms of trade	-0.6	-0.1	+0.0	+0.2
GDP deflator	+1.5	+1.7	+1.9	+2.0
Unit labor costs	+0.7	+1.4	+1.1	+1.0
Compensation per employee	+2.5	+3.0	+2.9	+2.6
Labor productivity	+1.8	+1.5	+1.8	+1.5
Collectively agreed wage settlements	+2.7	+2.5	+2.9	+2.7
Profit margins ¹	+0.9	+0.2	+0.8	+1.0

Source: 2006: Eurostat, Statistics Austria; 2007 to 2009: OeNB June 2007 outlook.

¹ GDP deflator divided by unit labor costs.

and the services balance will increase from 4.0% (2006) to 4.5% of GDP. The deficit on the income account, measured as a percentage of GDP, will shrink marginally in the forecast period whereas the current transfers balance will remain unchanged. Overall, the current account surplus is expected to improve substantially from 3.2% (2006) to 4.2% in 2009.

5 Persistent Wage Moderation Keeps Inflation below 2%

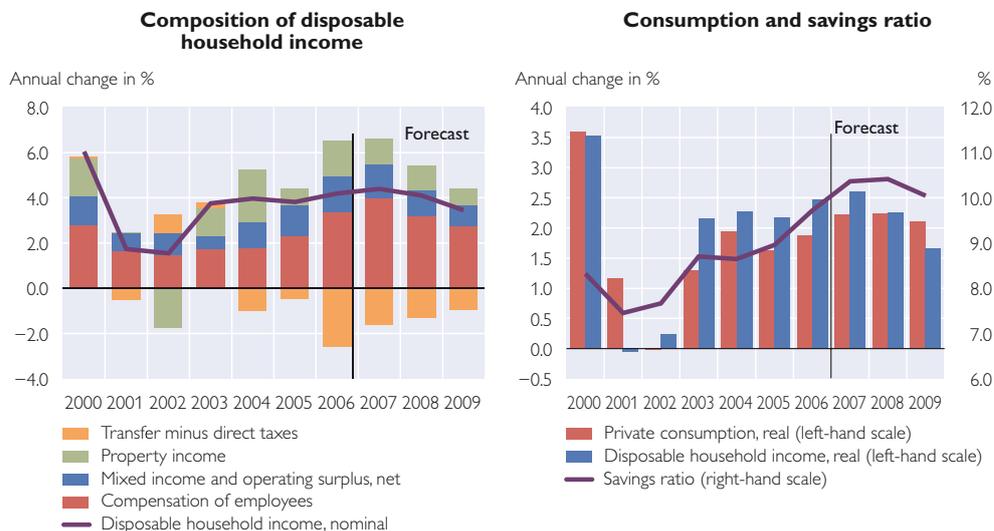
Until August 2007, the HICP inflation rate in Austria will fall slightly; then it will rise again, reaching 1.8% by year-end. This decline in the next few months is attributable to the development in energy prices and to base effects. Despite the latest increase, oil prices are expected to remain below last year's levels until the third quarter of 2007, thereby dampening inflation over the next few months. The planned tax increase on diesel (by 5 cents per liter) and gasoline (by 3 cents per liter) from the middle of the year will partly counter

the decelerating trend in energy price growth. This measure is likely to increase the inflation rate by 0.23 percentage point by mid-2007. Inflation of 1.7% is expected for 2007 as a whole. In 2008 and 2009, inflation is expected to tick up slightly to 1.8% and 1.9%, respectively.

The external value of the euro, which has steadily increased since end-2005, implies that price developments in external trade will be moderate in 2007. Assuming unchanged exchange rates, 2008 and 2009 will witness stronger price momentum. It is, nonetheless, expected that both import and export price growth will be more or less equally robust and will therefore not give rise to any notable changes in the terms of trade.

Wage negotiations for 2007, which were largely concluded in fall 2006, will generate a slightly more modest wage growth (2.5%) than in the previous year. However, compensation per employee is expected to increase by 3.0% in 2007. In addition to payments in excess of the minimum wage, which are customary in

Increasing Compensation of Employees Boosts Consumption and Savings Ratio



economically robust times, the wage drift of 0.5 percentage point can also be explained by the growing share of full-time employees in sectors with above-average wages such as manufacturing and construction. Unit labor costs are also increasing more rapidly on the back of extraordinarily strong employment growth in 2007. Accordingly, profit margin growth in 2007 will still be positive, albeit more modest in size.

The excellent economic situation points to higher collective wage settlements in 2008. However, the wage drift will return to zero as a result of the expected rise in the share of part-time employees.⁶ In 2009, the increase in the compensation of employees is predicted to slow down slightly. The OeNB's outlook is based on the assumption of persistent wage moderation, as average real wage growth of 1.1% per annum will be significantly lower than labor produc-

tivity growth of 1.6% per annum over the forecast horizon.

6 Domestic Demand Driven by Dynamic Investment Activity

6.1 Employment Growth Fuels Compensation of Employees in 2007

Household income trends recovered quickly after the economic slump at the start of this decade. Nominal disposable household income after tax and transfers has been growing by some 4% per year since 2003, and real disposable household income by around 2% to 2.5% per year. Consumption growth, however, has significantly lagged behind income growth in recent years, thereby steadily boosting the savings ratio. This development is, on the one hand, attributable to uncertainty caused by changes in the pension system and by job concerns, and on the other hand,

⁶ As a result of the growing share of part-time employees, the wage drift, in the recent past, has almost without exception been negative, averaging -0.4% in the period from 1990 to 2006.

Table 6

Determinants of Nominal Household Income in Austria

	2006	2007	2008	2009
Annual change in %				
Payroll employees	+1.7	+2.0	+1.0	+0.9
Wages per employee	+2.5	+3.0	+2.9	+2.6
Compensation of employees	+4.2	+5.0	+4.0	+3.4
Property income	+11.0	+7.4	+6.9	+4.5
Mixed income and operating surplus (net)	+8.1	+7.3	+5.6	+4.4
Contribution to disposable household income in percentage points				
Compensation of employees	+3.4	+4.0	+3.2	+2.8
Property income	+1.5	+1.1	+1.1	+0.7
Mixed income and operating surplus (net)	+1.6	+1.5	+1.2	+0.9
Net transfers less direct taxes ¹	-2.6	-1.8	-1.4	-1.0
Disposable household income (nominal)	+4.2	+4.2	+4.0	+3.4

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

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

Table 7

Private Consumption in Austria

	2006	2007	2008	2009
Annual change in %				
Disposable household income (nominal)	+4.2	+4.2	+4.0	+3.4
Private consumption expenditure (PCE) deflator	+1.7	+1.7	+1.8	+1.8
Disposable household income (real)	+2.5	+2.4	+2.1	+1.6
Private consumption (real)	+1.9	+2.2	+2.2	+2.1
% of disposable nominal household income				
Saving ratio	9.8	10.5	10.6	10.2

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

to the fact that real wages (that is the part of income with a high propensity to consume) have only grown below average. Employment growth, which has been rising since 2005, favors the income trends of the household sector.

In the first quarter of 2007, the currently unusually robust employment growth increased the wage bill by 1.6% against the previous quarter. Such growth rates were last achieved in the early 1990s. The exceptionally mild winter of 2006/07 resulted in a sharp decline in household energy consumption. In the first quarter of 2007, private consumption therefore grew at only a moderate pace despite

soaring retail sales. A significant upturn in consumer demand is expected from the second quarter. Savings which have been at the disposal of customers from the second quarter of 2007 as a result of lower energy costs should boost consumer demand. In addition, inflation developments should have a favorable impact on consumer demand. In 2007 as a whole, private consumption growth will therefore rise to +2.2%, compared with 2006 (+1.9%). The positive developments of income will induce a further increase in the savings ratio by 2008. However, sustained high levels of consumer growth are anticipated in 2008 and 2009.

6.2 Investment Cycle Peaks in 2007

Robust export demand in recent years and the gradual strengthening of sales expectations have contributed to accelerating the growth of investment in plant and equipment. Very high capacity utilization of 85.1% in the first quarter of 2007 indicates the need for capacity-expanding investment. Healthy profit growth gives enterprises adequate scope for the internal financing of their investment plans. By historical comparison, the terms of external financing will also remain very favorable over the entire forecast horizon, thereby fueling investment activity. The OeNB therefore expects investment in plant and equipment to post robust growth of 5.8% in 2007. This forecast is backed by the results of the investment surveys conducted by WIFO in fall 2006. The surveyed manufacturing companies envisage buoyant investment growth in 2007. Increasing capacity is cited as an investment motive to a greater extent than in 2006. In 2008

and 2009, investment growth is likely to weaken slightly.

The construction industry was clearly on track to growth in 2006. Residential construction expanded in 2005 for the first time after eight years of negative growth rates, making a significant contribution of +6.2% to total investment activity in 2006. Although civil engineering also posted vigorous growth, its performance was somewhat weaker than that of building construction. The mild winter of 2006/07 suggests that construction investment growth will accelerate in the first quarter of 2007. However, this was not yet borne out in the GDP flash estimate released in mid-May. Although the European Commission's survey of order book levels in the construction sector reveals a slight decline after the peak in September 2006, it shows that they still exceed the levels of previous years by a significant margin. This suggests that construction investment effected in the winter months was not

Table 8

Investment Activity in Austria				
	2006	2007	2008	2009
	Annual change in %			
Total gross fixed capital formation (real)	+3.9	+4.9	+3.2	+2.2
of which: Investment in plant and equipment (real)	+2.9	+5.8	+4.5	+2.0
Residential construction investment (real)	+6.2	+4.7	+2.4	+2.2
Non-residential construction investment and other investment	+3.8	+4.3	+2.4	+2.4
Government investment (real)	-2.5	+2.1	+2.5	+2.1
Private investment (real)	+4.3	+5.1	+3.3	+2.2
	Contribution to total gross fixed capital formation growth in percentage points			
Investment in plant and equipment (real)	+1.1	+2.3	+1.8	+0.8
Residential construction investment (real)	+1.3	+1.0	+0.5	+0.5
Non-residential construction investment and other investment	+1.5	+1.7	+1.0	+1.0
Government investment (real)	-0.1	+0.1	+0.1	+0.1
Private investment (real)	+4.0	+4.8	+3.1	+2.1
	Contribution to real GDP growth in percentage points			
Changes in inventories (real)	-0.2	-0.0	-0.1	+0.1

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

just brought forward, which means a shortfall in demand will not materialize this summer. Accordingly, construction activity is projected to be brisk in 2007, but it is predicted to increase more sluggishly in 2008 and 2009.

6.3 Labor Market Recovery Has Peaked

In the first four months of 2007, employment as registered by the Association of Austrian Social Security Institutions rose by 75,000 persons (+2.3%) year on year, while unemployment as recorded by the Austrian Public Employment Service (AMS) fell by almost 30,000 persons (−10%). Similarly high employment growth was last posted in 1990/91, whereas, even during the economic boom in the late 1990s and in 2000, employment growth had remained below 1.5%.

Two factors are responsible for this unusually strong increase in employment. First, many enterprises may have responded at the start of the upturn by adopting a wait-and-see attitude and might have absorbed higher levels of labor demand via overtime and spare operational capacities. Many companies felt it necessary to create new jobs only when the recovery strengthened – albeit now to a higher than average degree. Second, temporary factors such as the mild winter have generated additional momentum in the labor market, especially in the construction industry. Weather-related special factors in the construction sector eased off markedly in April and are likely to have made a significant contribution to the considerably more modest decline in

persons reported unemployed (April 2007: −5.6%). A negative base effect must also be taken into account here, as a marked improvement in the labor market was evident for the first time in April 2006. All in all, first signs are emerging that the labor market recovery will become weaker over the next few months.

Even if employment growth fails to reach the levels of the first quarter of 2007, prospects for the entire forecast horizon remain favorable. Payroll employment will increase by 2.0% (2007), 1.0% (2008) and 0.9% (2009). At +1.7% (2007), +0.9% (2008) and +0.7% (2009), total employment growth will be far more sluggish in this period, as the number of self-employed persons is close to stagnating. According to national accounts data, about 50% of self-employed persons are contributing family workers in the agricultural sector. The employment growth of this group is declining, while the number of those self-employed in other sectors (particularly in businesslike services) is rising steadily.

Labor supply growth is currently marked by the impact of the pension reform in 2003, the influx of foreign labor and by demographic developments. As a result, an additional 100,000 persons will enter the labor market in the period from 2007 to 2009. As a result of the favorable economic climate, employment growth is outpacing labor supply, and unemployment is falling. In 2007, the unemployment rate (Eurostat definition) will fall by 0.5 percentage point to 4.3%, whereas in 2008 and 2009, only a marginal improvement to 4.2% is expected.

Table 9

Labor Market Developments in Austria

	2006	2007	2008	2009
	Annual change in %			
Total employment	+1.4	+1.7	+0.9	+0.7
of which: Payroll employment	+1.7	+2.0	+1.0	+0.9
Self-employment	+0.2	+0.3	+0.3	+0.2
Public sector employment	+0.5	+0.3	-0.0	+0.0
Registered unemployment	-4.8	-10.9	-1.5	-0.4
Labor supply	+1.0	+1.0	+0.8	+0.7
	%			
Unemployment rate (Eurostat definition)	4.8	4.3	4.2	4.2

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

7 Risks to the Forecast

Whereas domestic economic risks are pointing mostly to the upside, external economic risks are mostly on the downside. Upside risks associated with investment and consumption can be termed as specifically domestic risks. As the most cyclically sensitive component of GDP, investment could grow even faster than projected in 2007, given the currently high levels of capacity utilization. The assumed consumer restraint in the household sector, which is mirrored in an anticipated increase in the savings ratio, will afford scope for steeper private consumption growth, provided that the considerably improved consumer confidence filters through to households' propensity to consume to a greater extent than it has lately.

From a current perspective, the biggest downside risk in relative terms is the risk that the U.S. real estate market cools down more quickly. A hard landing in the U.S.A. would detrimentally affect the global economy as a whole via various transmission channels (trade, confidence, financial markets, exchange rates etc.). There is currently no economic risk directly associated with the U.S. budget and current account deficits.

In nominal terms, oil price increases and a possible appreciation of

the euro are – as in the past – the key risks to the forecast. In addition, higher long-term interest rates such as those currently factored into market expectations cannot be ruled out in view of the historically low interest rates worldwide. As far as Austria is concerned, the continuation of its policy of wage moderation is a central assumption of the current forecast. Wage settlements could, however, also be higher than assumed in view of the long-declining wage share and favorable corporate profit performance. Although this would boost growth in the short term, it would also fuel inflation.

Overall, the risk to the current forecast seems to be pointing to the upside both in real and nominal terms.

8 Sharp Upside Revision of Growth Forecast against December 2006

Compared with the OeNB's outlook of December 2006, the external trade environment has not changed materially. Oil prices, which fluctuated strongly in the interim, are only marginally higher. The nominal effective exchange rate for Austria has firmed slightly thanks particularly to the USD/EUR trend. Growth prospects for the U.S.A. have deteriorated

Table 10

Change in the Underlying External Economic Conditions since the OeNB December 2006 Outlook

	June 2007			December 2006		Difference	
	2007	2008	2009	2007	2008	2007	2008
	Annual change in %						
Growth of Austria's export markets	+7.3	+6.5	+6.5	+6.2	+6.4	+1.1	+0.1
Competitors' prices in Austria's export markets	+0.5	+1.3	+1.4	+1.2	+1.3	-0.7	-0.1
Competitors' prices in Austria's import markets	+0.8	+1.3	+1.4	+1.2	+1.2	-0.4	+0.1
	USD						
Oil price per barrel (Brent)	65.0	69.9	69.6	64.6	67.2	+0.4	+2.8
	Annual change in %						
Nominal effective exchange rate (exports)	-0.5	-0.1	+0.0	-0.1	+0.0	-0.5	-0.1
Nominal effective exchange rates (imports)	+0.0	-0.0	+0.0	+0.1	+0.0	-0.1	-0.0
	%						
Three-month interest rates	4.2	4.5	4.4	4.0	3.8	+0.2	+0.6
Long-term interest rates	4.1	4.3	4.3	3.7	3.7	+0.4	+0.5
	Annual change in %						
Real GDP, U.S.A.	+2.0	+2.7	+3.2	+2.4	+2.8	-0.4	-0.1
	USD/EUR						
USD/EUR exchange rate	1.34	1.36	1.36	1.28	1.28	+0.07	+0.08

Source: Eurosystem.

rated slightly. Nevertheless, Austrian export markets will grow by more than 1 percentage point in 2007, i.e. by a greater margin than predicted in December 2006. This is primarily attributable to the improved growth prospects of Germany and Italy, Austria's two major trading partners. Thanks to the improved economic outlook, market expectations for the future development of short- and long-term interest rates are somewhat higher than predicted in the OeNB's December 2006 economic outlook.

The effects of the new external assumptions were simulated using the OeNB's macroeconomic model. This showed that there will be no significant impact on GDP growth in 2007 and 2008. The negative effects resulting from higher interest rates and oil prices, as well as from the appreciation of the euro, will be balanced by more robust export market growth.

Table 11 presents a detailed list of the reasons for revising the outlook. In addition to the effects of changed

external assumptions, the revisions can be explained by the impact of new data and a remaining rest ("Other"). The impact of new data comprises the effects arising from the revisions of historical data already released at the time of the previous outlook (i.e. data up to the third quarter of 2006) and the forecasting errors of the previous outlook for the quarters now disclosed for the first time (i.e. for the fourth quarter of 2006 and the first quarter of 2007). The item "Other" includes changes in expert assessments regarding the development of domestic variables such as government consumption or wage settlements and any changes to the forecast models.

The growth revision for Austria in 2007 (+0.4 percentage point) is, to a large extent, attributable to a new expert assessment and, only to a lesser extent, to the revision of historical data and to the new external trade environment. In its December 2006 economic outlook, the OeNB

Table 11

Breakdown of Forecast Revisions

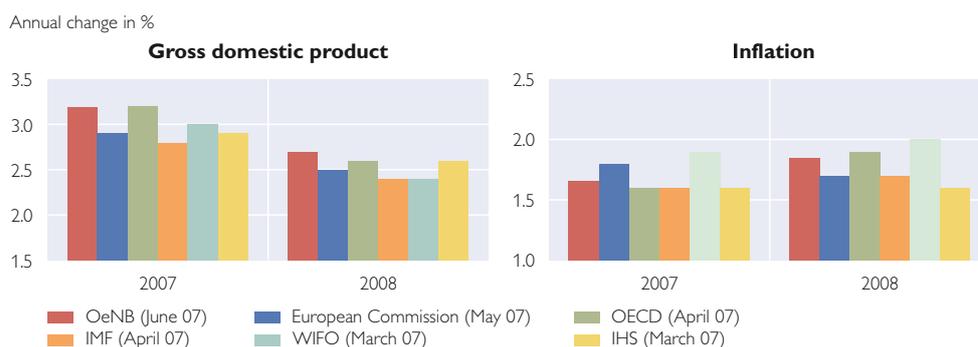
	GDP		HICP	
	2007	2008	2007	2008
Annual change in %				
December 2006 outlook	+2.8	+2.4	+1.4	+1.6
June 2007 outlook	+3.2	+2.7	+1.7	+1.8
Difference	+0.4	+0.3	+0.3	+0.3
Due to:				
External assumptions	+0.1	+0.0	-0.1	+0.1
New data	-0.0	+0.0	+0.2	+0.0
of which: Revision of historical data up to Q3 06	+0.1	+0.0	+0.0	+0.0
Projection errors for Q4 06 and Q1 07	-0.1	-0.1	+0.2	+0.0
Other ¹	+0.3	+0.4	+0.2	+0.2

Source: OeNB December 2006 and June 2007 outlooks.

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

Chart 3

Comparison of Current Economic Forecasts for Austria



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

had expected a stronger increase in domestic demand already for 2006. However, growth was, to a greater degree than expected, driven by net exports. A significant pick-up in investment and consumer demand is now expected only in 2007, as is reflected in the new expert assessment for 2007 and 2008.

The revision of the inflation forecast is attributable almost in equal parts to a forecasting error (0.2 percentage point) and to discretionary measures (see “Other” category in table 11) such as the increase of the petroleum tax (impact on HICP: 0.2 percentage point). The contribution

of external assumptions is small and negative. The inflation-fueling effect of higher crude oil prices is more than offset by the inflation-dampening effect of both higher interest rates and the appreciation of the euro.

A comparison with other available economic forecasts for Austria shows that the OeNB’s assessment of real GDP growth is at the top end of the range. This is also due to the publication date of the outlook, as current economic data tend to have surprised positively. As for the inflation outlook, no systematic differences between the current forecasts are identifiable.

Economic Outlook for Central and Eastern European Countries¹

The OeNB compiles semiannual forecasts of economic developments in the Czech Republic, Hungary, Poland as well as Russia. Taken together, the 3 EU Member States account for more than 60% of the 12 new EU Member States' overall GDP and are thus representative of trends in this EU region.²

Three New EU Member States and Russia:

Forecast of March 2007

Annual change at constant prices (%)

Gross domestic product	2003	2004	2005	2006	2007 ¹	2008 ¹
Czech Republic	3.6	4.2	6.1	6.1	5.1	4.6
Hungary	4.1	4.9	4.2	3.9	2.7	3.0
Poland	3.9	5.3	3.5	5.8	6.0	5.5
Russia	7.4	7.1	6.4	6.7	6.4	6.0

Source: Eurostat, national statistical offices, OeNB, Suomen Pankki.

¹ Forecast.

In the **Czech Republic**, growth rates of (private and public) consumption and gross fixed capital formation will slow down slightly but remain at solid levels in **2007**. Real income will continue to increase, while employment is expected to rise only moderately. There are signs of a slowdown in growth of consumer lending. Export and import growth rates will decline by around 4 percentage points. The contribution of net exports to GDP growth is expected to be about neutral. In **2008**, economic developments in the Czech Republic will essentially hinge on the extent to which the government will be able to push its reform package through parliament. Assuming full implementation, private consumption would be boosted by the planned reduction of the income tax to 15%, but could be impaired by the intended increase of the VAT rate from 5% to 9% and by substantial cuts in social transfers. Gross fixed capital formation will augment in particular owing to the construction of an automotive parts production plant. Exports and imports will continue to grow at roughly the same speed as in 2007.

In **Hungary**, private and public consumption growth will decline in **2007**, which is largely attributable to the fiscal consolidation program. Real net disposable income is expected to decrease, even assuming no significant moderation of gross nominal wages in the private sector. After declining in 2006, gross fixed capital formation growth is expected to recover marginally. The deceleration of export growth will be accompanied by a slowdown of import dynamics, especially as domestic demand continues to contract. The positive contribution of net exports to GDP growth will be somewhat higher than in 2006. In **2008**, economic growth in Hungary is expected to pick up moderately. Private consumption will grow marginally as a result of a modest recovery of employment and the stabilization (or minor increase) of real wages. Public consumption will continue to decline, whereas gross fixed capital formation is expected to pick up. On the external side, export growth will moderate slightly despite some acceleration of euro area import demand. A modest increase of domestic demand will cause import growth to rise, so that the contribution of net exports is expected to be less positive than in 2006 and 2007.

¹ Compiled by Antje Hildebrandt.

² These forecasts are based on preliminary global growth projections and technical assumptions about oil prices and USD/EUR exchange rates, which are prepared by the ECB for the Eurosystem by means of broad macroeconomic projection exercises. These assumptions are central to the current outlook for two reasons: first, the sizeable export links of the three new EU countries with the euro area, and second, the fact that Russia is one of the world's largest oil-producing nations and that energy sources account for some 60% of the country's total exports. The forecast for Russia is prepared by OeNB in collaboration with Suomen Pankki, Finland's central bank.

In **Poland**, private consumption will go up in **2007** on the back of high employment growth combined with high nominal wage growth. ULC and inflation are expected to increase only moderately, while credit growth will remain considerable. The growth of gross fixed capital formation will be supported by high profitability, conducive financing conditions and further improvements in the absorption of structural funds. Import growth is expected to slow down less than export growth, so that the negative contribution of net exports will increase. However, the positive evolution of domestic demand will more than compensate the negative contribution of net exports. In **2008**, a moderate rise in ULC and a slight increase in inflation are expected to dampen private consumption in Poland. Employment growth is expected to slacken, and credit growth will be dampened slightly. Gross fixed capital formation will decrease owing to lower profitability, monetary tightening and a slower increase in the absorption of structural funds. Export growth will remain stable, while import growth will slow down, which will result in a less negative contribution of net exports to GDP growth.

Regarding possible sources of **risk** to these forecasts, sizeable deviations from the built-in assumptions for external factors are possible, e.g. for import growth of the countries' main trading partners and oil price developments. Exchange rate developments represent a further risk factor to the forecasts. Additionally, some uncertainty remains about the implementation of fiscal reforms. In Poland, in particular, growth of domestic demand hinges upon solid further employment growth. However, there are some signs of labor shortage in the Polish economy, which might have a moderating effect on domestic demand growth.

In **Russia**, the economy is projected to grow at a robust pace in **2007** and **2008**, largely due to high consumption and investment growth. Private consumption is expected to expand robustly owing to continued buoyant rises in real income and strong lending growth. Government consumption is expected to speed up further over the following two years. Gross fixed capital formation is predicted to continue growing strongly, driven by huge projects in the energy sector and increased public investment. Rapid economic growth and further real appreciation of the Russian ruble will sustain strong import growth. Exports are expected to expand at approximately the same pace as in 2006.

Regarding **risk** factors for Russian growth, oil price developments remain the key factor, given the persisting dependence of the Russian economy on the extraction and export of raw materials. Another risk factor consists in the possibility of an excessively quick appreciation of the real exchange rate, triggered by accelerating inflows of energy proceeds and/or capital inflows. Such a quick appreciation could have repercussions for Russia's competitiveness, with the Dutch disease looming. Furthermore, political uncertainty brought on by elections to the lower house of parliament, the Duma, in late 2007 and the 2008 presidential election pose an additional risk to the projection.

Annex Detailed Result Tables

Table 12

Demand Components (Real Prices)

Chained volume data (reference year = 2000)

	2006	2007	2008	2009	2006	2007	2008	2009
	EUR million				Annual change in %			
Private consumption	129,192	132,063	135,020	137,867	+1.9	+2.2	+2.2	+2.1
Government consumption	41,055	41,924	43,089	43,103	+1.2	+2.1	+2.8	+0.0
Gross fixed capital formation	49,400	51,844	53,518	54,693	+3.9	+4.9	+3.2	+2.2
of which: Investment in plant and equipment	19,393	20,527	21,447	21,868	+2.9	+5.8	+4.5	+2.0
Residential investment	10,231	10,708	10,968	11,212	+6.2	+4.7	+2.4	+2.2
Non-residential and other investment	19,677	20,514	21,013	21,523	+3.8	+4.3	+2.4	+2.4
Changes in inventories (including statistical discrepancy)	-1,020	-1,155	-1,358	-1,090	x	x	x	x
Domestic demand	218,626	224,676	230,269	234,572	+1.9	+2.8	+2.5	+1.9
Exports of goods and services	139,015	149,093	159,727	170,760	+8.7	+7.2	+7.1	+6.9
Imports of goods and services	124,908	133,601	143,347	153,081	+6.8	+7.0	+7.3	+6.8
Net exports	14,107	15,491	16,380	17,679	x	x	x	x
Gross domestic product	232,733	240,167	246,650	252,251	+3.2	+3.2	+2.7	+2.3

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

Table 13

Demand Components (Current Prices)

	2006	2007	2008	2009	2006	2007	2008	2009
	EUR million				Annual change in %			
Private consumption	142,095	147,781	153,825	159,831	+3.6	+4.0	+4.1	+3.9
Government consumption	46,016	47,933	50,248	51,268	+3.5	+4.2	+4.8	+2.0
Gross fixed capital formation	53,430	57,130	59,953	62,355	+5.9	+6.9	+4.9	+4.0
Changes in inventories (including statistical discrepancy)	282	89	63	770	x	x	x	x
Domestic demand	241,823	252,933	264,089	274,223	+3.8	+4.6	+4.4	+3.8
Exports of goods and services	148,117	160,184	173,976	188,763	+11.1	+8.1	+8.6	+8.5
Imports of goods and services	133,115	143,713	156,247	169,043	+9.9	+8.0	+8.7	+8.2
Net exports	15,002	16,471	17,730	19,719	x	x	x	x
Gross domestic product	256,826	269,404	281,819	293,942	+4.8	+4.9	+4.6	+4.3

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

Table 14

Deflators of Demand Components

	2006	2007	2008	2009	2006	2007	2008	2009
	2000 = 100				Annual change in %			
Private consumption	110.0	111.9	113.9	115.9	+1.7	+1.7	+1.8	+1.8
Government consumption	112.1	114.3	116.6	118.9	+2.3	+2.0	+2.0	+2.0
Gross fixed capital formation	108.1	110.2	112.0	114.0	+1.9	+1.9	+1.7	+1.8
Domestic demand (excluding changes in inventories)	110.0	112.0	114.0	116.0	+1.8	+1.8	+1.8	+1.8
Exports of goods and services	106.5	107.4	108.9	110.5	+2.2	+0.8	+1.4	+1.5
Imports of goods and services	106.6	107.6	109.0	110.4	+2.9	+0.9	+1.3	+1.3
Terms of trade	100.0	99.9	99.9	100.1	-0.6	-0.1	+0.0	+0.2
Gross domestic product	110.3	112.2	114.3	116.5	+1.5	+1.7	+1.9	+2.0

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

Table 15

Labor Market								
	2006	2007	2008	2009	2006	2007	2008	2009
	Thousands				Annual change in %			
Total employment	4,215.5	4,286.3	4,324.9	4,356.8	+1.4	+1.7	+0.9	+0.7
of which: private sector	3,734.3	3,803.7	3,842.6	3,874.4	+1.5	+1.9	+1.0	+0.8
Payroll employment (national accounts definition)	3,409.8	3,478.4	3,514.7	3,544.7	+1.7	+2.0	+1.0	+0.9
	%							
Unemployment rate (Eurostat definition)	4.8	4.3	4.2	4.2	x	x	x	x
	% of real GDP							
Unit labor costs (whole economy) ¹	66.2	67.1	67.8	68.5	+0.7	+1.4	+1.1	+1.0
	EUR thousand per employee							
Labor productivity (whole economy) ²	55.2	56.0	57.0	57.9	+1.8	+1.5	+1.8	+1.5
	EUR thousand							
Real compensation per employee ³	33.2	33.6	34.0	34.2	+0.8	+1.2	+1.1	+0.8
	At current prices, EUR thousand							
Gross compensation per employee	36.5	37.6	38.7	39.7	+2.5	+3.0	+2.9	+2.6
	At current prices, EUR million							
Total gross compensation of employees	124,555	130,817	136,003	140,688	+4.2	+5.0	+4.0	+3.4

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

¹ Gross wages as a ratio of real GDP.

² Real GDP divided by total employment.

³ Gross wages per employee divided by the private consumption deflator.

Table 16

Current Account								
	2006	2007	2008	2009	2006	2007	2008	2009
	EUR million				% of nominal GDP			
Balance of trade	10,819.0	12,332.6	13,463.6	14,731.3	4.2	4.6	4.8	5.0
Goods	506.0	1,054.5	1,092.9	1,561.9	0.2	0.4	0.4	0.5
Services	10,313.0	11,278.1	12,370.7	13,169.4	4.0	4.2	4.4	4.5
Euro area	-8,290.6	-8,653.3	-8,777.7	-9,300.6	-3.2	-3.2	-3.1	-3.2
Non-euro area countries	19,109.6	20,985.9	22,241.3	24,031.9	7.4	7.8	7.9	8.2
Balance on income	-1,476.0	-1,363.0	-1,321.1	-1,225.0	-0.6	-0.5	-0.5	-0.4
Balance on transfers	-1,110.0	-1,200.0	-1,200.0	-1,200.0	-0.4	-0.4	-0.4	-0.4
Current account	8,233.0	9,769.6	10,942.6	12,306.3	3.2	3.6	3.9	4.2

Source: 2006: Eurostat; 2007 to 2009: OeNB June 2007 outlook.

Table 17

Quarterly Forecast Results

	2007	2008	2009	2007				2008				2009			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Annual change in %															
Prices, wages and costs															
HICP	+1.7	+1.8	+1.9	+1.8	+1.7	+1.6	+1.8	+1.8	+1.7	+1.8	+2.0	+1.9	+1.9	+1.9	+1.9
HICP excluding energy	+1.7	+1.7	+2.0	+1.8	+1.9	+1.7	+1.6	+1.5	+1.5	+1.8	+2.0	+2.0	+2.0	+2.0	+2.0
Private consumption expenditure (PCE) deflator	+1.7	+1.8	+1.8	+1.8	+1.7	+1.7	+1.7	+1.7	+1.8	+1.9	+1.9	+1.9	+1.8	+1.7	+1.7
Gross fixed capital formation deflator	+1.9	+1.7	+1.8	+2.3	+2.1	+1.7	+1.5	+1.4	+1.6	+1.8	+1.9	+1.8	+1.8	+1.7	+1.7
GDP deflator	+1.7	+1.9	+2.0	+1.7	+1.7	+1.6	+1.6	+1.7	+1.8	+1.9	+2.0	+2.0	+2.0	+2.0	+1.9
Unit labor costs	+1.4	+1.1	+1.0	+1.4	+1.4	+1.5	+1.5	+1.0	+1.1	+1.1	+1.1	+1.1	+1.0	+1.0	+1.0
Nominal wages per employee	+3.0	+2.9	+2.6	+2.7	+2.8	+3.0	+3.2	+3.0	+2.9	+2.8	+2.8	+2.7	+2.6	+2.5	+2.5
Productivity	+1.5	+1.8	+1.5	+1.3	+1.5	+1.5	+1.7	+2.0	+1.8	+1.7	+1.7	+1.6	+1.5	+1.5	+1.5
Real wages per employee	+1.2	+1.1	+0.8	+0.9	+1.1	+1.3	+1.5	+1.3	+1.1	+1.0	+0.9	+0.8	+0.8	+0.8	+0.8
Import deflator	+0.9	+1.3	+1.3	+1.1	+0.8	+0.8	+1.0	+1.3	+1.3	+1.3	+1.3	+1.3	+1.3	+1.3	+1.3
Export deflator	+0.8	+1.4	+1.5	+1.2	+0.7	+0.6	+0.8	+1.2	+1.4	+1.5	+1.5	+1.5	+1.5	+1.5	+1.5
Terms of trade	-0.1	+0.0	+0.2	+0.1	-0.1	-0.2	-0.2	-0.2	+0.1	+0.1	+0.1	+0.2	+0.2	+0.2	+0.1
Annual and/or quarterly changes in %, in real terms															
Economic activity															
GDP	+3.2	+2.7	+2.3	+0.8	+0.8	+0.8	+0.7	+0.6	+0.6	+0.6	+0.6	+0.6	+0.5	+0.5	+0.6
Private consumption	+2.2	+2.2	+2.1	+0.3	+1.4	+0.3	+0.5	+0.6	+0.5	+0.5	+0.5	+0.5	+0.5	+0.6	+0.6
Government consumption	+2.1	+2.8	+0.0	+0.2	+1.1	+1.2	+1.0	+0.6	+0.5	+0.3	+0.1	-0.1	-0.1	-0.2	-0.2
Gross fixed capital formation	+4.9	+3.2	+2.2	+0.9	+2.2	+0.7	+0.7	+0.7	+0.7	+0.7	+0.6	+0.5	+0.5	+0.4	+0.4
of which: Investment in plant and equipment	+5.8	+4.5	+2.0	+0.4	+5.1	+1.0	+0.9	+0.9	+0.8	+0.7	+0.5	+0.5	+0.4	+0.3	+0.3
Residential construction investment ¹	+4.7	+2.4	+2.2	+1.1	+0.7	+0.6	+0.5	+0.6	+0.6	+0.7	+0.6	+0.5	+0.5	+0.5	+0.5
Exports	+7.2	+7.1	+6.9	+1.8	+1.6	+1.8	+1.8	+1.7	+1.7	+1.7	+1.7	+1.7	+1.7	+1.7	+1.7
Imports	+7.0	+7.3	+6.8	+1.1	+3.3	+1.3	+1.7	+1.7	+1.8	+1.8	+1.6	+1.6	+1.6	+1.6	+1.6
Contribution to real GDP growth in percentage points															
Domestic demand	+2.7	+2.4	+1.6	+0.4	+1.4	+0.5	+0.6	+0.6	+0.5	+0.5	+0.4	+0.4	+0.4	+0.4	+0.4
Net exports	+0.6	+0.4	+0.5	+0.5	-0.8	+0.4	+0.2	+0.1	+0.1	+0.0	+0.1	+0.2	+0.2	+0.2	+0.2
Changes in inventories	-0.1	-0.1	+0.1	-0.1	+0.3	-0.1	-0.0	-0.1	-0.0	+0.0	+0.1	+0.0	+0.0	+0.0	+0.0
%															
Labor market															
Unemployment rate (Eurostat definition)	4.3	4.2	4.2	4.4	4.4	4.3	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.2	4.1
Annual and/or quarterly changes in %															
Total employment	+1.7	+0.9	+0.7	+0.6	+0.3	+0.4	+0.3	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2
of which: Private sector employment	+1.9	+1.0	+0.8	+0.6	+0.3	+0.4	+0.3	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2
Payroll employment	+2.0	+1.0	+0.9	+0.6	+0.3	+0.4	+0.3	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2	+0.2
Annual and/or quarterly changes in %, in real terms															
Additional variables															
Disposable household income	+2.4	+2.1	+1.6	+1.7	+0.6	+1.0	+0.8	+0.4	+0.4	+0.3	+0.3	+0.4	+0.4	+0.5	+0.5
% of disposable real household income (saving ratio) and % of real GDP (output gap)															
Household saving ratio	10.5	10.6	10.2	10.7	10.0	10.6	10.9	10.8	10.7	10.5	10.4	10.3	10.3	10.2	10.1
Output gap	-0.2	0.2	0.2	-0.6	-0.3	-0.0	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Source: OeNB June 2007 outlook. Quarterly values are seasonally adjusted.

¹ Excluding other construction investment and other investment.

Table 18

Comparison of Current Economic Forecasts for Austria													
Indicator	OeNB			WIFO		IHS		OECD		IMF		European Commission	
	June 2007			March 2007		March 2007		May 2007		April 2007		May 2007	
	2007	2008	2009	2007	2008	2007	2008	2007	2008	2007	2008	2007	2008
Annual change in %													
Key results													
GDP (real)	+3.2	+2.7	+2.3	+3.0	+2.4	+2.9	+2.6	+3.2	+2.6	+2.8	+2.4	+2.9	+2.5
Private consumption (real)	+2.2	+2.2	+2.1	+2.2	+2.0	+2.4	+2.1	+2.1	+2.3	x	x	+2.0	+2.1
Government consumption (real)	+2.1	+2.8	+0.0	+1.7	+1.6	+1.0	+1.0	+0.9	+1.0	x	x	+1.8	+2.1
Gross fixed capital formation (real) ¹	+4.9	+3.2	+2.2	+5.5	+3.4	+4.8	+3.8	+4.1	+2.7	x	x	+5.2	+3.2
Exports (real)	+7.2	+7.1	+6.9	+7.4	+6.2	+7.9	+7.1	+7.0	+7.7	x	x	+7.4	+6.9
Imports (real)	+7.0	+7.3	+6.8	+7.5	+6.3	+7.9	+7.0	+5.2	+7.7	x	x	+7.3	+6.7
GDP per employee	+1.5	+1.8	+1.5	+1.7	+2.0	+1.4	+1.7	x	x	x	x	+1.7	+1.8
GDP deflator	+1.7	+1.9	+2.0	+1.8	+1.7	+1.8	+1.5	+1.9	+2.3	+1.7	+1.7	+1.8	+1.7
CPI	x	x	x	+1.7	+1.8	+1.6	+1.6	x	x	+1.6	+1.7	x	x
HICP	+1.7	+1.8	+1.9	+1.9	+2.0	x	x	+1.6	+1.9	x	x	+1.8	+1.7
Unit labor costs	+1.4	+1.1	+1.0	+0.9	+0.6	x	x	x	x	x	x	-1.1	-1.0
Total employment	+1.7	+0.9	+0.7	+1.8	+0.8	+1.5	+0.9	x	x	x	x	+1.2	+0.7
%													
Unemployment rate ²	4.3	4.2	4.2	4.2	4.1	4.5	4.4	5.3	5.3	4.5	4.3	4.4	4.3
% of nominal GDP													
Current account	3.6	3.9	4.2	x	x	x	x	4.1	4.5	1.9	1.6	3.2	3.1
Government surplus/deficit	-0.7	-0.5	-0.2	-1.0	-1.0	-1.1	-0.9	-0.8	-0.6	-1.6	-1.2	-0.9	-0.8
External assumptions													
Oil price in USD per barrel (Brent)	65.0	69.9	69.6	61.0	62.0	64.0	64.0	65.0	65.0	60.8	64.8	66.2	70.3
Short-term interest rate in %	4.2	4.5	4.4	4.1	4.0	4.0	4.1	4.1	4.3	3.8	3.7	x	x
USD/EUR exchange rate	1.35	1.36	1.36	1.33	1.40	1.30	1.30	1.35	1.35	1.30	1.31	1.33	1.34
Annual change in %													
Euro area GDP (real)	+2.3 to +2.9	+1.8 to +2.8	x	+2.7	+2.2	+2.5	+2.3	+2.7	+2.3	+2.3	+2.3	+2.6	+2.5
U.S. GDP (real)	+2.0	+2.7	+3.2	+2.0	+2.3	+2.5	+3.0	+2.1	+2.5	+2.2	+2.8	+2.2	+2.7
World GDP (real)	+4.8	+4.6	+4.7	+4.8	+4.6	x	x	x	x	+4.9	+4.9	+4.8	+4.8
World trade	+5.8	+6.9	+7.3	+7.0	+6.5	+8.0	+7.5	+7.5	+8.3	+7.0	+7.4	+7.7	+7.6

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

¹ For IHS: Gross investment.

² Eurostat definition; for OECD: OECD definition.

Output Growth in Austria and Germany: What Explains the Growth Differentials since the Early 1990s?

This paper attempts to explain the positive growth differential Austria has had over Germany since the early 1990s. While German output growth was dampened in the aftermath of unification, the Austrian economy benefited from a number of positive one-off shocks in the 1990s. Austria has been able to make the most of the opening up of Eastern Europe and witnessed a surge in productivity following EU accession. Moreover, given the predominance of small and medium-sized businesses in Austria, outsourcing abroad was much less of a problem for Austrian employees than for German employees. Finally, Germany saw a marked drop in full-time equivalent employment, which in turn adversely affected consumption and investment. While fiscal policies were not instrumental in generating growth differentials in the 1990s, they have played a role since 2002, as Austria, unlike Germany, has pursued an expansionary fiscal policy course. Differences in the wage-setting process and in corporate taxation provide very little, if any, explanation for the growth differential. Thus, Austria's positive growth differential basically reflects asymmetric one-off shocks with an effect on current GDP levels rather than on the long-term growth rate. Hence, once the effects of these one-off shocks have subsided, the growth differential is likely to shrink.

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JEL classification: E32, O11, O57.

Keywords: Austria, Germany, growth differentials.

1 Introduction

The Austrian economy has outperformed the German economy for years, as is evidenced by a broad range of economic indicators. Following a decade and a half of perceptibly higher output growth in Austria than in Germany, Austrian GDP per capita has even risen above the levels observed in western Germany, the Austrian unemployment rate is markedly lower, and Austria's public finances are healthier.

Given these differences, a number of comparative studies have attempted to provide insights into the reasons for this uneven performance from a German perspective: Comparing output growth developments especially

against the backdrop of labor market structures, Wahl (2004) highlights the fact that official labor market data lead to an overly optimistic assessment of Austria's performance. The official data overstate employment in Austria, given the high incidence of early retirement, the coverage of recipients of child-care benefits and of participants in employment training programs, double counting problems and other special factors, such as agricultural subsidies. The actual unemployment rate is thus higher than the official data imply. In a paper that aims at identifying the factors determining the employment differentials between Germany, Austria and Switzerland, Wahl and Schulte (2005)

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single out the role of the more employment-friendly framework conditions in Austria and Switzerland. In their conclusions for the German labor market, they underline the need to carefully coordinate individual measures. Comparing the institutional framework for fiscal, labor market, social and location policies in Austria and Germany, a study of the Ifo Institute for Economic Research (Büttner et al., 2006) finds urgent need for reform in Germany in all areas under review. Grohmann (2006) traces Austria's economic success to a different mindset and a different social structure. In a recent comprehensive comparison from an Austrian perspective, Breuss (2006b), finally, attributes Austria's higher growth rates to the following key factors: the burden of German unification, Austria's lead over Germany in using the opportunities provided by European integration, the asymmetric design of EMU macro policies and the stronger negative impact of globalization on Germany.

In attempting to explain the growth differentials between Germany and Austria, this paper adds further perspectives to the debate. In addition to a comprehensive discussion of the traditional arguments, including German unification, widening and deepening of EU integration as well as Germany's labor market problems and globalization, we highlight above all the influence of country and firm size ("small is beautiful") as well as the role wages play for price competitiveness and domestic demand.

This paper is structured as follows: Section 2 provides a descriptive overview of growth differentials between Austria and Germany as well as a supply- and demand-side analysis

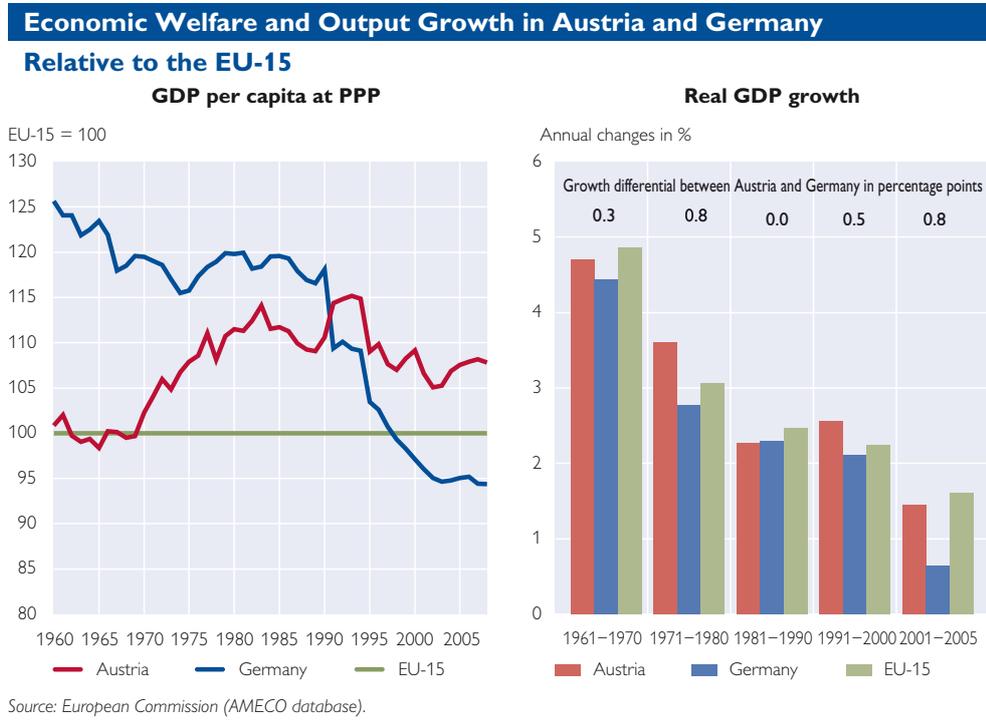
of contributions to growth. The remainder of the paper basically presents and analyzes two kinds of arguments – one-off historical events (sections 3 and 4) and selected differences in the economic structures and policies of the two countries (sections 5 to 9). More specifically, section 3 discusses the effects of the following factors for Austria: the opening up of Eastern Europe, the creation of a single market in Europe, Austria's accession to the EU and participation in EMU, as well as EU enlargement. Section 4 assesses the effects of German unification. Turning to the selected differences between the two countries, section 5 evaluates the influence of country and firm size on economic growth at the firm and macro levels, while section 6 deals with the potential impact of fiscal policy on the emergence of growth differentials. Section 7 compares institutional aspects of the labor markets, section 8 discusses wage levels and international competitiveness and section 9 analyzes key differences in corporate taxation. Section 10 concludes with a summary of the key findings.

2 Macroeconomic Performance

2.1 Austria's Level of Economic Welfare Now Exceeds German Standards

Ranging among the weakest economies in Europe after World War II, Austria lagged considerably behind Germany for many years. During the post-war boom years up to the end of the 1960s, both countries experienced very high growth. In the 1970s, which were marked by the end of the Bretton Woods era and the first oil price shock, Austria outperformed Germany, in no small part because

Chart 1



of its commitment to anticyclical fiscal policy and to its hard currency policy.

In the 1980s, both economies grew at roughly the same rates. Austria had to overcome difficulties posed by budget consolidation measures and a crisis of the nationalized industries, while Germany underwent a paradigm shift in monetary policy, namely the transition to monetary targeting in the early 1980s. German unification in 1990 led to a temporary growth spurt in Germany, which also fed through to Austria. Thereafter, economic growth was dampened by a number of domestic crises as well as external shocks in the 1990s (EMS crisis in 1993, Mexico crisis in 1995, Asian crisis in 1998). The global recession in 2001, triggered by the U.S.A., precipitated another period of weak growth in Europe, above all in Germany.

Given the differences in growth dynamics since the 1990s, Austria's

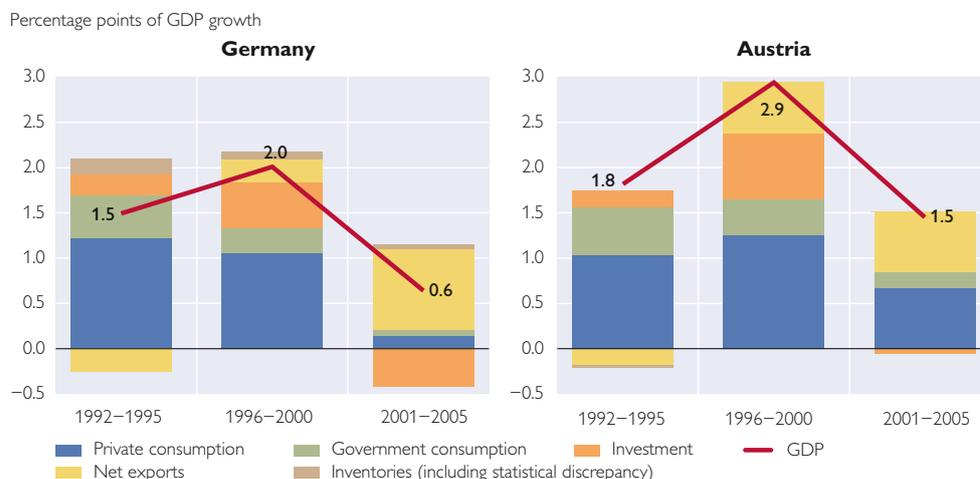
level of economic welfare (measured in terms of GDP per capita at purchasing power parity) has come to surpass that of Germany. Unification, which depressed Germany's GDP per capita, has no doubt played a big role in this process. Yet since 2004 Austria has exceeded even western Germany in terms of economic welfare (section 4).

2.2 Demand Side: Marked Weakness in Consumption and Investment in Germany

Following unification, wages rose sharply in eastern Germany in 1991 and 1992, turning private consumption and construction investment into the key engines of growth in the unification boom. Yet from the mid-1990s onward, high and rising unemployment produced a regime shift in German wage policies, with the objective of regaining price competitiveness. Indeed, total unit labor costs declined by 16% between 1995 and

Chart 2

Marked Weakness of Domestic Demand in Germany since 2001



Source: European Commission (Cronos database).

2005 relative to the remaining EU-14 excluding Luxembourg (AMECO database of the European Commission). At the same time, however, the funds available for public spending – above all government investment – dropped sharply, given the high fiscal burden of unification.

The growth contributions of the demand components to real GDP growth (chart 2) show which factors are to blame most for Germany's sluggish growth performance since 2001. While net exports fueled growth, domestic demand was dampening growth, with both private and government consumption stagnating. The subdued development of private consumption since 2001 can be attributed to a number of factors: Disposable household income has declined, owing to a drop in full-time equivalent employment reflecting job cuts and a sharp rise in part-time employment. Precautionary saving has increased, albeit by a small degree, given past pension and labor market reforms as well as uncertainty about

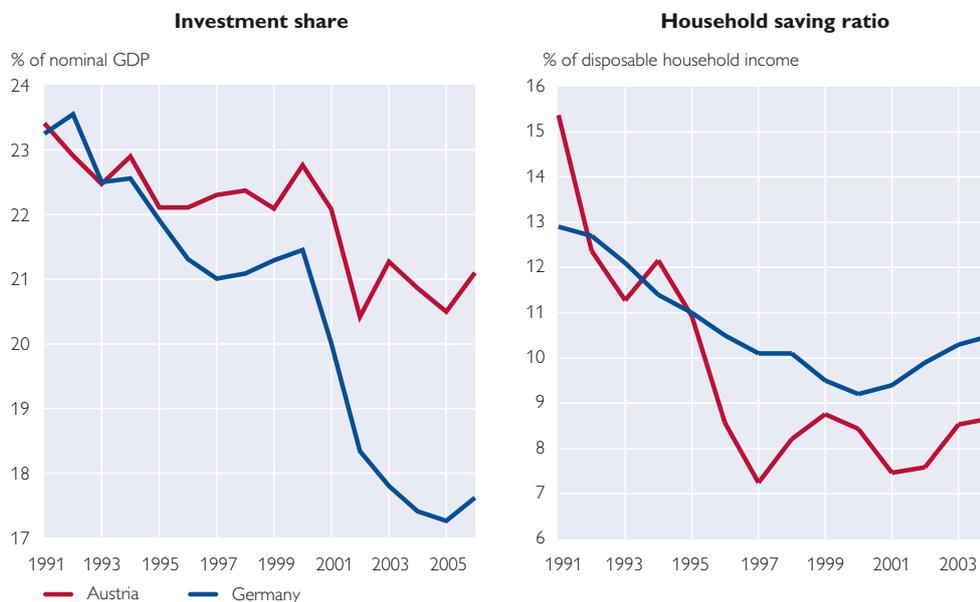
future cuts (chart 3). GDP growth decelerated perceptibly in 2001 despite the tax reform of 2000. Furthermore, consumption may have slowed down as a result of developments in the real estate market, which stagnated in Germany unlike in most other EU countries.

In Austria, private consumption growth decelerated as well, but at a considerably slower rate. While also facing large cuts in future pension benefits, Austrian consumers reacted with less apprehension. As a case in point, the consumer confidence indicator compiled by the European Commission remained at its long-term average for Austria while dropping markedly below this threshold for Germany for the period from 2002 to 2005.

Cyclical fluctuations apart, the investment share was fairly constant in Germany from the 1970s to the 1990s, but has declined markedly since 2001. For Austria, the cyclical decline of the investment share was, again, considerably slower (chart 3).

Chart 3

Lower Investment Share and Higher Saving Ratio in Germany



Source: European Commission AMECO database (investment shares), Statistics Austria, Statistisches Landesamt Baden-Württemberg (saving ratios).

The crumbling of the German construction sector, inflated in the years after unification, appears to have come to a halt in 2006. In Austria, investment did not contribute to growth either in the first half of the current decade, but the decline in the investment share was less pronounced, possibly reflecting public works projects launched under the economic stimulus packages of December 2001 and September 2002.

2.3 Supply Side: Growth Driven More by Production Factors in Austria than in Germany

Our assessment of supply-side growth factors is based on a growth accounting exercise using data from the Total Economy Growth Accounting Database of the Groningen Growth and Development Centre (GGDC, 2005). Growth accounting breaks down eco-

nomical growth into components associated with changes in factor inputs (labor, capital and other factors) as well as technological progress.

In this respect, table 1 shows remarkable differences in the composition of growth between Germany and Austria. While labor and capital contribute more substantially to growth in Austria than in Germany, factor productivity plays a bigger role in supporting growth in Germany.

The contribution of labor to growth has been negative in Germany since the early 1980s, reflecting both a sharp rise in unemployment² and continual cuts in working hours. Annual hours worked dropped from an average of 1,636 hours in 1980 to 1,446 hours in 2004 (GGDC, 2005). Austria, where hours worked actually dropped more in this period (from 1,755 hours to 1,498 hours), was sig-

² In western Germany the unemployment rate rose from 2.7% in 1980 to 9.1% in 2006. The nationwide unemployment rate averaged 10.8% in 2006.

Table 1

Contributions to GDP Growth in Austria and Germany						
Percentage points						
	Labor	of which		Capital	Total factor productivity (TFP)	Real GDP
		Hours worked	Employment			
Austria						
1981 to 1990	0.4	-0.3	0.7	1.3	0.5	2.2
1991 to 2000	0.0	-0.6	0.6	1.2	1.2	2.4
2001 to 2004	-0.1	-0.3	0.2	1.1	0.2	1.1
1981 to 2004	0.1	-0.4	0.6	1.2	0.7	2.1
Germany						
1981 to 1990	-0.3	-0.4	0.2	0.9	1.5	2.2
1991 to 2000	-0.6	-0.4	-0.2	0.8	1.6	1.8
2001 to 2004	-0.5	-0.2	-0.3	0.4	0.6	0.5
1981 to 2004	-0.4	-0.4	-0.1	0.8	1.4	1.7

Source: GGDC, Total Economy Growth Accounting Database.

nificantly better at increasing employment, whereas Germany's employment figures have in fact been declining slightly since the early 1980s (section 7). A comparison of the GDP growth contributions of capital shows a drop to a much lower level in Germany than in Austria as well as a decline over time.

Consequently, the residual measure of total factor productivity³ (TFP), which determines the long-term growth rate, contributed far more substantially to growth in Germany than in Austria in the period under review: In Germany, more than three-quarters of GDP growth

were attributable to TFP, compared with one-third in Austria.⁴

In Austria, TFP expanded visibly around the time of EU accession.⁵ This intensification of research and development (R&D) and the implementation of structural reforms are likely to have been spurred also by the rapid continued internationalization of the Austrian economy. Following the international economic setback in 2001, both countries experienced a sharp drop in TFP shares. Given labor hoarding in 2001, the growth contribution of TFP even turned negative in Austria at the time. While this decline matches the EU-

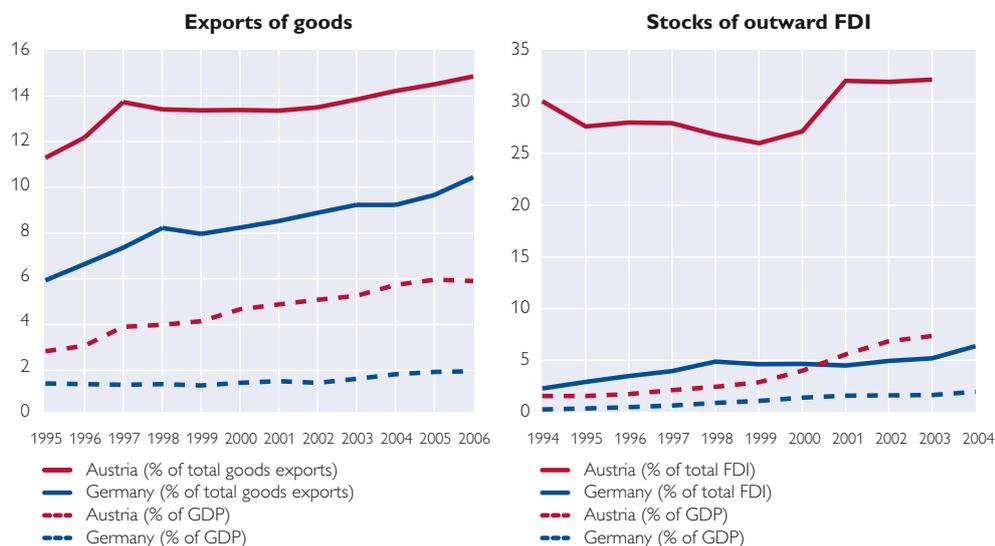
³ TFP may be understood as an integral measure of technological progress (innovations, creation of know-how, improved production conditions). As a residual measure, however, TFP does not reflect technological progress alone but also cyclical volatilities induced by demand fluctuations as well as measurement errors. The contributions to growth of labor and capital are significantly less volatile than overall GDP growth, given rigidities in product markets (Peneder et al., 2006).

⁴ Other studies for Austria yield qualitatively similar results, even though the empirical results differ on account of divergent data sources and horizons as well as differing methods. Gnan et al. (2004) find that roughly one-half of Austria's GDP growth between 1981 and 2002 is attributable to TFP growth. The growth accounting exercise of Peneder et al. (2006) yields a share of 36% for technological progress in the period from 1990 to 2004. Taking into consideration quality effects from the rising use of more sophisticated production factors (growing importance of new information and communications technologies, bigger share of higher-skilled labor, declining demand for simple commodities) Peneder et al. find technological progress overall to account for two-thirds of growth.

⁵ Apparent data problems relating to the input factor labor (strongly negative contributions to growth in 1995 and 1997) are likely to have overstated this increase in the latter half of the 1990s.

Chart 4

Austria Has Stronger Ties to the New EU Member States (EU-10)



Source: Eurostat.

wide trend, the U.S.A. and Canada – but also Finland and Sweden – have seen an acceleration of TFP growth (GGDC).

The development of TFP is basically influenced by two factors: the accumulation of human capital (Lucas, 1988) and technological advances induced by R&D (Romer, 1990; Grossman and Helpman, 1994). Common indicators, such as spending on education, R&D or the number of new patents, fail to sufficiently explain Germany's higher TFP.⁶ While Germany ranks ahead of Austria in terms of TFP per capita, Austria has caught up considerably since EU accession, benefiting from access to EU research programs (Breuss, 2006b).

3 Vast Benefits for Austria from Integration Steps in the 1990s

The fall of the Iron Curtain triggered sweeping economic changes, which also had an impact on western Europe. Given its favorable geopolitical position as well as long-standing economic relations with the former Eastern bloc countries, Austria stood to benefit substantially from these changes during the 1990s.

The regional allocation of export flows (chart 4) shows clearly that exports to the new EU Member States play a more important role for Austria than for Germany. Austria's strong ties with Central, Eastern and Southeastern European countries are even more evident from the figures on foreign direct investment (FDI). While Germany is the leading investor in Eastern Europe in absolute numbers, in terms of GDP, FDI plays a much larger role for Austria.

⁶ Koman and Marin (1999) show in an empirical analysis that the growth differentials between Germany and Austria can be traced to differences in technology rather than in human capital.

In addition, Austria's accession to the EU in 1995 brought a number of sweeping changes. Austria became a full-fledged member of the Single Market and the EU's customs union while ceding competence for key policy areas to the EU authorities. Productivity gains reflect above all the higher competitive pressure (at least in previously sheltered sectors) as well as participation in EU research framework programs. Austria has also become more attractive as a business location since EU entry. These positive effects come at the cost of contributions to the EU budget. Like Germany, Austria is a net contributor to the EU budget, but the net burden has been declining for both countries. Germany's net contributions to the EU have sunk from 0.58% of GDP in 1995 to 0.27% in 2005; Austria's net contributions have dropped from 0.44% of GDP to 0.11% over the same period. With Austria contributing between 0.1 and 0.2 percentage point of GDP less than Germany to the EU budget, its relative financial burden is thus lower. Given more or less equal gross contributions (as a percentage of GDP), this difference may be attributed to higher agricultural subsidies flowing back to Austria.

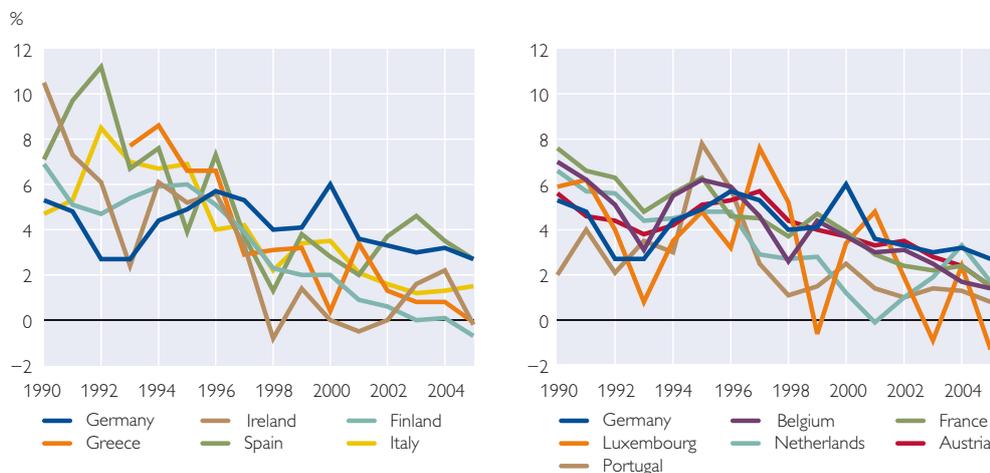
Model simulations of WIFO, the Austrian Institute of Economic Research, show Austria to have gained a total of 3.5% of GDP growth from export opportunities created by the opening up of Eastern Europe in the 1990s (Breuss, 2006a). The establishment of a Single European Market, EU accession, and the introduction of the euro boosted growth by a further 4.5%. Breuss (2006a) expects the effects of EU expansion toward

the east in 2004 to remain comparatively smaller at around 1%, as trade had already been broadly liberalized by then. In total this adds up to a growth effect of around 9% of GDP created in the 1990s. The bulk of this effect materialized in the 1990s and – to a lesser extent – at the beginning of the current decade, so that no sizeable growth effects are likely in the future. No directly comparable simulations exist for Germany. However, Germany's comparatively weaker economic ties would imply that it has benefited less than Austria from the opening up of Eastern Europe. Moreover, as a founding member of the European Economic Area, Germany did not witness the kind of productivity-increasing effects that Austria benefited from after EU entry.

To some extent, Germany's anemic growth has repeatedly been attributed to EMU, above all within Germany (e.g. Bohley, 2004), which does not come as big surprise given the strong emotional *ties* Germans had to the *Deutsche mark* and their prevailing skepticism vis-à-vis the euro. It has often been argued that Germany's competitiveness has dropped as a result of *real interest rates converging* at the low German level within the euro area. Above all Finland, Italy and Greece have benefited strongly from sinking real interest rates; yet it should not be overlooked that real interest rates have dropped in Germany as well (chart 5). It is thus important to separate the relative from the absolute thread of the argument. One may conclude that, compared with most other euro area countries, Germany benefited considerably less from the decline in real interest rates.

Chart 5

Real Interest Rates Decline and Converge in the Euro Area as a Result of EMU



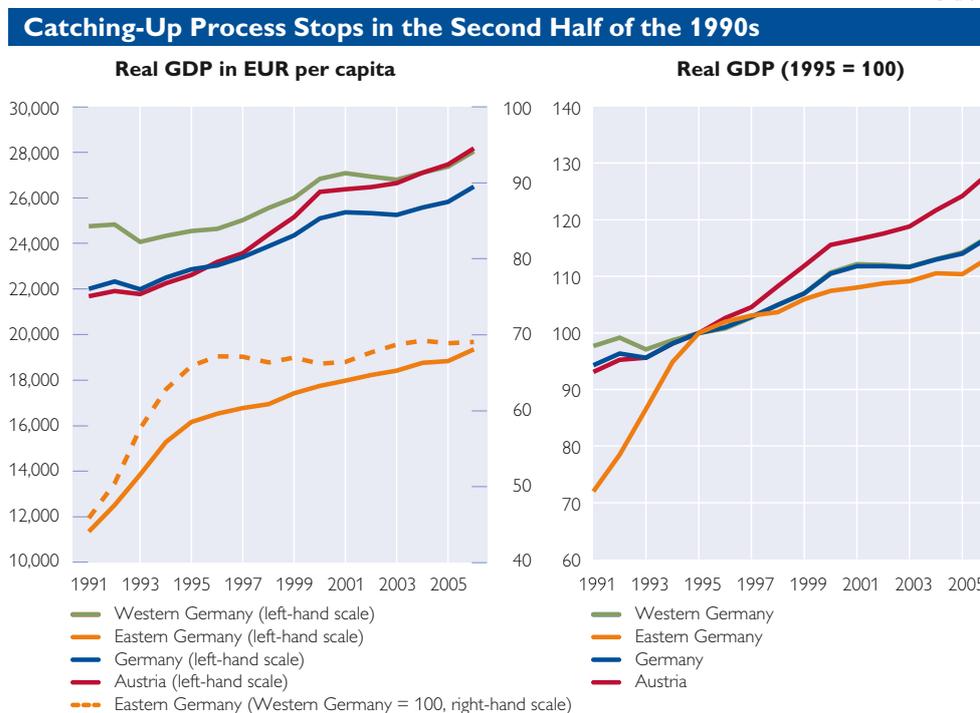
Source: European Commission (AMECO database).

At any rate, a strong commitment to wage moderation in the interest of maintaining international competitiveness secured Germany a rank among the euro area countries with the lowest inflation rates – and thus with the highest real interest rates – since the mid-1990s. A low inflation rate does indeed boost price competitiveness in external trade. In contrast, according to the Sachverständigenrat (2004), there is no convincing empirical evidence for another often cited argument, namely that Germany entered the euro area at too high an exchange rate. Accordingly, Germany’s EMU entry exchange rate corresponded to the equilibrium exchange rate determined by long-term factors. As this argument holds for Austria as well, given Austria’s de facto currency union with Germany at the time, the exchange rate must, however, be dismissed as a factor explaining the growth differential between the two countries.

4 Unification Dampened Germany’s Growth Dynamics

Germany’s unification was an exceptional political event with major consequences. From an economic perspective, though, the integration of eastern Germany did not run smoothly. While massive financial transfers and the transfer of tried-and-trusted institutions from western Germany secured eastern Germany a clear head start over other former eastern bloc countries, the fact remains that one of the world’s cutting-edge economies was joining forces with a command economy burdened by an overly mature capital stock and low productivity. Thus, eastern Germany’s manufacturing industry faced very strong competition from western Germany at a time when it was already suffering from the loss of its traditional sales markets. The adjustment difficulties were exacerbated by the massive overvaluation of the Ostmark, given its conversion into Deutsche mark at a rate of 1:1, as well by the strong mismatch between wage and productivity growth in the first

Chart 6



Source: Federal Statistical Office Germany, statistical offices of the German Laender, Statistics Austria.

few years. In the first year following unification, industrial output dropped by 50% in eastern Germany. Driven by the political will to rapidly harmonize living standards and favored by a vacuum of regulatory power⁷ unit labor costs rose by 150% in the period from 1990 to 1993 (Horn et al., 2000; Sinn, 2000).

While eastern Germany's GDP per capita had jumped from a mere 46% of the western German level in 1991 to 66% in 1995, this catching-up process came to a halt in the second half of the 1990s. The following ten years up to 2006 witnessed only a modest rise to 69%. Even those fig-

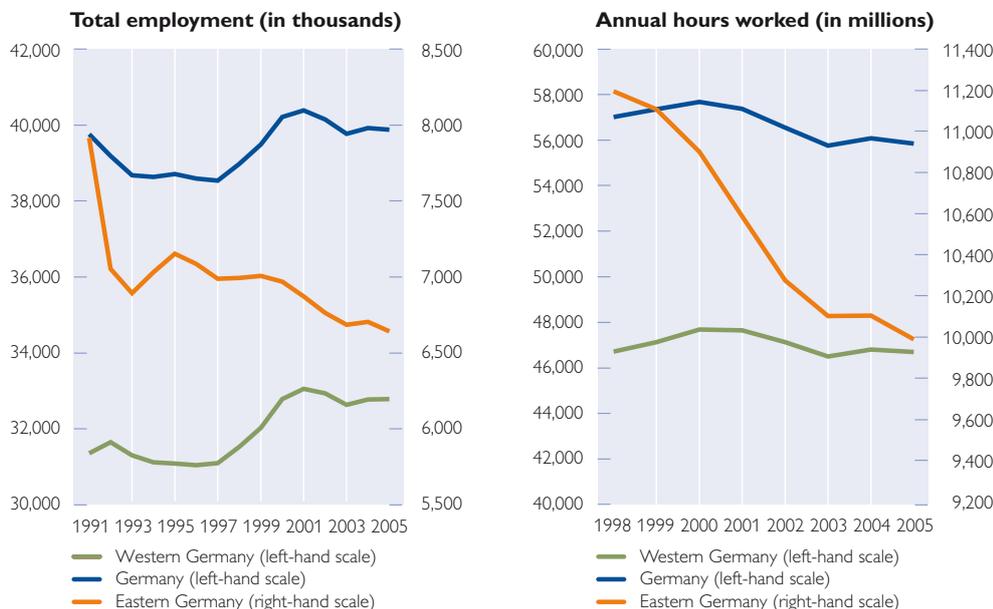
ures are in fact overstated; calculations for the "sustainable" part of the economy – excluding the public sector and the construction industry (which are both heavily subsidized by western Germany) – yield GDP per capita figures that are even significantly lower than the above figures in relation to western German levels (European Commission, 2007). In fact, this per capita comparison paints a favorable picture for eastern Germany, as the population has dwindled substantially in the east.⁸ In absolute figures, GDP growth in eastern Germany (13%) even lagged behind western German GDP growth (17%) from

⁷ In 1991 multi-year wage settlements and thus long-term wage paths were agreed for eastern Germany. Apart from the Treuhand Agency, which administered eastern Germany's industrial heritage and took a passive stance in those negotiations, eastern Germany's corporate sector was not represented in those negotiations and could not press for productivity-oriented wage settlements. Western German corporate representatives and trade union representatives had an inherent interest in high wage increases, in part to defuse competition from eastern Germany, in part in support of traditional trade union interests.

⁸ The population of eastern Germany dropped by 8% between 1991 and 2006.

Chart 7

Significant Job Cuts in Eastern Germany



Source: Statistical offices of the German Laender (2006).

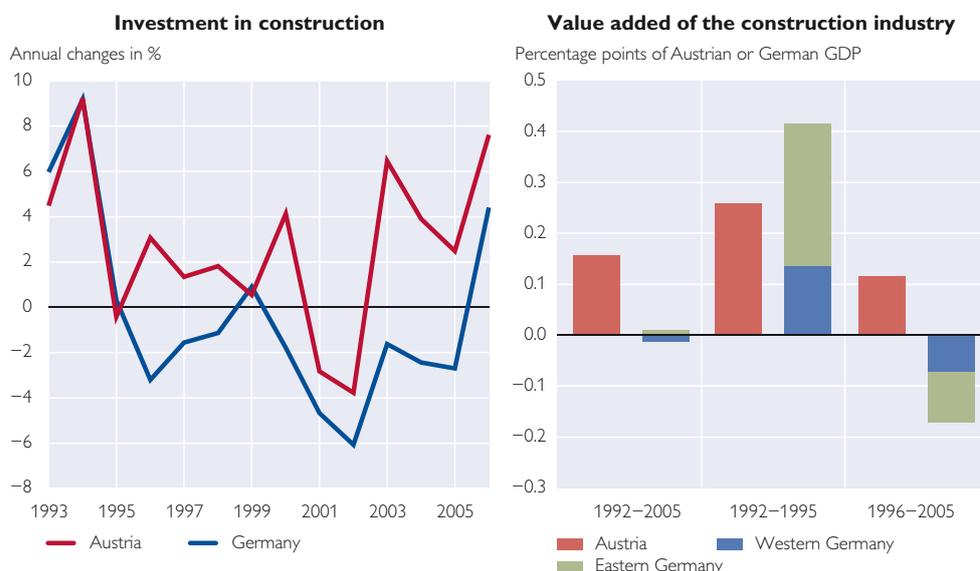
1995 to 2006.⁹ Any hopes put into a rapid, self-supporting recovery thus failed to materialize. The reindustrialization of eastern Germany following the collapse of the nationalized industries has not been fully successful. Sinn (2000) enumerates a number of reasons for this stagnation. Apart from the wide gap between wage increases and productivity gains, the provisions governing subsidies favored an inefficient allocation of capital. The high level of social assistance (that is, at least before the labor market reforms were implemented under the Hartz concept) has also drawn repeated criticism, as it implied high minimum wages and created negative incentives for work (Sinn, 2000; European Commission, 2002 and 2007).

While 1 million jobs vanished in eastern Germany during the transformation process from 1991 to 1993, nationwide employment figures rebounded until 2001. From 1993 to 2001, yet another 0.3 million eastern Germans (3.7%) lost their jobs, while 1.5 million new jobs were created in the same period in western Germany. This increase must be interpreted with caution, as it was associated with a rise in part-time employment. Based on annual hours worked – data which are available only from 1998 onward – full-time equivalent employment edged up by 0.1% in western Germany from 1998 to 2005 while falling by 10.8% in eastern Germany and dropping by 2.1% on a nationwide basis.

⁹ Austrian GDP grew by 28% in this period.

Construction Investment Has Dampened German Growth

since the Mid-1990s



Source: European Commission (AMECO database).

The eastern German Laender continue to depend heavily on transfers from the western parts of the country: In 1995 and 1996, such transfer payments accounted for 41% of the eastern German GDP. By 2003 and 2004 this share had sunk to close to 22% (European Commission, 2007). On average, these transfers correspond to around 4% of western German GDP. While these transfers no doubt constitute a high fiscal burden, the western German economy benefited from the expansion of the market and from the addition of human capital through east-west migration. The European Commission (2002) simulated the effects of (tax-financed) transfer payments on overall output growth, taking into consideration the crowding out of private investment and labor market effects. According to these simulations, the transfers dampened growth by an average of 0.3 percentage point per annum in the 1990s. These simulations

did not reflect negative competition effects resulting from the rise in unit labor costs (which were, however, reversed from the mid-1990s onward through wage moderation) and the (at least indirect) appreciation of the Deutsche mark as a result of unification. In addition, it was noted that the decline in public sector spending might affect potential output in the medium to long term.

Given enormous catching-up needs, above all in infrastructure, and generous subsidies, the construction industry created high contributions to growth in the first few years following unification. Yet in the mid-1990s, construction activity slumped in both eastern and western Germany. Real estate prices have been on a gradual decline in eastern Germany since 1993. In the period from 1996 to 2005, the construction industry dampened German output growth by 0.2 percentage point per year, while Austria's construction industry pro-

vided a slightly positive contribution to growth (0.1 percentage point) in this period. The European Commission (2002) estimates that the crumbling of the construction industry (in Germany as a whole) after the rush of building following unification accounts for about one-third of Germany's negative growth differential vis-à-vis the other EU countries in the 1990s. The contraction of building activity is likely to have come to a halt in 2006, though.

5 Impact of Country and Firm Size

While Germany and its 80 million inhabitants create one-fifth of the total output of the EU-25, Austria has only one-tenth the population and ranges among the smaller EU economies. The different national size has also translated into different business structures. Whereas size is often an advantage, Austria may in fact have better mastered the challenges of

European integration and globalization than Germany for the very reason that its political and economic structures are smaller.

5.1 Predominance of Small Enterprises Cushions the Negative Impact of Globalization in Austria

In the German debate, globalization typically crops up as the key reason for anemic job creation. From an economic perspective, one of the key features of globalization is the growing international division of labor in the production of goods and services. The production of labor-intensive goods is typically shifted from industrialized countries to low-wage countries, thus allowing companies to strengthen their price competitiveness. In the home country, this development generally leads to redundancies depending on firm size, type of industry, skill intensity, etc.

Box 1

Is Germany Turning into a Bazaar Economy?

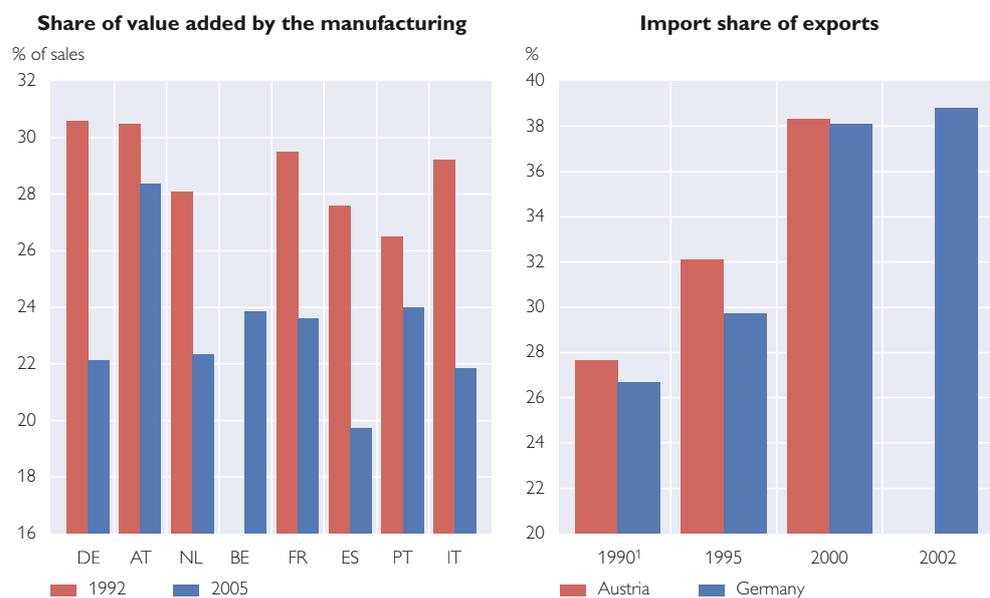
One of the best-known hypotheses about the globalization impact on the German economy is Sinn's hypothesis of a bazaar economy (2001), which implies that the domestic share of value added shrinks as production becomes more globalized. German manufacturers have been increasingly shifting labor-intensive parts of production abroad to avoid a high domestic wage burden. As a result, Sinn claims, Germany is turning more and more into a bazaar economy with high export volumes but low domestic value added. In other words, rising export figures do not automatically add domestic value or create domestic jobs. While a declining domestic share of value added is generally considered to follow logically from the international division of labor, Sinn's hypothesis has caused much dispute for a number of reasons, one being the very term "bazaar," i.e. the somewhat provocative wording. Another controversy surrounds the fact that Sinn deduces the need for more wage flexibility from his hypothesis and blames Germany's high social standards for preventing necessary structural change. Sinn's hypothesis has also been questioned for its link to the concept of a "pathological export boom," which cites Germany's high wage level as the very reason why the country is such a successful exporter. Sinn argues that the lack of wage flexibility causes the labor-intensive sectors facing low-wage competition abroad to shrink more than necessary. Some of the capital and labor they shed are absorbed by the capital-intensive export sectors, which causes exports to rise, while imports rise because the labor-intensive goods no longer produced domestically must, of course, be imported.

Can Germany's weaker growth performance be explained with the fact German companies outsource more heavily than Austrian firms? Principally, manufacturing value added as a percentage of a company's sales shows whether and to what extent produc-

tion is outsourced (either to other domestic firms or to foreign firms). In this respect, manufacturing production is found to differ heavily between Germany and Austria. While value added as a share of sales was roughly equally high in both countries

Chart 9

Declining Share of Value Added and Rising Share of Imports as a Result of Production Outsourcing

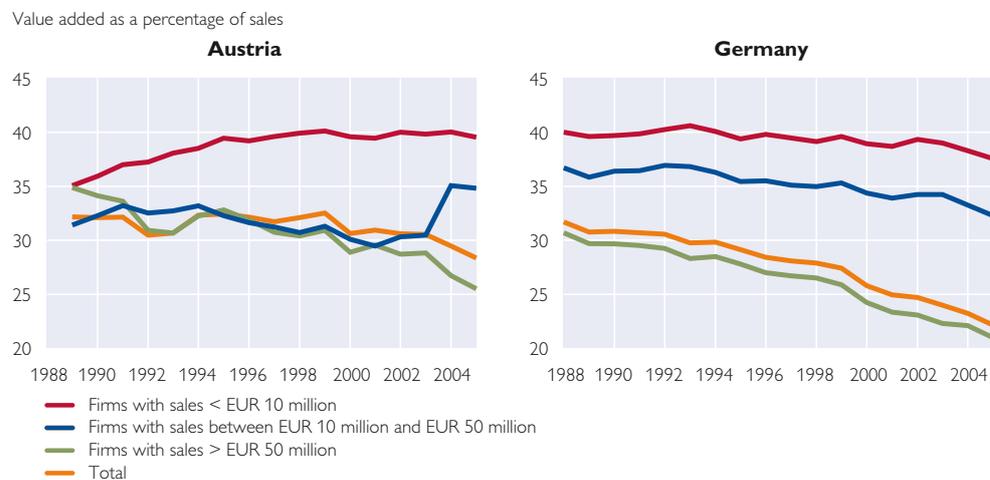


Source: European Commission (BACH database), OeNB calculations on the basis of Statistics Austria's input-output accounts, Federal Statistical Office Germany (2004).

¹ Austria: 1991.

Chart 10

Large German Corporations Outsource Production Heavily



Source: European Commission (BACH database).

Table 2

Manufacturing Firm Size Distribution in Austria and Germany in 2005

% of all firms

	Firm size based on annual sales (EUR million)			
	Small	Medium-sized	Large	Total
	(< 10)	(10–50)	(> 50)	
Number of firms				
Austria	82.0	10.3	7.8	100
Germany	50.1	17.7	32.2	100
Employees				
Austria	21.9	18.5	59.6	100
Germany	3.5	14.1	82.4	100
Sales				
Austria	11.8	12.9	75.3	100
Germany	1.8	7.4	90.8	100

Source: European Commission (BACH database).

in 1992 (Germany: 30.6%, Austria: 30.5%), this share sank to 22.1% for Germany but only to 28.4% for Austria up to 2005. Austria's domestic share of value added is fairly high in an international comparison (chart 9).

These differences can be attributed to the different firm size structure in the two countries (table 2).¹⁰ Austria has considerably higher shares of both small and medium-sized firms than Germany. As production outsourcing is, as a rule, more relevant for large firms, Germany has witnessed a markedly sharper decline in its share of value added.

The breakdowns made so far do not indicate whether production was outsourced to domestic or foreign firms. Such insights can be gained through input-output accounts, which reflect the flow of goods and services between individual industries in an

economy. Calculating the import share of exports as an indicator of the international division of labor yields an identical import share of 38% for the year 2000 for both Austria and Germany. This fact is noteworthy indeed, as large countries tend to have lower import shares than small countries; in the case at hand, this figure underlines the prominent role of exports for Germany. Imports have risen sharply in both countries since the early 1990s, in Germany even more so than in Austria (chart 10). This would imply that the declining share of domestic value added in manufacturing can be attributed at least in part to offshoring or outsourcing to other countries and thus to imports of intermediary goods and services.¹¹ Analyzing the development of intermediary imports of seven EU countries (Austria, Denmark, Finland, Germany, Italy, the Netherlands

¹⁰ Given different compilation methods, the results of table 2 are biased toward large firms in Germany, while Austria's medium-sized firms are somewhat underrepresented. Caution is therefore warranted when interpreting these figures.

¹¹ Offshoring refers to the relocation of organizational processes to a foreign country, regardless of whether the work stays in the group or not – the organizational function may be transferred to a third party located abroad, or it may be assumed by joint ventures or subsidiaries located abroad. Outsourcing is defined as the delegation of internal production processes to an external entity.

and Sweden) in the period from 1995 to 2000, Falk and Wolfmayr (2005) find imports of intermediary inputs to have risen most in Austria and Germany. This evidence supports the above reasoning.

Empirical evidence on the relationship between firm size and outsourcing or offshoring is limited.¹² Yet the larger a firm is, the higher the probability is that it will undertake direct investments abroad, especially because large corporations have better access to financing (Kinoshita, 1998).¹³

Next to offshoring, outsourcing within Germany or Austria, above all in the services industry, may also explain the declining share of domestic value added. In the period from 1997 to 2005, the growth rate of business-related services (sections I to K under the EU's NACE classification) exceeded manufacturing sales growth by 11% in Austria but lagged manufacturing sales growth by 8% in Germany. This may imply that German firms may have contracted out fewer business-related services within Germany and therefore relied more heavily on offshoring.

A comparison of absolute manufacturing sales yields an even bleaker picture for Germany. While value added in manufacturing doubled in Austria between 1992 and 2005 (+103%), it increased by just 21% for

Germany. Furthermore, employment levels dropped more sharply in Germany than in Austria. Hence, given the predominance of large corporations in Germany's industry, Germany was evidently hit harder by outsourcing than Austria.

5.2 Country Size, Integration and Output Growth

The deepening and widening of the European Union has benefited individual EU Member States to different extents. There is no conclusive theoretical and empirical evidence linking country size and output growth or integration gains.

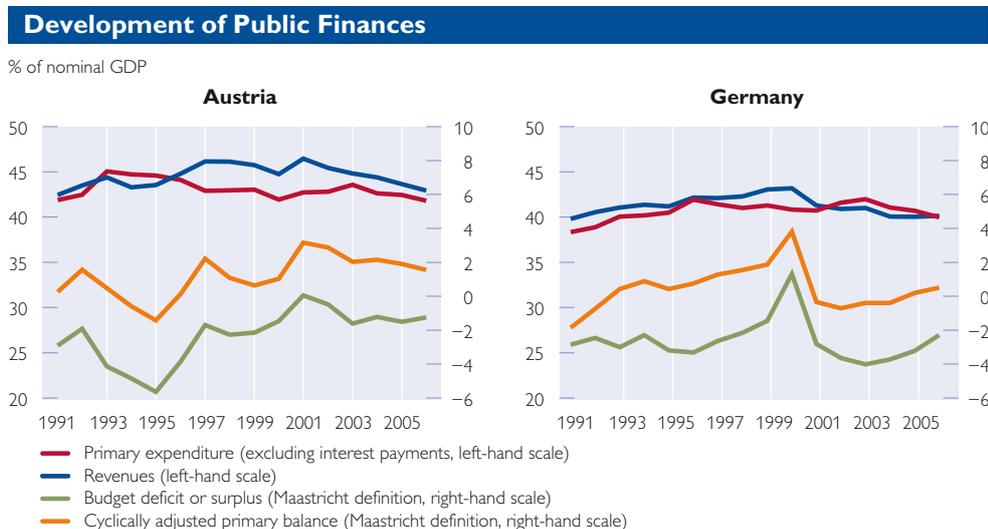
Larger countries have a number of advantages over smaller countries, primarily because they serve bigger home markets. Larger countries are also better placed to assert their interests in a common economic area.¹⁴ At the same time, size may affect economic performance when preferences are highly heterogeneous. Theory broadly adheres to the proposition that size has a positive impact on output growth, but the empirical evidence in support of this claim is limited in the literature (Alesina et al., 2005). Microeconomic studies have found evidence of economies of scale at a sectoral level, but macroeconomic evidence is more difficult to provide.

¹² There is, however, a comprehensive strand of theoretical and empirical literature on other aspects with partly contradictory findings (for a comprehensive literature survey, we recommend Egger et al., 2001). The Sachverständigenrat (2004, p. 369) concludes that inward FDI does not have strong repercussions on the labor market. For a comparison of different determinants of offshoring and outsourcing in Austria and Germany, see Marin (2006).

¹³ In a study on Lombardy, Cusmano et al. (2006) state that the internationalization of production is pursued above all by large and export-oriented firms. FDI plays only a minor role in this respect, though. Looking into the FDI activities of German companies in Central and Eastern Europe, Buch and Kleinert (2006) find a positive correlation between firm size and the probability of FDI in Central and Eastern Europe. In contrast, corporate size is negatively correlated with the probability of FDI in Western Europe.

¹⁴ As a case in point, failure to comply with the Stability and Growth Pact (SGP) did not have any consequences for Germany and France but led instead to a softening of SGP provisions.

Chart 11



Source: European Commission (AMECO database).

Moreover, the size of a country influences the share of final demand that can be served by domestic manufacturers. Larger countries tend to have lower import ratios, which is why changes in domestic demand drive value added up or down more strongly in such countries. According to the input-output tables for 2000 (Statistics Austria, 2004) one unit of private consumption (100%) in Austria triggered 0.27 units (27%) of imports. For government consumption this share lies at 11%. In Germany, the import share of households' consumption expenditure totaled 22% in 2002 (Federal Statistical Office Germany, 2006); no figures are available for Germany government consumption. In themselves, these differences do not explain the divergent growth rates in countries of different sizes; yet when demand shrinks – in a phase of fiscal consolidation like in the past decade in both Austria and Germany – the larger country will face (somewhat) stronger negative value added effects.

According to Casella (1996), smaller countries benefit more from a

widening of a common economic area, as they gain access to a larger market, whereas after the deepening of EU, the erstwhile home market advantage of larger countries weighs less heavily in their favor. Badinger and Breuss (2006) test Casella's hypothesis for European integration. Their findings are not conclusive, however. While access to a common market improves the competitiveness of smaller countries, other forces are at play that cause the larger countries to benefit more heavily from integration. These factors include the share of multinational corporations, which is typically larger in larger countries, as well as the stronger market power and related terms-of-trade effects. In industries with rising economies of scale, the higher absolute factor endowment and the broader product range of large countries adds to competitiveness.

Another mechanism that may have asymmetric effects is the stronger commitment to structural reforms that small EU countries have shown in the past (Mongelli and Vega, 2006).

6 Fiscal Policy

Germany's weak economic performance is often blamed on fiscal policy (e.g. Bibow, 2004; or Schulmeister, 2004). In the first half of the 1990s, economic developments were clearly influenced by unification (chart 11), which pushed up government expenditure and consequently increased the fiscal burden. Initial consolidation through spending restraint – given increasing debt and requirements for EMU accession – was undertaken from the mid-1990s onward. In Austria this consolidation phase started already in 1993. In both countries, spending cuts were accompanied by a rise of the fiscal burden.

To assess the impact of fiscal policy on the real economy, it is important to distinguish between the effects of government receipt and expenditure levels and their changes. Public spending as a share of GDP, for instance, is visibly higher in Austria than in Germany, whereas the general government deficit is much higher in Germany as a result of unification. These comparisons do not adequately reflect the cyclical impact of fiscal policy, though. A meaningful indicator of the impact of fiscal policy is the fiscal stance, which shows how the cyclically adjusted primary bal-

ance (i.e. the general government surplus or deficit excluding interest payments for government debt) changed over the previous year. In other words, the fiscal stance reflects the thrust of discretionary spending decisions. A positive figure indicates a tightening of fiscal policy while a negative figure implies a more accommodative policy relative to the preceding year. The relationship between the fiscal stance and the output gap¹⁵ signals whether fiscal policy has tended to have a procyclical or an anticyclical effect.

Chart 12 shows that Germany pursued a policy of consolidating the budget through a series of small steps while providing little fiscal stimulation.¹⁶ The big exception was the tax reform of 2000 that entered into force in 2001.¹⁷ Yet households must have put much of the additional income into savings – the saving ratio has been increasing since 2000 (chart 3). As a result of spending cuts, Germany's fiscal policy again turned restrictive in 2003. The fiscal burden has stagnated since 2003. From 2002 up to 2005 Germany exceeded a deficit ratio of 3%, thus failing to comply with SGP provisions, before managing to push the deficit below 3% again in 2006.¹⁸

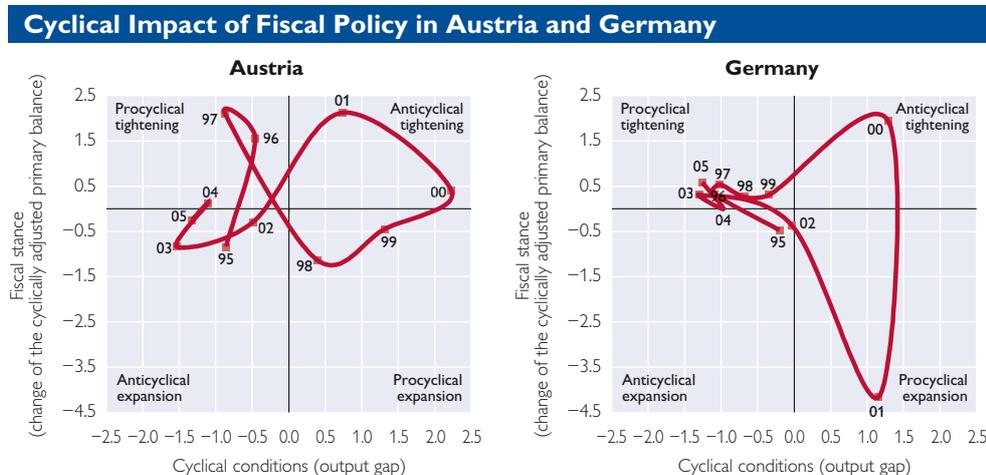
¹⁵ The output gap is defined as the difference between actual and potential output.

¹⁶ The budget surplus of 2000 is fully attributable to the sale of UMTS licenses.

¹⁷ The reform of 2000 decreased the tax burden of both companies and households, which benefited from a gradual reduction of personal income tax rates. Tax revenues sank by DEM 28 billion in 2001 compared with the previous year as a result of the personal income tax reform, and by DEM 17 billion as a result of corporate income tax reform. On balance, the tax burden was thus lowered by DEM 45 billion or 1.1% of GDP (Arbeitsgemeinschaft deutscher wirtschaftswissenschaftlicher Forschungsinstitute, 2001). Between 2000 and 2004, the fiscal burden dropped from 43.1% to 40.1% (AMECO database). The strongest decline occurred in 2001 with –1.9 percentage points.

¹⁸ The excessive deficit procedure initiated against Germany (and France) was suspended by the European Commission. Instead, the SGP was reformed in 2005. The revised SGP contains more flexible deficit and debt rules. Thus, it takes greater account of current economic developments and country-specific factors, and countries subject to excessive deficit procedures are given longer deadlines to remedy the situation.

Chart 12



Source: European Commission (AMECO database), OeNB calculations.

In Austria, the fiscal stance varied more strongly. In the first two years following EU accession, public households were consolidated. In 1998 and 1999, fiscal policy had an expansionary effect, while 2000 and 2001 were characterized by consolidation efforts to reach a balanced budget. From 2002 the government implemented another series of accommodative measures.¹⁹ The OeNB estimates the measures taken since 2002 to have contributed around ¼% of GDP a year to output growth in Austria.

To sum it up, fiscal policies were restrictive in the 1990s in both Austria and Germany, which is why they do not provide meaningful explanations for the divergent growth paths.²⁰ Germany's tax reform of 2000 pushed up the budget deficit but was unable

to prevent a growth slowdown. Austria's fiscal policy has been on a slightly expansionary course since 2002, while Germany's fiscal policy continues to be marked by fiscal consolidation efforts.

7 Labor Markets – Institutional Aspects

Labor market developments have been considerably less favorable in Germany since the early 1990s than in Austria (charts 13 and 14): While employment has stagnated or slightly dropped in Germany since 1991, it has risen in Austria. Taking into account the rising share of part-time employment, full-time equivalent employment has even declined substantially in Germany. Besides a higher level of general unemploy-

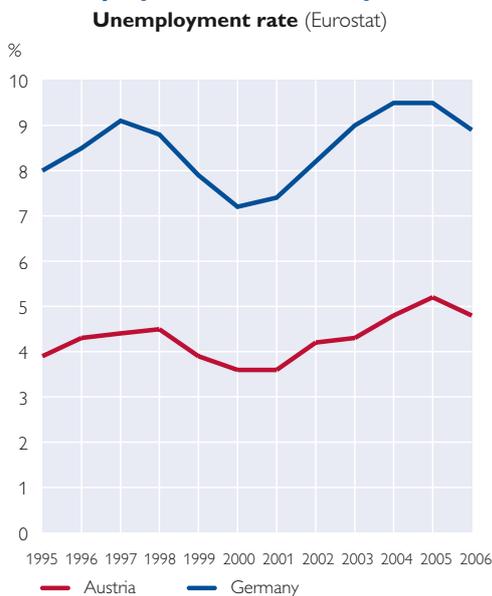
¹⁹ The economic stimulus packages of December 2001 and September 2002 basically provided EUR 4.2 billion for spending on infrastructure and tax measures from 2002 to 2006, which corresponds to 0.3% of nominal GDP per year. The growth and location package of 2003 mainly consisted of structural measures, influencing above all the long-term growth potential rather than economic activity in the short run. The two stages of the tax reform (2004 and 2005) reduced the net tax burden for households and businesses by a total of 0.6% of GDP from 2004 to 2007. In 2005, finally, the government endorsed a reform dialogue for growth and employment, a regional employment and growth campaign for 2005 and 2006 as well as a qualification campaign and the introduction of a wage top-up model.

²⁰ This finding refers only to changes of the cyclically adjusted primary balance. The transfer payments to eastern Germany naturally also have an effect on the structure of public spending, with government investment expenditure having gone down especially strongly.

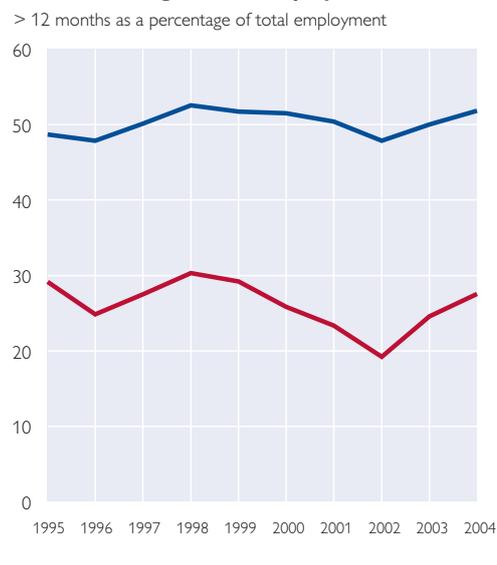
Chart 13

Higher Overall Level of Unemployment and Higher Share of Long-Term

Unemployment in Germany



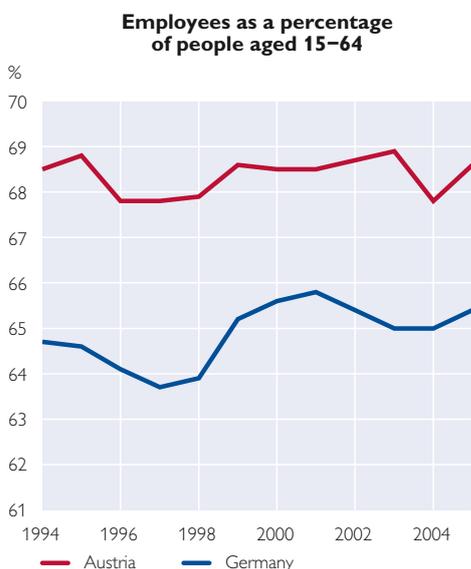
Long-term unemployment



Source: European Commission (AMECO database).

Chart 14

Higher Employment Rate and Higher Employment Growth in Austria



Employment growth (in full-time equivalents)



Source: Eurostat (participation rate); AMECO database (job growth).

ment, Germany also reports markedly higher shares of long-term unemployment and of low-skilled jobless persons.

Apart from macroeconomic effects and the specific situation in the

eastern German Laender, the diverging labor market performance may also be explained by differences in the structure of the labor markets and in the efficiency of labor market institutions. Dismissal protection is stron-

ger in Germany than in Austria, severely limiting the conditions under which workers with a regular contract may be dismissed from companies beyond a given size (e.g. Bonin, 2004). In Austria, the new severance pay regime introduced for staff recruited since 2003 has increased flexibility for employers and employees.

According to Wahl and Schulte (2005) active labor market policies work more effectively in Austria, too, thanks to a more favorable job seeker/case manager ratio, better-skilled job placement staff and a higher success rate in securing employment in applicants' fields of training.

Box 2

Labor Market Reforms in Germany: Hartz I-IV

Germany's prereform labor market policies were conceived in times of robust economic activity and geared to the economic framework conditions prevailing at the time: full employment, standard job contracts (for men), single-income families, etc. The design of the unemployment entitlement period and the amount of unemployment benefits were targeted at preserving the social status of the insured rather than setting incentives for rapid labor force reentry. Sesselmeier et al. (2006) characterize Germany's former labor market policies as a "policy of exclusion." However, in response to the bleaker economic conditions, supply-side-oriented reform measures have been implemented since 2003 in a series of so-called "Hartz laws" named after the head of the labor market reform commission.

One core element of the Hartz reform is the move to blend the previous unemployment assistance with welfare benefits into "unemployment benefits II," which replace unemployment benefits I after 12 months (18 months for older workers). Unemployment benefits II are means-tested rather than based on the previous salary level and subject to stricter suitability criteria; in addition, a number of measures were implemented in the realm of active labor market policies. These measures include the restructuring of placement through the launch of "Personal-Service-Agenturen" (personnel services agencies), subsidies for one-person start-ups ("Ich-AG"), subsidies for the integration of disadvantaged groups into the labor market and salary protection for older workers, employee leasing as well as the promotion of low-paying "mini" and "midi" jobs (Caliendo and Steiner, 2006).

The Hartz laws also provide for an evaluation of the measures implemented, to be undertaken by 20 different research institutions, which ensures a comprehensive assessment. Subsidies for start-ups and for the integration of older workers or the creation of mini jobs tend to improve employment opportunities. Reservation wages were lowered through the cuts of transfer benefits for jobless workers. At the same time other instruments, such as the launch of personnel service agencies or job creation schemes, delay sustained integration into the labor market (Kaltenborn et al., 2006).

The process of wage formation reflects a number of similarities in both countries. Both countries have dual systems in place, in which the wage rate is negotiated both at the industry level and at the company level. Wage settlements in Germany are based on collective wage settlements for individual industries, largely concluded at

regional levels. Recently, more and more collective wage agreements contain opening clauses, which allow employers to pay less under certain conditions. In Austria, wage bargaining rounds are coordinated informally; the degree of formal coordination is low (Pollan, 2004a). At the same time, the trade union density ratio

and the coverage of collective bargaining are markedly higher in Austria than in Germany (OECD, 2004). In both countries, the metal engineering industry traditionally sets the tone for wage negotiations in other industries.

The wage formation process as such differs in two major aspects between the two countries. First, this process is oriented more strongly on macroeconomic conditions in Austria than in Germany, a fact that may be attributed to the established role of the social partners and Austria's smaller size.²¹ Second, wage differentiation is much higher in Austria than in Germany (OECD, 2004). This points to a more productivity-oriented wage policy in Austria, but might also be explained by Austria's sectoral structure. On the one hand, tourism plays an important role as a low-wage industry; on the other hand, the wage level of the formerly quasi-public energy utilities is disproportionately high. In Germany, the low degree of wage differentiation is a problem above all in the eastern Laender.

Thus, the comparison of the institutional characteristics of the two labor markets shows that the Austrian labor market is somewhat more flexible on balance. Yet the empirical relationship between these factors and the growth performance of a country is not obvious, and it is hard to produce meaningful empirical evidence.

The empirical literature is divided as to whether different dismissal protection provisions affect the employment level at all (Bonin, 2004). What is obvious is that stronger dismissal protection widens the gap between employed and job-seeking persons, and increases the length of unemployment spells. While a more efficient job placement system should provide for better matching and a better overall labor market performance, we are not aware of any empirical studies on ensuing potential growth differentials between Germany and Austria, or studies on growth differentials resulting solely from differences in the national wage formation process.²²

8 Wage Level, Competitiveness and Consumption

As the major income factor of households and a major cost factor for businesses, the wage level is a key indicator in every economy. In external trade, the wage level relative to other countries is a key indicator of international competitiveness. In the domestic economy, a high wage level influences consumer demand positively, while it negatively affects profit performance and thus investment activity in an economy.

8.1 Sinking Relative Unit Labor Costs Boost Competitiveness

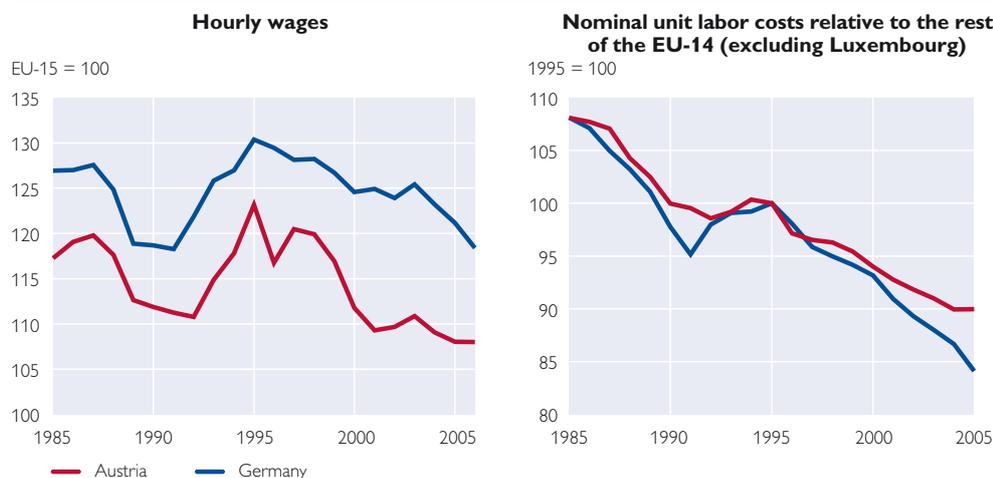
The economic success of the past decades warranted high wage increases and thus secured a high welfare level

²¹ To add some anecdotal evidence, Austria's social partners start their debate on the basis of a common economic outlook (WIFO's economic outlook), whereas perspectives are far more heterogeneous in Germany. Wahl and Schulte (2005) also stress the advantages Austria and Switzerland have as small countries, in which political structures work more smoothly than in Germany.

²² Regarding the general debate on wage negotiation processes and labor market performance, a comprehensive strand of literature – starting with Calmfors and Driffill (1988) – has evolved. For a more recent overview see OECD (2004) and Pollan (2004b). An empirical comparison of growth effects of the wage bargaining systems of Austria and Germany is also exacerbated by the fact that the literature is divided even as to whether wage bargaining is highly centralized or coordinated in Austria (Pollan, 2004b).

Chart 15

Development of Price Competitiveness in Germany and Austria



Source: European Commission (AMECO database), Groningen Growth Accounting Data Base, OeNB calculations.

in Germany and Austria. In 1995, average hourly wages exceeded the EU average by 30% in Germany and by 23% in Austria. Pressure on Germany's competitiveness was further exacerbated by the appreciation of the Deutsche mark in the first half of the 1990s. Through persistent wage moderation, both countries managed to lower hourly wages and unit labor costs over time, thus aligning them more closely with the EU average (chart 15). In 2006, the hourly wage rate in Germany equaled EUR 29.0 (Austria: 26.4 EUR). This implies that the wage differential of Germany and Austria over the EU-15 average narrowed to 18% and 8%, respectively. This development contributed substantially to raising price competi-

tiveness.²³ Relative to the rest of the EU-14, total unit labor costs dropped even more sharply in Germany than in Austria (chart 15).²⁴ Unit labor costs²⁵ are substantially influenced, apart from the wage level, by labor productivity per hour, which is markedly higher in Germany with its fewer annual hours worked than in Austria.

8.2 Consumption Demand in Germany Sinks Following a Decline in Employment against the Backdrop of Rising Real Wages

The wage level is of crucial importance for domestic demand. In line with shrinking full-time equivalent employment, Germany's wage share has fallen since 2002. This decline

²³ More and more companies use alternative ways to cut wage costs, for instance by cutting down on regular contracts or by increasing hours worked without increasing wages (Breuss, 2006b).

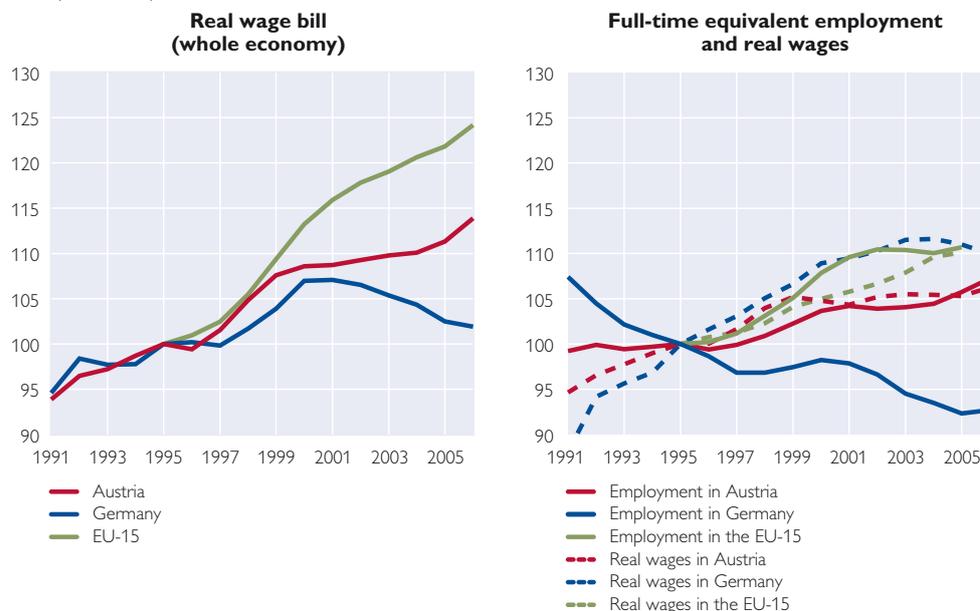
²⁴ In a direct comparison with Germany, Austria was able to cut unit labor costs by 0.3% per year from 1995 to 2000; from 2000 to 2005, however, unit labor costs rose faster than in Germany by 0.2% on average (Guger, 2006).

²⁵ Sinn (2005) criticizes the argument that low unit labor costs would confirm that the German economy is competitive internationally as a whole despite high wages, as the calculation of unit labor costs (defined as the ratio of wage rate and average labor productivity) is based only on existing jobs, not taking into account, by definition, jobs with low productivity that do not materialize in the first place as a result of high wages. Consequently, labor productivity is biased upward in a country with high unemployment, such as Germany; while unit labor costs are biased downward.

Declining Employment despite Rising Real Wages Reduces

German Wage Bill

Index (1995 = 100)



Source: European Commission (AMECO database), OeNB calculations.

reflects, above all, an increase in part-time employment, which rose from 20.3% to 24% from 2001 to 2005 alone, and to a lesser extent the drop in the number of employees. At the same time, *real wages per employee (in full-time equivalents)* grew faster in Germany than in the EU-15.²⁶ Austria reported an increase in full-time equivalent employment and a markedly smaller rise in real wages than Germany.

The relatively higher increase in real wages in Germany cannot be explained by higher wage settlements – on the contrary, nominal wage settlements were lower in Germany than in Austria. In contrast, real agreed wages developed along fairly similar

lines, purely on account of inflation differentials between the two countries. This leaves only remuneration in excess of collectively agreed wages and higher flexible wage components (such as overtime or bonuses) or structural effects resulting from job cuts in the low-wage segment as explanations for the differences between average wages. A rise of flexible wage components appears improbable, especially in times of an economic slowdown. Therefore, the reduction of wage income, which is responsible for the marked drop in consumer demand in Germany from 2002 onward, reflects the development of employment rather than the development of wages.

²⁶ This is no contradiction to chart 14, which shows a decline in relative nominal hourly wages for Germany and Austria relative to the EU-15, as inflation has been markedly lower in both countries than in the EU-15 since 1995. From 1995 to 2005, the deflator of private consumption rose by 12% in Germany, by 16% in Austria and by 26% in the EU-15.

The arguments put forth so far have been based on gross wages. For an analysis of net wage developments, it is important to take into account the tax wedge. The tax wedge²⁷ in Austria increased from 40.1% in 2000 to 41.1% in 2006, while in Germany it decreased from 46.0% to 44.8%. On average, the EU-15 recorded a decline from 37.8% to 36.4%. Consequently, the rise of real net wages relative to gross wages was weaker in Austria.

9 Austria and Germany in International Tax Competition

From a corporate perspective, the national tax regime, above all corporate taxation, plays a crucial role in

the international *competition of locations*. While it is in the interest of companies to have a low tax burden, governments face the trade-off of creating incentives for businesses to locate in a given area (or to decide not to relocate) and cushioning the budgetary burden of forgoing tax revenues. While corporate profits are subject just to corporate taxation in Austria, they are also subject to a local business income tax and a solidarity surcharge in Germany. For a direct comparison of the tax burden based on different tax rates see box 3.

The *nominal* average tax rate on corporate profits is visibly higher in Germany than in Austria, even though this rate has declined at a consider-

Box 3

Nominal, Effective and Implicit Tax Rates

Comparing the nominal tax rates of two countries is fairly straightforward. However, these rates simply reflect the legislative design of the tax rates without giving any insights into the level of taxable income or the actual tax burden.

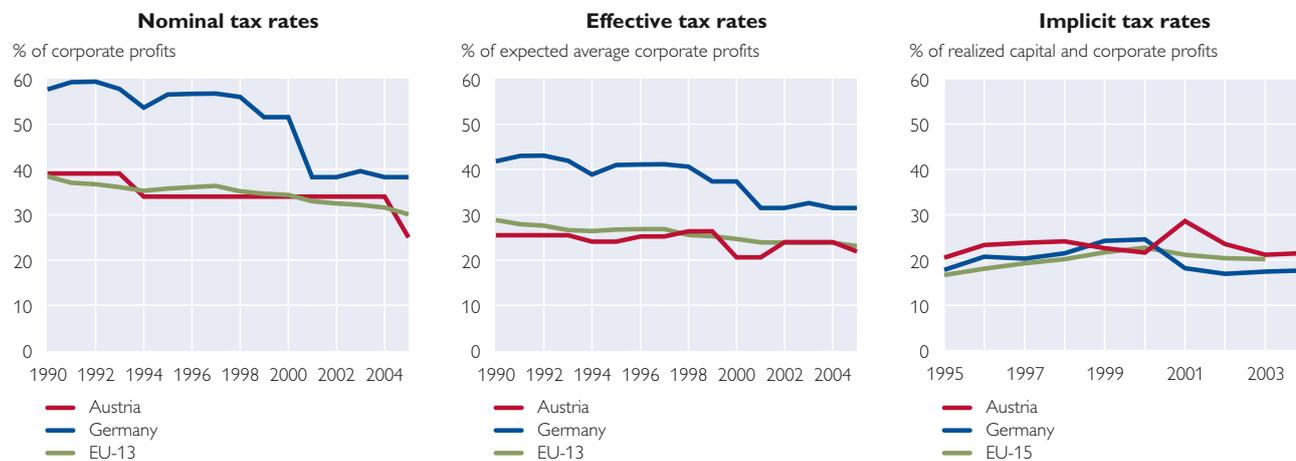
Effective tax rates are fictitious tax rates established *ex ante* for “typical” tax cases. They specifically refer to the prevailing tax regime (including key characteristics of the tax regime), but they do not relate to actual tax payments. The data on effective tax rates used in this paper are based on Devereux et al. (2002) and were compiled by the Institute for Fiscal Studies in London (IFS). The effective average corporate tax rate established by the IFS is deemed to be a good available indicator for international location decisions (Breuss and Schratzenstaller, 2004). For an exact definition see Devereux and Griffith (2003).

Implicit tax rates are indicators established *ex post* with a view to measuring the tax burden. They are calculated as the ratio of total tax revenues to the respective tax base.¹ For Germany, no data on corporate tax revenues alone are available. For a country comparison, we therefore use implicit tax rates on all corporate and capital profits. The implicit tax rates used to this effect were taken from the latest tax report of the European Commission (2006).

¹ Taxes paid are also referred to as backward-looking tax rates on actual tax liabilities (Breuss and Schratzenstaller, 2004).

²⁷ The tax wedge is defined as difference in percent between the employers’ wage costs and net wages. The figures indicated here are unweighted averages of the eight income levels and family types published by the OECD.

Convergence in Corporate Tax Competition



Source: IFS, European Commission (2006).

ably faster rate in Germany since 1990. Germany's tax reform of 2000, implemented in 2001, cut the corporate income tax rate to 25%. In Austria, the corporate income tax rate was also cut to 25%, from 34%, during the second stage of the tax reform of 2004 to 2005. At the same time, Austria introduced group taxation with the possibility of an intragroup loss transfer. Therefore, since 2005, differences in the nominal corporate tax rate between the two countries have been due to different local business income taxes only. The nominal average tax rate in Austria is thus slightly below the rate of the EU-13 (= EU-15 excluding Luxembourg and Denmark), while that of Germany continues to visibly exceed this average, despite a marked reduction in 2001 (chart 17).

The *effective* average tax rate on corporate profits also declined markedly in both countries from 1990 to

2005, namely from 42% to 32% in Germany, and from 25% to 22% in Austria. In Austria, the cut of the corporate income tax rate in 2005 coincided with a broadening of the tax base, so that the effective burden of corporate taxation dropped by just 2 percentage points to 22%. From a long-term perspective Austria's effective tax rate broadly matches the EU-13 average; both have been declining somewhat in parallel. Germany's effective tax rate has dropped more sharply, but continues to exceed the Austrian level considerably.

A comparison of *implicit* average tax rates shows, however, that the actual tax burden is higher in Austria.²⁸ The European Commission (2007) pinpoints the lower corporate tax revenues in Germany despite high nominal rates to the narrow definition of the tax base and the transfer of corporate profits abroad.²⁹ Jarass (2005) lists other reasons, namely,

²⁸ The peak in 2001 for Austria reflects high prepayments of corporate income tax when Austria started to levy interest on unpaid tax liabilities.

²⁹ Büttner et al. (2006) describe this effect (rising tax revenues despite falling tax rates) as the "higher tax efficiency" of the Austrian tax regime.

apart from tax rate cuts, the tax exemption of the sale of assets and ensuing profits as well as the wide range of possibilities to retain profits before tax as hidden reserves or to transfer them into other EU countries.

A comparison of the nominal, effective and implicit tax rates thus does not yield conclusive evidence of a possible locational advantage for Austria. It is also debatable in how far the advantage or disadvantage (which differs in size depending on the underlying tax rate) actually translates into a significant number of businesses locating in Austria or making direct investments in Austria. Breuss and Schratzenstaller (2004) estimate that the cut of corporate income tax in 2005 may increase the volume of gross fixed capital formation by between 2% and 12%. As Germany's nominal corporate income tax rate will drop from 38% to 29% in 2008,³⁰ Austria stands to lose some of its advantages relative to Germany in the future.

10 Summary and Outlook

A considerable share of the growth differential between Austria and Germany may be attributed to one-off historical events with major consequences. First, *Germany's unification* dampened overall growth in Germany because the catching-up process in the eastern part of the country stalled in the second half of the 1990s, western Germany was burdened by transfer payments, and building activity slumped across Germany following the rush of building after the unification boom. Second, Austria benefited from the *milestones of European integration* in the 1990s to a

larger extent than Germany. Third, given the small size of Austria and the predominance of small businesses, Austria was better placed to meet the challenges of globalization. The establishment of the Single Market, Austria's accession to the EU, entry into the third stage of EMU as well as EU enlargement contributed to substantially improving Austria's economic situation. Conversely, Germany lost part of its home market advantage as a result of EU enlargement. Fourth, Germany was harder hit than Austria by the global recession at the start of the new millennium, as domestic demand slumped at the same time. Fifth, Germany's wage bill has even declined since 2002, as full-time equivalent employment dropped markedly.

The effects of the other policy areas on the growth differential have been limited in contrast. As a result of the *convergence of interest rates* in the euro area triggered by EMU, Germany (like Austria) lost its relative real interest advantage and became one of the countries with the highest real interest rates in the euro area, but it also benefited from the sinking nominal interest rate level. Likewise, differences in *fiscal policy* explain the growth differential only to a very limited degree. Fiscal policies were broadly restrictive in both Austria and Germany in the 1990s. Germany's tax reform of 2000, while providing considerable tax relief, had hardly any influence on the real economy. Austria's fiscal policy has been on an expansionary path since 2002. Sinking relative *unit labor costs* from 1995 improved the international

³⁰ Furthermore, the tax base will be broadened, and it will become more difficult to transfer profits abroad. This move partly offsets the loss in revenues triggered by the cuts in the tax rate. Yet the European Commission (2007) expects the implicit tax rate to decline as a result of the reform.

competitiveness of both countries. While it can be argued that the Austrian *labor market* works better (weaker dismissal protection, better coordination and higher productivity orientation of the wage-setting process, more efficient labor market institutions), there is a lack of evidence that these differences might explain the growth differential. The same holds true for differences in *corporate taxation*. Moreover, the effects of German labor market reform would be expected to materialize to the full extent only after a certain lag.

In other words, Austria's current positive growth differential basically reflects a number of asymmetrically working one-off shocks. These shocks

trigger one-off base effects rather than pushing up potential growth. Once these effects have vanished, the growth advantage is likely to disappear as well.

Austria's economic policymakers would thus be well advised to acknowledge the need for reform created by upcoming challenges (such as population aging, globalization, sinking productivity growth) and not to loosen the reins of reform simply because Austria is currently faring better than Germany. Much rather, given the long lag of economic policy measures, policymakers would be well advised to take swift and consistent action to secure Austrians' welfare in the long run.

References

- Alesina, A., E. Spolaore and R. Wacziarg. 2005.** Trade, Growth and the Size of Countries. In: Aghion, P. and S. N. Durlauf (eds.). *Handbook of Economic Growth*. Amsterdam: Elsevier. 1499–1542.
- Arbeitsgemeinschaft deutscher wirtschaftswissenschaftlicher Forschungsinstitute. 2001.** Die Lage der Weltwirtschaft und der deutschen Wirtschaft im Herbst 2001. Munich.
- Badinger, H. and F. Breuss. 2006.** Country Size and the Gains from Trade Block Enlargement: An Empirical Assessment for the European Community. In: *Review of International Economics* 14(4). 615–631.
- Bibow, J. 2004.** Für eine Kehrtwende von der Spar- zur Wachstumsorientierung. Nominales BIP-Ziel als Strategie der Makrowirtschaftspolitik in der Wirtschafts- und Währungsunion. In: *Vierteljahreshefte zur Wirtschaftsforschung* 73. 445–459.
- Bohley, P. 2004.** Euro: eine Bremse für das deutsche und europäische Wirtschaftswachstum? In: *Wirtschaftsdienst* 9/2004. 568–575.
- Bonin, H. 2004.** Lockerung des Kündigungsschutzes: Ein Weg zu mehr Beschäftigung? Forschungsinstitut zur Zukunft der Arbeit. IZA Discussion Paper 1106.
- Breuss, F. and M. Schratzenstaller. 2004.** Unternehmenssteuerwettbewerb und internationale Direktinvestitionen. Ein einführender Literaturüberblick anlässlich der österreichischen Körperschaftsteuerreform. In: *WIFO-Monatsberichte* 8/2004. 645–653.
- Breuss, F. 2006a.** Ostöffnung, EU-Mitgliedschaft, Euro-Teilnahme und EU-Erweiterung. Wirtschaftliche Auswirkungen auf Österreich. WIFO Working Papers 270/2006.
- Breuss, F. 2006b.** Warum wächst die Wirtschaft in Österreich rascher als in Deutschland? WIFO Working Papers 280/2006.
- Buch, C. M. and J. Kleinert. 2006.** Who Goes East? The Impact of Enlargement on the Patterns of Specialisation and Investment. University of Tübingen. Mimeo.

- Büttner, T., P. Egger, H. Hofmann, C. Holzner, M. Larch, V. Meier, C. W. Nam, R. Osterkamp, R. Pasche and M. Werding. 2006.** Tu felix Austria: Wachstums- und Beschäftigungspolitik in Österreich und Deutschland im Vergleich. ifo Forschungsbericht 3/2006.
- Caliendo, M. and V. Steiner. 2006.** Evaluation aktiver Arbeitsmarktpolitik – Deutschland nach der Hartz-Reform im internationalen Vergleich. In: Vierteljahreshefte zur Wirtschaftsforschung 75(3). 5–8.
- Calmfors, L. and J. Driffill. 1988.** Bargaining Structure, Corporatism and Macroeconomic Performance. In: Economic Policy 6. 13–61.
- Casella, A. 1996.** Large Countries, Small Countries and the Enlargement of Trade Blocs. In: European Economic Review 40. 389–415.
- Cusmano, L., M. L. Mancusi and A. Morrison. 2006.** Globalisation of Production and Innovation: How Outsourcing is Reshaping an Advanced Manufacturing Area. CESPRI Working Paper 194.
- DESTATIS. 2004.** Volkswirtschaftliche Gesamtrechnungen. Input-Output-Rechnung Importabhängigkeit der deutschen Exporte. 1991, 1995, 1998 bis 2000 und 2002. Wiesbaden: Statistisches Bundesamt.
- Devereux, M. P., R. Griffith and A. Klemm. 2002.** Corporate Income Tax Reforms and International Tax Competition. In: Economic Policy 35. 451–495.
- Devereux, M. P. and R. Griffith. 2003.** Evaluating Tax Policy for Location Decisions. In: International Tax and Public Finance 10. 107–126.
- Egger, P., M. Pfaffermayr and Y. Wolfmayr. 2001.** The International Fragmentation of the Value Added Chain. The Effects of Outsourcing to Eastern Europe on Productivity, Employment and Wages in Austrian Manufacturing. WIFO study.
- European Commission. 2002.** Germany's Growth Performance in the 1990s. Brussels.
- European Commission. 2006.** Allocation of 2005 EU Expenditure by Member State. Brussels. http://ec.europa.eu/budget/documents/revenue_expenditure_en.htm
- European Commission. 2006.** Structures of the Taxation Systems in the European Union: 1995–2004. Brussels.
- European Commission. 2007.** Country Study: Raising Germany's Growth Potential. Brussels.
- Falk, M. and Y. Wolfmayr. 2005.** Employment Effects of Outsourcing to Low Wage Countries. WIFO Working Paper 262/2005.
- Federal Statistical Office Germany. 2006.** Importabhängigkeit der Konsumausgaben privater Haushalte 2002. IIC/38141100-4. Analyse auf der Grundlage der Fachserie 18. Volkswirtschaftliche Gesamtrechnungen. Reihe 2. Input-Output-Rechnung 2002.
- Gnan, E., J. Janger and J. Scharler. 2004.** Determinants of Long-Term Growth in Austria – A Call for a National Growth Strategy. Monetary Policy & the Economy Q1/04. OeNB. 23–46.
- GGDC. 2005.** Total Economy Growth Accounting Database. www.ggdc.net
- Grohmann, J. 2006.** Das Ösi-Phänomen. Was die Österreicher so erfolgreich macht. Vienna: Molden.
- Grossman, G. M. and E. Helpman. 1994.** Endogenous Innovations and the Theory of Growth. In: Journal of Economic Perspectives 8. 23–44.
- Guger, A. 2006.** 2005 internationale Lohnstückkosten unverändert. In: WIFO-Monatsberichte 9/2006. 655–663.

- Horn, G. A., U. Fritsche and W. Scheremet. 2000.** Die doppelte Währungsunion: Deutschland und Europa im wirtschaftlichen Integrationsprozess. Ein Rückblick und ein Vergleich. In: Vierteljahreshefte zur Wirtschaftsforschung 69 (series 2). 163–177.
- IFS (The Institute for Fiscal Studies). 2006.** www.ifs.org.uk/data/. Data current on March 9, 2006.
- Jarass, S. 2005.** Einheitliche Unternehmensbesteuerung: Gewerbesteuer ausbauen, Körperschaftsteuer senken. In: Wirtschaftsdienst 4/2005. 215–219.
- Kaltenborn, B., P. Knerr and J. Schiwarov. 2006.** Hartz: Bilanz der Arbeitsmarkt- und Beschäftigungspolitik. Blickpunkt Arbeit und Wirtschaft 12/2006.
- Kinoshita, Y. 1998.** Firm Size and Determinants of Foreign Direct Investment. Prague. Mimeo.
- Koman, R. and D. Marin. 1999.** Human Capital and Macroeconomic Growth: Austria and Germany 1960–1997. An Update. Discussion Paper 2005-04. University of Munich.
- Lucas, R. E. Jr. 1988.** On the Mechanics of Economic Development. In: Journal of Monetary Economy 22(1). 3–42.
- Marin, D. 2006.** A New International Division of Labor in Europe: Outsourcing and Offshoring to Eastern Europe. In: Journal of the European Economic Association 4(2–3). 612–622.
- Mongelli, F. P. and J. L. Vega. 2006.** What Effects is EMU Having on the Euro Area and its Member Countries? An Overview. ECB Working Paper 599.
- OECD. 2004.** OECD Employment Outlook. Paris: OECD.
- OECD. 2005.** Taxing Wages. Special Feature: Part-Time Work and Taxing Wages 2004/2005. Paris: OECD.
- Peneder, M., M. Falk, W. Hölzl, S. Kaniovski and K. Kratena. 2006.** WIFO white paper: Mehr Beschäftigung durch Wachstum auf Basis von Innovation und Qualifikation. Teilstudie 3: Wachstum, Strukturwandel und Produktivität. Disaggregierte Wachstumsbeiträge für Österreich von 1990 bis 2004.
- Pollan, W. 2004a.** Zur Frage der Lohnführerschaft in Österreich. In: WIFO-Monatsberichte 3/2004. 197–211.
- Pollan, W. 2004b.** Austrian Exceptionalism Labour Market Institutions and Wage Disparity. WIFO study. [www.wifo.ac.at/www/servlet/www.upload.DownloadServlet/bdoc/S_2004_EXCEPTIONALISM\\$.PDF](http://www.wifo.ac.at/www/servlet/www.upload.DownloadServlet/bdoc/S_2004_EXCEPTIONALISM$.PDF)
- Romer, P. M. 1990.** Endogenous Technological Change. In: Journal of Political Economy 98. 71–102.
- Sachverständigenrat. 2004.** Erfolge im Ausland – Herausforderungen im Inland. Jahresgutachten 2004/05. Wiesbaden.
- Schulmeister, S. 2004.** Zur unterschiedlichen Wachstumsdynamik in den USA, in Deutschland und im übrigen Euro-Raum. In: WIFO-Monatsberichte 2/2004. 119–137.
- Sesselmeier, W., G. Simaggio and A. Yollu. 2006.** Mögliche Implikationen der gegenwärtigen Arbeitsmarktreformen für die zukünftige Entwicklung der Arbeitslosenversicherung. Study commissioned by Hans-Böckler-Stiftung. Landau: Hans-Böckler-Stiftung.
- Sinn, H.-W. 2000.** Zehn Jahre deutsche Wiedervereinigung – Ein Kommentar zur Lage der neuen Länder. In: ifo Schnelldienst 26–27/2000. 10–22.
- Sinn, H.-W. 2001.** Ist Deutschland noch zu retten? Munich/Berlin: Ullstein.
- Sinn, H.-W. 2005.** Basar-Ökonomie Deutschland. Exportweltmeister oder Schlusslicht? In: ifo Schnelldienst 6/2005.

Statistics Austria. 2004. Input-Output-Tabelle 2000. Vienna: Statistics Austria.

Wahl, S. 2004. Erfolgsmodell oder Mittelmaß? Arbeitsmarkt- und Wirtschaftsentwicklung in Österreich. IWG Impulse. December.

Wahl, S. and M. Schulte. 2005. Arbeitslosigkeit abbauen – von Besseren lernen! Hintergründe der Beschäftigungsunterschiede in Deutschland, Österreich und der Schweiz. Munich: Olzog.

Characteristics of Household Debt in Austria

Does Household Debt Pose a Threat to Financial Stability?

Christian Beer,
Martin Schürz

The level of household debt has risen in many countries, including Austria. This study examines whether the increased level of debt represents a risk to financial stability. The data used are mainly derived from a survey on households' financial wealth conducted by the Oesterreichische Nationalbank (OeNB).

Analysis shows that high-income households tend to have more debt than low-income households; the latter, however, are more burdened by their debt. Demand for consumer loans tends to be highest among high-income households with little financial assets.

As high debt levels are mostly concentrated among affluent and high-income households, household debt in Austria does not constitute a threat to financial stability. Borrowers with lower incomes and/or low levels of wealth are particularly vulnerable borrowers.

JEL classification: D12, D14, D91

Keywords: household debt, borrowing, overindebtedness.

1 Household Debt: An Important Issue for Central Banks

In recent years, the level of household debt has significantly increased in many countries (see for instance Girouard et al., 2006). This trend can be observed over both the short and the long term. While in many countries the latest upsurge in household debt is primarily a result of rising real estate prices, the long-term trend is unfolding against the backdrop of the broadening range of financing opportunities available to households.

In Austria, too, household debt has risen relative to disposable income. A growth in household indebtedness is not a problem per se, but it does become an issue when the borrowers' housing or consumer loan payment obligations exceed their financial means. The debt situation and the risk of excessive levels of debt in households cannot be adequately assessed using the aggregate debt level data provided by national accounts and financial accounts. For this reason, aggregate indicators need to be complemented with indicators on an individual household level.

Refereed by:
Elmar Stöß,
Deutsche Bundesbank.

This study addresses two key questions: first, what are the socio-demographic characteristics of indebted households in Austria, and second, what threats to financial stability arise from the debt situation of households?

For international comparison purposes, reference is made to the analyses of the household debt situation that have been conducted by several central banks in recent years, including the Banca d'Italia (2006), the Banco de España (2005), the Bank of England (Barnes and Young, 2003; Barwell et al., 2006), the Deutsche Bundesbank (Bartzsch and Stöß, 2007), Suomen Pankki (Herrala, 2006; Herrala and Kauka, 2006), the European Central Bank (ECB, 2005; Rinaldi and Sanchis-Arellano, 2006) and Sveriges Riksbank (Johansson and Persson, 2006). In addition, both the OECD and the BIS have also recently produced their own economic policy reports on this subject (see Debelle, 2004; Girouard et al., 2006).

In Austria, the first investigations into household debt were initiated at the beginning of the 1990s, with

studies by Schönbauer (1990) and Mooslechner (1992). However, the lack of adequate available data has so far prevented more broadly based research initiatives.

In most cases, the research focus is on the potential risks for financial stability and economic growth that might arise from excessive indebtedness among households. One aspect of economic and political concern is that highly indebted households may ultimately be unable to service their loans and might thus trigger a financial crisis in the event of a macroeconomic shock (e.g. an interest rate hike, increasing unemployment or a drop in income).

In terms of economic policy, there are three different levels of concern:

- the macro level: macroeconomic risks resulting from a slump in consumer demand;
- the financial sector level: the risk of financial instability resulting from households being unable to service their debt; and
- the individual level: risk of household overindebtedness.

A variety of different indicators are needed to assess the situation on each of the different levels. Micro-data, such as the OeNB's 2004 Survey on Households' Financial Wealth, which reflect the socioeconomic characteristics of households, are important on all levels.

2 Indicators of Household Debt

In this study, the term debt denotes loans taken out by households, with a differentiation being made between housing loans and consumer loans.

The loan data used to calculate aggregate debt indicators are derived from the national financial accounts. The financial accounts characterize

loans as nonsecuritized, interest-bearing borrowings provided by banks or federal and regional governments (the latter being major providers of housing loans). Housing loans are defined as loans earmarked for the acquisition and maintenance of living space; consumer loans are loans taken out to finance the consumption of goods or services. All other types of lending fall under the heading of other loans. The latter category can lead to distortions when examining the level of household debt, as it also includes loans granted to self-employed borrowers.

This study attempts to match the survey-based indicators as closely as possible to the loan definitions given in the financial accounts. However, none of the surveys used enable a distinction between consumer loans and other loans. Unlike the aggregate data, the survey data also include debt to mail order companies and loans from private individuals.

The debt ratio can be defined as the percentage of debt relative to disposable income. The higher the income, the easier it should be to repay any outstanding debt. However, one disadvantage of this method of measurement is that it compares a stock figure to a flow figure. Considering a certain income at a specific time only reflects a snapshot in time, and security of income can only be assumed in a small number of occupational groups (e.g. tenured public servants or retirees). Whether a debt that can be financed at present will be affordable in the long term depends on future income developments. A debt ratio that is considered too high for a given situation may become affordable in the future, when an increase in income materializes. In young households, where loans are taken

out to finance consumer spending, debt may become repayable during phases of above-average growth in income.

The level of debt in relation to income has been on the rise for the last fifty years. If wealth is also increasing, this is not necessarily a cause for concern. Therefore, concentrating solely on income can be misleading. As an alternative, the ratio of debt to gross financial assets may be used as an indicator. In this context, it should be noted, however, that comprehensive data on financial assets are only available in a very few countries. While financial wealth and liabilities have been increasing along the same lines in Austria, they remain below average in comparison with the rest of the euro area. Another issue is that comparing personal debt to financial assets alone can lead to a distorted portrayal of the debt situation: the dramatic nature of the level of debt might be overestimated because tangible assets (such as real estate and cars) can be liquidated relatively quickly and therefore provide a certain cushion to cover debt servicing shortfalls.

If the research interest focuses on households' potential problems in meeting their debt obligations, the ratio of repayment liabilities to disposable income serves as a useful indicator.

Although the overindebtedness of many households frequently makes headlines in the media, the term itself is only imprecisely defined. The Kreditschutzverband von 1870 (KSV), an Austrian credit monitoring agency, estimates that, at present,

approximately 100,000 households in Austria (around 2.9% of all households) are burdened with excessive debt.

The indicators taken from aggregate data, such as national accounts and financial accounts, must be supplemented with individual household indicators. Using such survey data, it is possible to calculate the ratio of debt or repayment liabilities relative to income or financial assets for each indebted household. If we want to assess the debt situation of households, the distribution of debt within the population can be factored into the analysis with the help of these microdata indicators. This study uses the Austrian data from the European Community Household Panel (ECHP), the EU Survey on Income and Living Conditions (EU-SILC) and the OeNB's 2004 Survey on Households' Financial Wealth. A detailed description of these datasets is set out in annex 1.¹

3 Structure of Household Debt

In this section, the frequency of debt and the influence of socioeconomic characteristics are analyzed on the basis of the above data (see annex 1). This descriptive analysis is complemented by logit estimates for the probability of debt. In each case, a differentiation is made between housing loans and consumer credit.

3.1 Low Level of Debt Frequency in Austria

According to ECHP and EU-SILC data, in the period from 1995 to 2004, a little more than 30% of

¹ While several datasets have been used, many interesting aspects of household debt must remain unexamined, as none of the surveys contains information on the nonfinancial wealth of indebted households, the level of repayment liabilities for all loan types, interest rates or the duration of fixed interest periods.

Table 1

Loan Frequency													
%	ECHP										SILC		
	1995	1996	1997	1998	1999	2000	2001	2003	2004				
Housing loans	20 (0.01)	21 (0.01)	21 (0.01)	21 (0.01)	21 (0.01)	20 (0.01)	22 (0.00)	21 (0.01)	24 (0.01)				
Consumer loans	18 (0.01)	14 (0.01)	14 (0.01)	15 (0.01)	15 (0.01)	15 (0.01)	14 (0.01)	14 (0.01)	14 (0.01)				
Loans	33 (0.01)	32 (0.00)	32 (0.00)	33 (0.01)	33 (0.01)	32 (0.01)	32 (0.01)	32 (0.01)	33 (0.01)				

Source: OeNB, based on ECHP and SILC data.

Note: Standard errors are given in parentheses.

Austrian households had contracted loans. More specifically, slightly over 20% of households indicated that they had taken out housing loans whereas around 15% of households listed consumer loans. These values have remained relatively stable during the observation period.

An international comparison of debt frequency (Sierminska et al., 2006)² shows that, compared to Austria, the proportion of households with loan commitments is lower only in Germany (30%) and Italy (22%). The figure for Germany may be underestimated, however, as the national data used for the Luxembourg Wealth Study (LWS) only reflect loans to the extent that they exceed a threshold of EUR 2,500. At 80%, the loan frequency is highest in Norway, followed by the U.S.A. (75%) and Sweden (70%). Possible reasons for Austria's relatively low ranking are the tax treatment of loan interest rates, the low loan-to-value ratio for housing loans and a specific aversion to taking out loans (see section 5).

3.2 Influence of Socioeconomic Factors on Household Debt

3.2.1 Theoretical Considerations: Debt Accumulation over the Life Cycle

Our starting hypothesis is that household borrowing follows the life cycle hypothesis. Based on the variables available from the OeNB Survey on Households' Financial Wealth, we examine the influence of the following factors on borrowing: age of the household head,³ household income, gross financial assets, level of education, marital status, number of people in the household and inheritances. For a more comprehensive discussion of the influencing factors and also of the difficulties inherent in conducting econometric studies in this area, see Crook (2006), who also performs an international comparison, or Magri (2002).

As far as age is concerned, an increase in borrowing can be expected up until midlife – a development that results from the expenditures associated with establishing a household, coupled with a relatively low income.

² The data used in Sierminska et al. (2006) originate from the Luxembourg Wealth Study (LWS). LWS data are currently available for Canada, Cyprus, Finland, Germany, Italy, Norway, Sweden, the United Kingdom and the U.S.A. In November 2006, the data from the OeNB Survey on Household's Financial Wealth were integrated into the LWS database but could not yet be incorporated into Sierminska et al. A description of the integration of the OeNB survey data into the LWS database can be found in Beer et al. (2006b).

³ Information on partners was disregarded, as it either corresponded (e.g. place of residence) or correlated very closely (e.g. age) with that of the household head.

Higher income tends to enable people to self-finance their needs without resorting to borrowing. This suggests a lower demand for lending in high-income households. When it comes to consumer credit, however, the level of income is less relevant than the expected change in income. As far as assets are concerned, the effect is, a priori, not clearly identifiable. On one hand, there may be less need for borrowing in wealthier households; on the other hand, certain undertakings, such as the purchase of real estate, require borrowers to contribute their own funds, which may result in an increase in the demand for lending among wealthier households.

The same applies to inheritances, as they lead to an increase in wealth. An inheritance may cause the demand for lending to rise, for example, when the possibility of building a home only arises when a piece of land is inherited.

A higher level of education can be an indicator of possible future increases in income and reduce the nonfinancial cost of borrowing (e.g. the cost associated with collecting information).

With regard to marital status, a higher demand for lending can be expected from (married) couples. An additional variable is the number of children in the household; under certain circumstances, this can be a better indicator of long-term intentions to maintain a household than a (married) couple living together.

On the supply side, the most important issue for banks granting loans is the security of repayment. High levels of income and wealth in com-

parison with the commitment size are therefore more likely to result in a loan being granted. As security of income is another relevant factor, we will also use information on the occupational status of the household head. In cases of larger households, lenders may also have access to the incomes of several people.

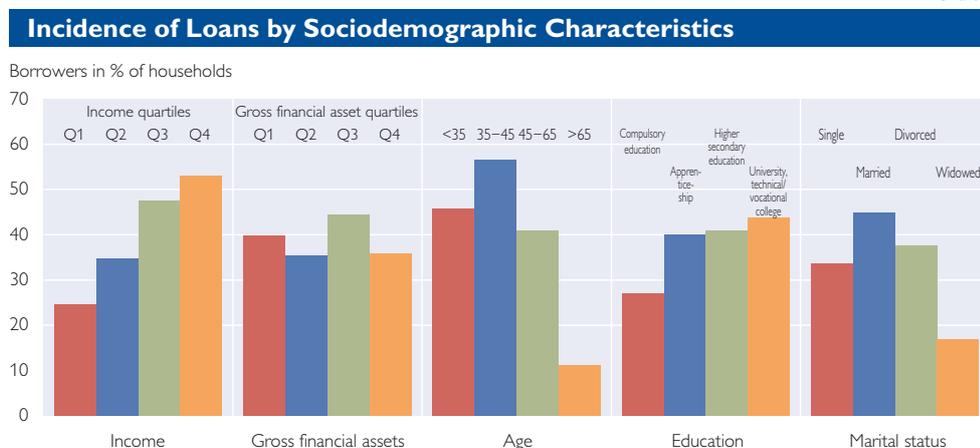
3.2.2 Influence of Sociodemographic Factors as Outlined in the OeNB Financial Wealth Survey

This section will analyze the frequency of debt according to the previously identified characteristics, using the data from the OeNB Survey on Households' Financial Wealth as a basis.⁴ The results of the OeNB survey (chart 1 and table 5) confirm the findings derived from the ECHP and EU-SILC data insofar as they indicate that housing loans are taken out more frequently than consumer loans. Regarding the share of housing loans in total debt, however, there are discrepancies between the ECHP/EU-SILC data and the OeNB survey data.

Both the ECHP/EU-SILC data and the OeNB survey data show a correlation between debt and income. Loans are more prevalent among high-income households, and this difference in distribution is even more pronounced for housing loans than for consumer loans. The differences in the levels of debt broken down by income group are repeated on an international scale and are evident in all of the countries examined by Girouard et al. (2006). There are considerable differences across income quartiles in foreign currency loans because this type of borrowing

⁴ For comparable data, see Banco de España (2005).

Chart 1



Source: Authors' calculations, based on data from the OeNB Survey on Households' Financial Wealth (2004).

is mostly used to finance new homes, i.e. for investments that high-income households are more likely to be able to afford. High-income households are also in a better position to assume (financial) risks.

Broken down by assets, the highest share in lending can be attributed to households belonging to the third quartile of gross financial assets. Consumer loans are most commonly taken out by households with a low level of financial assets, whereas the frequency of housing loans initially increases in line with financial wealth and then declines in the most affluent households.

From the perspective of age, the distribution shows the expected hump-shaped pattern, with a higher level of debt in the first half of life and a reduction in borrowing in the second half. Indebtedness is most widespread among members of the age group of 35 to 45 years. With respect to consumer loans, however, households in which the head of household

is younger than 25 years of age make up a large proportion of the total debt volume.⁵

As regards marital status, loans are most often taken out by (married) couples living in the same household. The equally frequent indebtedness of divorced individuals may be the result of loans taken out prior to separation or may stem from an additional demand for borrowing in the wake of the divorce.

Broken down by education, the ratio of borrowing is lower among households headed by individuals who have only completed compulsory education than for the rest of the population. With regard to occupational status, the relatively low level of loans taken out by self-employed individuals is particularly noteworthy, although this phenomenon may be partly related to a lack of differentiation between professional and private forms of financing by the respondents.

⁵ For interpretation purposes, the fact that the OeNB survey is a cross-sectional analysis should be taken into account. Statements on the distribution of loans throughout the life cycle can therefore be misleading.

Table 2

Logit Estimates for Indebtedness		
Odds ratio	Housing	Consumption
Age of household head	1.079**	1.180***
Age of household head, squared	0.999***	0.998***
Public servant	0.851	1.081
Vienna	0.586***	1.568***
Self-employed	0.756	1.050
Inherited	1.296**	0.786
Married	0.834	1.320
Number of adults	1.181**	1.087
Number of children	1.216***	0.776**
Gross financial assets		
2 nd quartile	0.884	0.386***
3 rd quartile	1.024	0.299***
75 th to 95 th percentile	0.693*	0.244***
95 th percentile and above	0.468**	0.075***
Net household income		
Between EUR 1,350 and EUR 2,399	1.997***	1.292
Between EUR 2,400 and EUR 4,199	2.996***	1.813**
Exceeding EUR 4,199	3.619***	2.799***
Higher secondary education	1.232	1.246
University, technical/vocational college	1.218	1.199

Source: OeNB, based on the Survey on Households' Financial Wealth (2004).

Note: *** The coefficient differs from 1 to a statistically significant degree at a significance level of 1% (** 5%, * 10%). The coefficients represent the effect of the explanatory variable on the probability of being in debt, with an odds ratio greater than 1 indicating an increase in the probability.

Consumer loans are taken out for a variety of reasons. Based on the data from the OeNB Survey on Households' Financial Wealth, loans can be broken down by loan purpose, with purchasing a motor vehicle and furnishing one's home ranking highest, each being named by 31% of all households surveyed as the purpose of taking out a loan. It can be assumed that the intended use of consumer loans is also related to income. Auto loans, for example, are taken out more frequently by households with an income above the median than by those with an income below the median.

3.2.3 Logit Estimates of the Probability of Debt

As the variables used are, in part, strongly correlated with each other (e.g. education and income), the influence of individual socioeconomic characteristics must be isolated. For this reason, we performed a logit estimate⁶ for the probability of incurring indebtedness using the data from the OeNB Survey on Households' Financial Wealth.⁷ As the property market in Vienna differs from those in the other federal provinces (e.g. higher proportion of rental properties), a dummy variable was entered

⁶ These models estimate the influence of explanatory variables (in this case, the socioeconomic characteristics of a household) on the probability of an event taking place (in this case, borrowing).

⁷ The OeNB Survey on Households' Financial Wealth is a cross-sectional survey, which only shows whether or not a household was in debt at the time of the survey. There is no information on the time a loan was taken out, and therefore the household characteristics used in the logit estimate may differ from the characteristics prevailing at the time the indebtedness was incurred. Furthermore, it is not possible to establish whether certain households did not require external funding or whether their loan applications were denied.

for households whose primary residence is in Vienna. To take the possible nonlinear effects of age into account, the square of the age was also included in the calculation.

For both housing and consumer loans, the age of the head of household has a positive effect on the level of debt. The greatest probability of debt is reached at an age of 35 years. While the level of financial wealth generally has a negative influence on the probability of holding debt from consumer loans, a significant negative influence on housing loan indebtedness is only evident for households belonging to the fourth quartile. Income has a positive effect on both housing and consumer loans.

Viennese households tend to incur debt less frequently for housing purposes and more frequently for consumption purposes than other Austrian households. After all, those Viennese who are entitled to public housing have a specific alternative without the need to seek external financing.

The variable (married) couple, which falls under the category of marital status, has no significant influence on the probability of debt from housing loans, although the number of adults and children in the household does. As people have children, the demand for owning their home instead of just renting it appears to increase, while the probability of taking out consumer credit, by contrast, drops with the number of children in a household. Households that have previously received an inheritance take out housing loans significantly more often, whereas inheritances have no impact on the demand for consumer loans. The level of education does not appear to have a pronounced effect on the

demand for either housing or consumer loans.

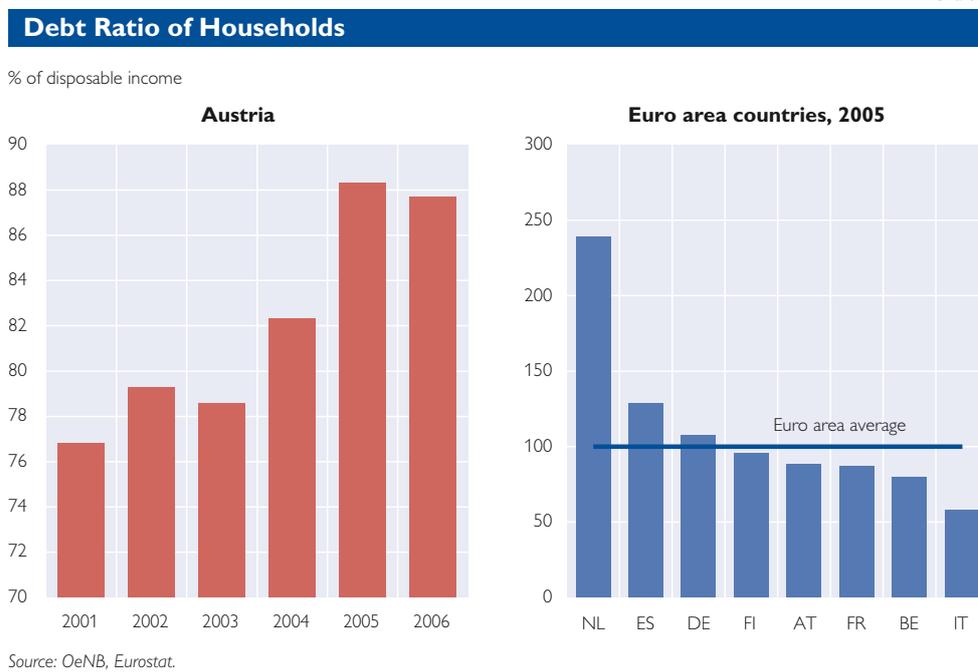
4 Amount of Debt

This section presents an overview of the amount of debt held by Austrian households. First, household indebtedness is analyzed on the basis of national financial accounts data released since 1995, including an international comparison with other countries in the euro area. These data are then compared with the microdata from the OeNB Survey on Households' Financial Wealth.

4.1 Household Debt in Austria Moves up Sharply but Remains Low by International Standards

In 2006, the ratio of debt relative to disposable income among Austrian households was around 88%. In the last five years, this ratio has increased by approximately 11 percentage points. In the euro area, the level of household debt is almost equal to the disposable income, although there are marked differences between individual euro area countries.

In Austria, the ratio of debt to gross financial assets is, at 36%, somewhat higher than the euro area average (33%), and the accumulation of financial assets is comparatively low. Debt-to-wealth ratios are a lot more uniform within the euro area than the ratios of debt to disposable income, which may reflect, among other reasons, the fact that in countries where bullet loans are widely common (e.g. the Netherlands), part of people's savings are earmarked for loan repayment at the end of the term, whereas in Austria, bullet maturities are only customary for foreign currency loans. In other countries, for example in Italy, the steady accumulation of financial assets can



partly be ascribed to the fact that banks applied very restrictive lending policies over long periods of time. There are also other factors, such as an increasing demand for private pensions that may be of decisive influence for the greater accumulation of financial assets in some euro area countries.

In 2006, housing loans represented the majority (60%) of debt in Austrian households, consumer loans accounted for 18%, and other loans made up the remainder. For the most part (85%), housing loans are a long-term form of finance with maturities of more than five years. For consumer loans, terms of up to one year are also significant, comprising around 25%

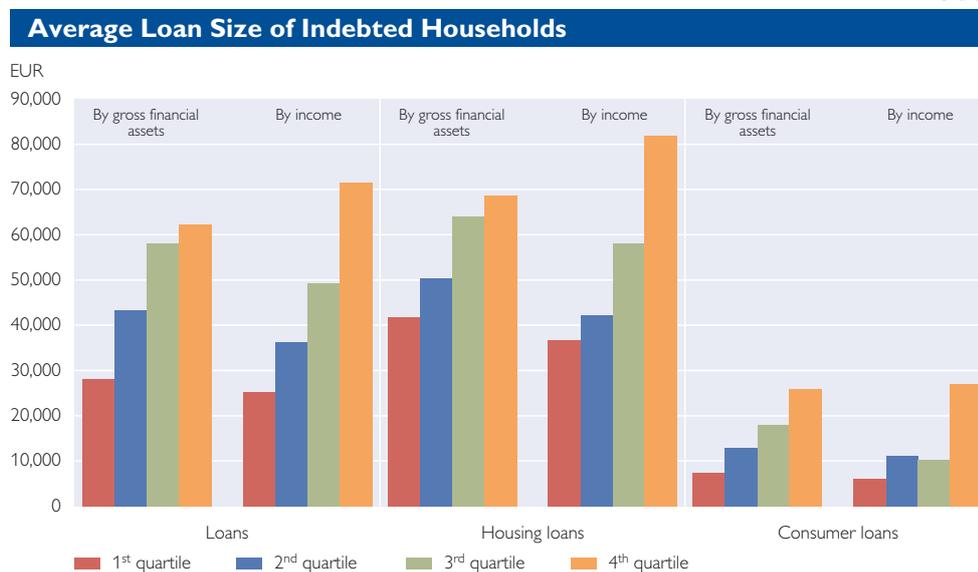
of consumer and other loans. In the category of housing loans, borrowings from building and loan associations make up 17% of the total lending volume. Foreign currency loans have become a widely used means of home financing, especially since the mid-1990s. At the end of 2006, the share of total foreign currency loans in the total lending volume came to around 31%.⁸

At the end of 2006, approximately 85% of newly acquired consumer loans and around 58% of newly contracted housing loans carried variable interest rates.⁹ Foreign currency loans bearing fixed interest constitute an exception to customary practice.

⁸ For information on the characteristics and prevalence of foreign currency loans in Austria, see Waschiczek (2002). The reasons prompting Austrian households to take out foreign currency loans are currently being examined in a joint research project conducted by the OeNB and the Swiss National Bank (Beer et al., 2007). Results are expected before the end of 2007.

⁹ The data on fixed interest periods are only available for newly originated loans, but not for existing commitments.

Chart 3



Source: Authors' calculations, based on data from the OeNB Survey on Households' Financial Wealth (2004).

4.2 Higher Income Tiers More Heavily Indebted

In section 4.1, the total lending volume was examined in relation to the income and financial assets of the entire household sector. The fact alone that only around 40% of all Austrian households actually have loan commitments clearly shows the disadvantages of this kind of analysis. Furthermore, the unequal distribution of debt across households has not been considered to date because aggregate data enable a comparison of averages only. In the following, therefore, the picture provided on the basis of aggregate data will be complemented and modified by information from microdata on households.

The OeNB Survey on Households' Financial Wealth shows that the average size of housing loans far exceeds that of consumer loans. In households with loan commitments, the median debt is EUR 25,000 (average: EUR 48,000), the median for housing loans is EUR 36,000 (average: EUR 57,600) and the median for consumer loans is EUR 7,000 (average: EUR

14,100). Both consumer and housing loans evidently increase in size as the levels of income and gross financial assets rise (chart 3). A comparison with Girouard et al. (2006) shows that – like the correlation between income and loan distribution – the dependency of loan size on income levels is also a factor in the ten OECD countries analyzed.

The pronounced difference between the average and the median figures indicates the wide spread in loan size within the group of debtors. One problem in interpreting this spread arises because neither the original loan amount nor the time when it was taken out is known. This problem is especially relevant if the research is focused on establishing how the size of household debt is influenced by socioeconomic characteristics, whereas the size of debt at the time of the survey is relevant in addressing other questions, for example the implications of household debt for financial stability.

The differences in frequency and size of debt are reflected in the break-

down of the outstanding debt volume by income and gross financial asset quartiles. More than 45% of total household lending is attributable to households in the highest income quartile, and around 30% to households in the highest financial asset quartile. In both cases, the difference is even more pronounced for consumer loans, although households with low financial assets take out consumer loans to a comparatively large extent.

The results derived from the microdata show that the aggregate data are insufficiently detailed to examine the ratio of debt to gross financial assets. According to data from the OeNB Survey on Households' Financial Wealth, the median for the ratio of liabilities to gross financial assets among borrowers is 119% (average: 360%). For consumer loans, the median is 44% (average: 150%), and for housing loans, it is 138% (average: 411%). The differences from the aggregate data underline the importance of using supplementary microdata when analyzing household debt.

5 Austrian Households Maintain Skeptical Attitude toward Debt

The OeNB's 2004 Survey on Households' Financial Wealth attempted to ascertain respondents' attitudes toward incurring debt. These self-as-

sessments can be compared with actual financial behavior.

About 80% of the respondents consider themselves to be savers rather than spenders, and only 15% stated that they would rather take out a loan than save for a long time to make a purchase. More than three-quarters of the survey participants thought that banks often grant loans too readily.

Borrowers, in contrast, less readily characterize themselves as savers and less frequently believe that banks issue loans too freely. Borrowers are more inclined to take out a loan rather than save for a long time to buy something. Agreement with this view is particularly strong among households that have taken out a consumer loan. Households with consumer loan liabilities are also less likely to hold the opinion that banks grant loans too readily than households with housing loan commitments.

Households that prefer to take out a loan rather than save first take out loans considerably more often, as their stated views would suggest. This is especially true for consumer loans, even more than for housing loans. Households that are more inclined to borrow have a slightly above-average income, but their gross financial assets are markedly below average, and, with an average age of 48 years, they tend to be younger than the rest of

Table 3

Attitudes toward Debt												
	I consider myself to be a saver						Rather than save for something for a long time, I prefer to take out a loan					
	Population		Housing loan borrowers		Consumer loan borrowers		Population		Housing loan borrowers		Consumer loan borrowers	
Agree	79	(0.00)	74	(0.02)	71	(0.03)	15	(0.01)	23	(0.02)	40	(0.03)
Disagree	21	(0.00)	26	(0.02)	29	(0.03)	85	(0.01)	77	(0.02)	60	(0.03)

Source: OeNB, based on the 2004 Survey on Households' Financial Wealth.
Note: Standard errors are given in parentheses.

the population (51 years). They are underrepresented among the age group of 60 years and older. Households headed by workers are most skeptical about loans.

6 Factors Weakening Households' Debt Servicing Capabilities

In this section we will examine to what extent households are able to fulfill their debt liabilities and in what way their debt servicing capabilities are influenced by the results of macroeconomic shocks, such as higher unemployment or interest rate hikes.

If households' liabilities exceed their available means, they are no longer able to service their debt commitments. The debt situation and the risk of excessive levels of debt in households cannot be adequately assessed using the aggregate debt level data provided by national accounts and financial accounts. For this reason, aggregate indicators need to be complemented with indicators on an individual household level. Data on payment arrears are available from the ECHP and EU-SILC surveys and show that payment arrears are far more common for consumer loans than for housing loans. If households are permanently unable to fulfill their liabilities, they have the option of claiming personal bankruptcy to eliminate their debt burden (annex 3). From the lenders' point of view, this means that they must renounce a part of the debt that is still owed to them.

The ratio of interest payments to disposable income gives an initial impression of the debt burden on households. According to the national accounts, this ratio came to around 3.3% in 2006. It should be noted that

this figure relates borrowers' interest payments to the income of the entire population, including households without loan commitments.

Considering that, according to the OeNB Survey on Households' Financial Wealth, 39% of Austrian households had taken out a loan and that, on average, these households had a higher income than those without loan liabilities, the ratio of interest payments to disposable income among loan debtors at the end of 2006 would have been around 7.5%. This indicator, however, neglects principal repayments, which are often considerably higher than interest payments, and the distribution of interest expenses within the group of loan debtors.

The ECHP microdata contain information on the overall size of repayments (principal and interest) for housing loans from 1995 to 2000. During this period, the median for the ratio of repayment liabilities to income fluctuated between 8% and 11% among housing loan borrowers, with the ratio generally being lower in households with an income exceeding the median. The limit at which loan repayments can become critical is often set at 30% of disposable income (ECB, 2005). According to the ECHP data, from 1995 to 2000, the proportion of Austrian households exceeding this limit ranged between 9% and 12%.

How does the share of households with repayment burdens in excess of the threshold value change in cases of income loss due to unemployment or if repayment liabilities increase because of rising interest rates?

This type of analysis has recently been carried out by a number of central banks (e.g. Herrala, 2006; Johansson and Persson, 2006; van

Rooij, 2002; Vatne, 2007; Zajaczkowski and Żochowski, 2006). The precise design of the simulation models differs in each case, depending on the data available. In most cases, the disposable income remaining after servicing debts and deducting living costs was the focus of interest. If one disregards the possibility of drawing on assets to service debt, it can be assumed that households whose freely disposable income is close to or less than zero will possibly be unable to repay their debt (hereinafter referred to as vulnerable borrowers). A further step is to calculate the change in the proportion of vulnerable borrowers that is caused by a rise in interest rates or by an increase in unemployment. The previously mentioned literature relies exclusively on partial analyses. The effects of interest rate hikes or rising unemployment are viewed in isolation from one another and from other changes. Where data on loan sizes are available, the model can be extended to assess the size of loans held by vulnerable borrowers and thus calculate the volume of loans potentially subject to default. From the banks' point of view, a further refinement of the estimation of loan defaults can also be obtained if the outstanding loan volume is contrasted with the financial assets that could be used to service debt. The study conducted by Herrala and Kauka (2006) is one of the few that goes beyond the descriptive presentation and modeling of scenarios. Building on the paper by Del-Rio and Young (2005), Herrala and Kauka project the development in the share of vulnerable borrowers by linking forecast values for determinants influencing the

emergence of repayment problems with microdata.

The results of simulations for Austria in the year 2000 are summarized below (see annex 2 for details of the methodology and assumptions used). The models are based on the studies by Johansson and Persson (2006) and Vatne (2007). In contrast to these authors, who use the level of disposable income less interest payments and living costs as an indicator of risk, our indicator is the ratio of repayment liabilities to income, for which we set the critical level at 30%. Data for this kind of simulation are available in the ECHP statistics only until 2000 and are limited to housing loans. As the input figures do not allow the effects of an interest rate hike and an increase in unemployment to be simulated directly, the consequences of a rise in repayment liabilities and the impacts of a certain proportion of employed persons becoming unemployed were examined instead. Due to the deficiencies in the available data, a series of further assumptions are necessary, which means that the significance of the simulation results is limited for the time being.¹⁰

The simulation results are displayed in table 4. With regard to unemployment as a risk factor, column 2 shows how many households would remain above the critical level if the respective percentage of employed persons were to become unemployed. Column 4 illustrates to what extent the proportion of vulnerable borrowers would go up in the event of a rise in repayment obligations.

The figures show that an increase in repayment obligations takes a heavier toll on borrowers than a rise

¹⁰ These assumptions are listed in annex 2.

in unemployment does, because higher unemployment affects only a proportion of debtors, whereas a growth in repayment obligations impacts all borrowers in equal measure. Moreover, households in which a member becomes unemployed may still be able to draw on sources of income other than that generated from employed work. The effects of interest hikes are overestimated in table 4, however, as fixed interest periods are not taken into account.

7 Household Debt Poses Low Level of Risk to Financial Stability

Loan debts in Austria are particularly prevalent among the middle-aged population segment (30 to 60 years of age). High-income households tend to accumulate more debt than those with lower incomes; the latter, however, are more heavily burdened by their indebtedness. Demand for consumer loans tends to be highest among high-income households with little financial assets.

The risks associated with private debt that could threaten financial stability in Austria are minimal. Due to the low levels of debt compared with other countries and owing to the fact that borrowing is concentrated in affluent households and households with high incomes, the level of household indebtedness in Austria does not pose a threat to financial stability.

The relatively high share of housing loans in the total debt volume is another indicator of low financial stability risk, as housing loans are generally secured by the underlying property. One housing loan risk factor is the high proportion of foreign currency loans, which presents a quite considerable exchange rate risk to the liabilities of households. The most vulnerable borrowers tend to be borrowers of consumer loans with lower incomes and/or low levels of wealth.

Table 4

Proportion of Housing Loan Borrowers with a Ratio of Repayment Obligations to Income in Excess of 30% in 2000

%

Unemployment		Repayment obligations	
Proportion of employed people	Proportion of vulnerable households	Increase in repayment obligations	Proportion of vulnerable households
0 ¹	9.0	0 ¹	9.5
1	9.2	5	10.6
2	9.4	10	12.3
3	9.7	15	13.0
4	9.9	20	14.7
5	10.2	25	15.8
6	10.4	30	17.9
7	10.6	35	18.7
8	10.8	40	19.2
9	11.1	45	20.3
10	11.3	50	21.4

Source: OeNB, based on ECHP data.

¹ Due to differences in the households included in the analyses, the figures differ in the baseline scenario.

References

- Alexander, C. 2006.** Managing Debt as Important as Managing Assets. TD Economics Special Report. TD Bank Financial Group. May.
www.td.com/economics/special/ca0515_debt.pdf
- ASB Schuldnerberatungen GmbH. 2006.** Schuldenreport 2006.
- Banca d'Italia. 2006.** Household Income and Wealth in 2004. Supplements to the Statistical Bulletin. Sample Surveys 16(7). January.
- Banco de España. 2005.** The Wealth of Spanish Households: A Microeconomic Comparison. Economic Bulletin. July. www.bde.es/informes/be/boleco/2005/be0507e.pdf
- Barnes, S. and G. Young. 2003.** The Rise in US Household Debt: Assessing its Causes and Sustainability. Bank of England Working Paper 206.
www.bankofengland.co.uk/publications/workingpapers/wp206.pdf
- Barwell, R., O. May and S. Pezzini. 2006.** The Distribution of Assets, Income and Liabilities Across UK Households: Results from the 2005 NMG Research Survey. Bank of England Quarterly Bulletin. Spring.
www.bankofengland.co.uk/publications/quarterlybulletin/qb060102.pdf
- Bartzsch, N. and E. Stöß. 2007.** Measuring German Household Debt: Financial Accounts Data and Disaggregated Survey Data as Complementary Statistics. IFC Bulletin 26. Irving Fisher Committee on Central Bank Statistics.
- Beer, C., P. Mooslechner, M. Schürz and K. Wagner. 2006a.** Austrian Households' Financial Wealth: An Analysis Based on Microeconomic Data. In: Monetary Policy & the Economy Q2/06. OeNB. 94–110.
- Beer, C., P. Mooslechner, M. Schürz and K. Wagner. 2006b.** Financial Wealth Holdings of Austrian Private Households – Data Sources and Institutional Features. Paper presented at the LWS Conference held on December 14/15, 2006.
- Beer, C., S. Ongena and M. Peter. 2007.** Austrian Households Borrowing in Swiss Franks. Mimeo.
- Brown, S. and K. Taylor. 2005.** Household Debt and Financial Assets: Evidence from Great Britain, Germany and the United States. Working Paper 05/2005. University of Leicester.
- Coricelli, F., F. Mucci and D. Revoltella. 2006.** Household Credit in the New Europe: Lending Boom or Sustainable Growth. Centre for Economic Policy Research. Discussion Paper 5520. www.cepr.org/pubs/new-dps/dplist.asp?dpno=5520&action.x=8&action.y=6
- Crook, J. 2006.** The Demand and Supply of Household Debt: A Cross Country Comparison. In: Bertola, G., R. Disney and C. Grant (eds.). The Economics of Consumer Credit: European Experience and Lessons from the US. MIT Press.
- Crook, J. and S. Hochguertel. 2006.** Household Debt and Credit Constraints: Comparative Micro Evidence from Four OECD Countries. Working Paper 05. University of Edinburgh. www.crc.man.ed.ac.uk/workingpapers/workingpaper05_2.pdf
- DeBelle, G. 2004.** Macroeconomic Implications of Rising Household Debt. BIS Working Paper 153. www.bis.org/publ/work153.htm
- Del-Rio, A. and G. Young. 2005.** The Determinant of Unsecured Borrowing: Evidence from the British Household Panel Survey. Bank of England Working Paper 263.
www.bankofengland.co.uk/publications/workingpapers/wp263.pdf
- Doms, M. and M. Motika. 2006.** Property Debt Burdens. FRBSF Economic Letter 2006-18. www.frbsf.org/publications/economics/letter/2006/el2006-18.htm

- Duygan, B. and C. Grant. 2006.** Household Debt and Arrears: What Role Do Institutions Play? Third Annual DG ECFIN Research Conference. September 7/8.
www.iue.it/FinConsEU/ResearchActivities/DevelopingCreditJune2006/Duygan&Grant_Jun%2706.pdf
- Dynan, K., K. Johnson and K. Pence. 2003.** Recent Changes to a Measure of US Household Debt Service. Federal Reserve Bulletin. October.
www.federalreserve.gov/pubs/bulletin/2003/1003lead.pdf
- ECB. 2005.** Financial Stability Review. December.
- Faruqui, U. 2007.** Are There Significant Disparities in Debt Burdens Across Canadian Households? IFC Bulletin 26. Irving Fisher Committee on Central Bank Statistics.
- Girouard, N., M. Kennedy and C. André. 2006.** Has the Rise in Debt Made Households More Vulnerable? OECD Economics Department Working Paper 535.
www.ois.oecd.org/olis/2006doc.nsf/linkto/ECO-WKP(2006)
- Herrala, R. 2006.** Household Indebtedness. Bank of Finland Bulletin 2006-1.
www.bof.fi/eng/6_julkaisut/6.1_SPn_julkaisut/index.stm
- Herrala, R. and K. Kauka. 2006.** Household Loan Loss Risk in Finland – Estimations and Simulations with Micro Data. Bank of Finland Working Paper.
- Johansson, M. W. and M. Persson. 2006.** Swedish Households' Indebtedness and Ability to Pay – A Household Level Study. In: Economic Review 3/2006. 24–41.
- Klyuev, V. and P. Mills. 2006.** Is Housing Wealth an “ATM”? The Relationship Between Household Wealth, Home Equity Withdrawal, and Saving Rates. IMF Working Paper 162.
www.imf.org/external/pubs/cat/longres.cfm?sk=19396
- Kohler, M., E. Connelly and K. Smith. 2004.** The Composition and Distribution of Household Assets and Liabilities: Evidence from the 2002 HILDA Survey. Reserve Bank of Australia Bulletin. April.
www.rba.gov.au/PublicationsAndResearch/Bulletin/bu_apr04/bu_0404_1.pdf
- Kreditschutzverband (KSV). 2005.** 10 Jahre Privatkonkurs. Press release. May.
- Magri, S. 2002.** Italian Households' Debt: Determinants of Demand and Supply. Temi di discussione del Servizio Studi 454. Banca d'Italia.
- May, O., M. Tudela and G. Young. 2004.** British Household Indebtedness and Financial Stress: A Household-Level Picture. Bank of England Quarterly Bulletin.
www.bankofengland.co.uk/publications/quarterlybulletin/qb040401.pdf
- May, O. and M. Tudela. 2005.** When is Mortgage Indebtedness a Financial Burden to British Households? A Dynamic Probit Approach. Bank of England Working Paper 277.
www.bankofengland.co.uk/publications/workingpapers/wp277.pdf
- Mooslechner, P. 1992.** Ökonomische Bedeutung und Problematik der Verschuldung privater Haushalte. In: WIFO-Monatsberichte 8/1992. 447–453.
- Rinaldi, L. and A. Sanchis-Arellano. 2006.** Household Debt Sustainability. What Explains Household Non-Performing Loans? An Empirical Analysis. ECB Working Paper 570. www.ecb.int/pub/pdf/scpwps/ecbwp570.pdf
- Riser, M. D. and B. H. Vatne. 2006.** Developments in Household Debt. An Analysis of Microdata for the Period 1986–2003. In: Norges Bank Economic Bulletin 2/06.
- Schönbauer, U. 1990.** Konsumentenkredite: Zwischen Wunderwelt und Offenbarungseid. Vienna: Institut für Gesellschaftspolitik.
- Sierminska, E., A. Brandolini and T. M. Smeeding. 2006.** Comparing Wealth Distribution Across Rich Countries: First Results from the Luxembourg Wealth Study. LWS Working Paper 1.

- Statistics Austria. 2006.** Einkommen, Armut und Lebensbedingungen. Ergebnisse aus EU-SILC 2004 in Österreich.
- Tudela, M. and G. Young. 2005.** The Determinants of Household Debt and Balance Sheets in the United Kingdom. Bank of England Working Paper 266.
www.bankofengland.co.uk/publications/workingpapers/wp266.pdf
- Van Els, P., W. van den End and M. van Rooij. 2003.** Financial Behaviour of Dutch Households: Analysis of the DNB Household Survey 2003. DNB Research Report 744.
www.dnb.nl/dnb/home/file/744_tcm13-38874.pdf
- Van Rooij, M. 2002.** Financial Vulnerability of Mortgagors and Mortgagees. Research Memorandum WO 706.E. De Nederlandsche Bank.
- Vatne, B. H. 2007.** Developments in Household Debt. An Analysis of Microdata for the Period 1986–2003. IFC Bulletin 1/2007. Irving Fisher Committee on Central Bank Statistics.
- Waschiczek, W. 2002.** Foreign Currency Loans in Austria – Efficiency and Risk Considerations. In: Financial Stability Report 4. OeNB. 83–99.
- Zajączkowski, S. and D. Żochowski. 2006.** The Distribution and Dispersion of Debt Burden Ratios Among Households in Poland and its Implications for Financial Stability. IFC Bulletin 26. Irving Fisher Committee on Central Bank Statistics.

Annex 1

Datasets used

The *European Community Household Panel (ECHP)* is a longitudinal survey that provides data on the incomes and living conditions of households in the countries of the EU. For Austria, data are available from the country's accession to the EU in 1995 until the discontinuation of the ECHP in 2001. As regards debt, households were asked if they had taken out housing loans, consumer loans or loans for other purposes. For housing loans, information on the repayment size (principal and interest payments) is also available. Furthermore, the respondents were asked whether they had any difficulties meeting their repayment obligations and whether the repayment of loans represented a financial burden for their households.

EU-SILC,¹¹ the EU's Survey on Income and Living Conditions, is the successor to the ECHP and provides data for comparative statistics on income, poverty and living conditions. Unlike the ECHP, the SILC survey used only a rotating panel. For this study, the EU-SILC cross-sectional data for 2003 and 2004 were available. The data on loans relate to mortgage repayment liabilities and the size of interest payments for home owners and to repayment liabilities for loans that are not linked to the home loans, i.e. consumer and other loans. Furthermore, for all loans, the question is asked whether repayment obligations represent a financial burden to the household and whether payment arrears have occurred. Even though

SILC is, to a certain extent, the successor to the ECHP, and ECHP and SILC data are presented as a time series, it must be borne in mind when interpreting the data that ECHP and SILC are two different surveys and that they are therefore only comparable to a limited extent.

The *OeNB's 2004 Survey on Households' Financial Wealth*¹² contains information on the size of loans taken out, broken down by loan type (e.g. bank loan, private loan) and by intended purpose (e.g. purchase of a home, a car, etc.). There are, however, no data available on interest rates and repayment obligations. In this survey, households were asked to indicate which types of loans they had taken out (e.g. bank loans, private loans) and to specify the amounts borrowed with each loan type. In addition, respondents were asked to indicate the purpose of each loan, distinguishing between housing and consumer loans. The category of housing loans includes loans taken out for the purchase, restoration, construction, conversion and renovation of houses and apartments. Loans used for other purposes are considered consumer loans. If a loan was taken out for different purposes and can thus not be clearly assigned to a specific purpose, the total loan volume is allocated to the category of housing loans to avoid double counting. As a result of this approach, it must be assumed that there is a (relative) underestimation of the size of consumer loans and a (relative) overestimation of the size of housing loans.

¹¹ More detailed information on the Austrian EU-SILC data can be found in *Statistics Austria (2006)*.

¹² For information on the *OeNB Survey on Households' Financial Wealth*, see *Beer et al. (2006a)*.

Annex 2

Methodology and assumptions used in simulation models

Data used: As no more recent data are available, the ECHP data for 2000 have been used. Commitments arising from consumer loans have not been taken into account because only information on the repayment obligations from housing loans was provided.

Methodology for simulating the effect of an interest rate hike: First, the repayment liabilities were increased by the respective percentages specified in table 4. In a next step, the proportion of vulnerable borrowers among housing loan borrowers was recalculated. This approach had to be taken because it was not possible to break down the repayment obligations by principal and interest amounts. Fixed interest periods could also not be taken into account.

Methodology for simulating an increase in unemployment: To simulate the effects of an increase in unemployment, it was assumed that the percentage of employed persons given in

table 4 would become unemployed and that these would then draw unemployment benefits. Using the resulting adjusted value for household income, the share of vulnerable borrowers among housing loan borrowers was recalculated. This procedure was repeated a thousand times for every increase in the unemployment rate that was examined, and the mean value of these repetitions was specified as the new proportion of vulnerable borrowers in table 4.

In this context, it was assumed that the probability of becoming unemployed was equal for the entire employed workforce. Consequently, the effects of an increase in unemployment tended to be overestimated, as the probability of becoming unemployed is likely to be lower among people drawing high incomes, and households with high incomes also take out loans more frequently. Furthermore, fluctuations in the income of households that (also) draw income from sources other than employed work were disregarded.

Annex 3

Box 1

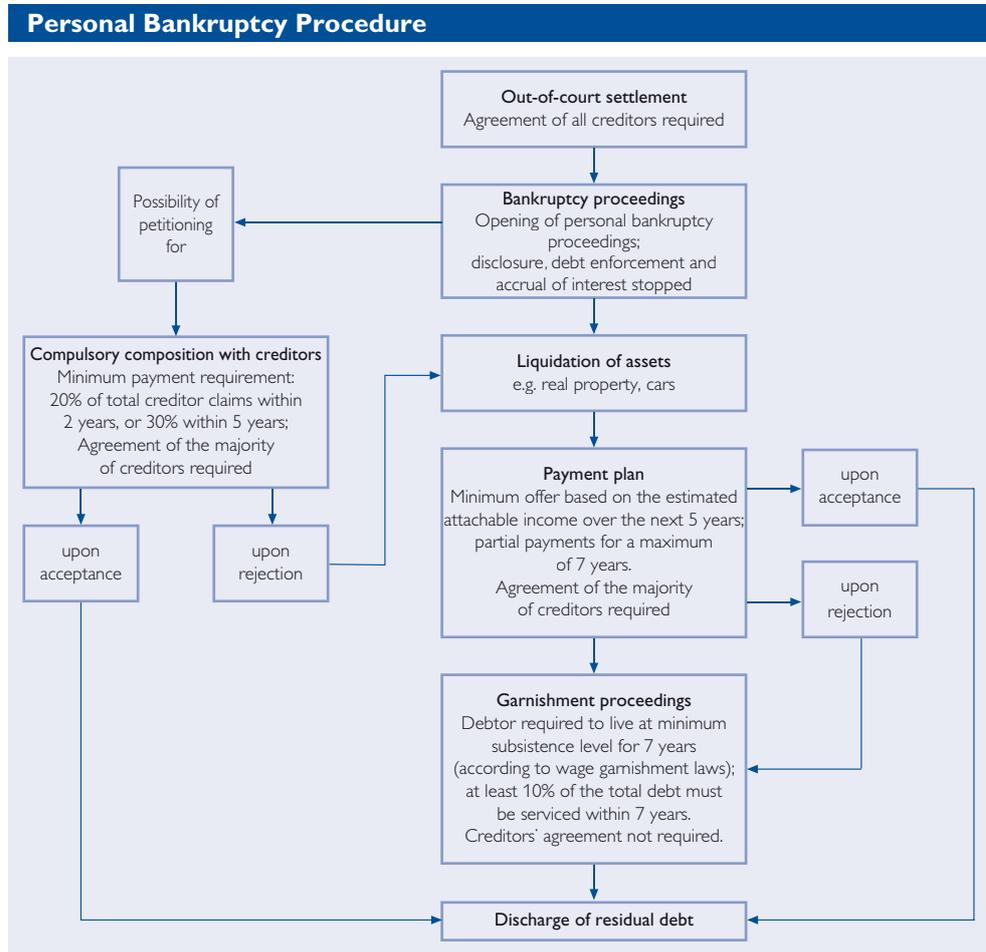
Personal bankruptcy proceedings in Austria

The five pillars of personal bankruptcy law in Austria are:

- (1) **Costs borne by the government for debtors who are entirely without means.**
- (2) **Time limit for liens on income:** According to Austrian bankruptcy law, contractual liens expire after two years, and judgment liens immediately upon commencement of bankruptcy proceedings.
- (3) **Cost effectiveness of proceedings:** Proceedings are conducted at the district court level. The debtor retains control unless the court appoints a bankruptcy administrator; this type of cost-effective proceeding was put into practice in an initial 25% of all cases.
- (4) **No minimum repayment requirement:** In Austria, welfare recipients or former entrepreneurs with extremely high levels of indebtedness can discharge their debts at very low repayment quotas, provided that the required majority of creditors agree to the payment proposal. If no agreement is reached between debtor and creditors, which is the case in around 25% of personal bankruptcies, the bankruptcy court will initiate garnishment proceedings unless there are reasons for denial. Within a seven-year period, at least 10% of the total outstanding debt must be repaid through garnishment of the portion of the debtor's income exceeding the minimum level of subsistence. During this period, the debtor is not required to make payments, but he or she is obliged to seek employment and income and must not acquire any further debts. If the minimum repayment level is not attained, the court may still discharge the debt for reasons of equity.
- (5) **Creditor autonomy:** As with reorganizations and compulsory reorganizations in the context of corporate insolvencies, agreement by a qualified majority of creditors is required for payment plans in the context of personal bankruptcy proceedings.

Source: KSV (2005).

Chart 4



Source: ASB (2006).

Table 5

Loan Distribution in 2004 According to the OeNB Survey on Households' Financial Wealth

%	Total loans		Housing loans		Consumer loans		Housing and consumer loans		Foreign currency loans	
Population	39	(0.01)	29	(0.01)	14	(0.01)	4	(0.01)	4	(0.01)
By gross financial asset quartiles										
1 st quartile	40	(0.02)	23	(0.02)	22	(0.02)	5	(0.01)	1	(0.01)
2 nd quartile	35	(0.02)	28	(0.02)	11	(0.02)	4	(0.01)	4	(0.01)
3 rd quartile	44	(0.02)	37	(0.02)	12	(0.02)	5	(0.00)	6	(0.01)
4 th quartile	36	(0.02)	29	(0.02)	10	(0.02)	3	(0.01)	6	(0.01)
By income quartiles										
1 st quartile	25	(0.02)	15	(0.02)	12	(0.02)	2	(0.01)	1	(0.00)
2 nd quartile	35	(0.02)	27	(0.02)	11	(0.01)	3	(0.01)	4	(0.01)
3 rd quartile	47	(0.02)	37	(0.02)	15	(0.02)	5	(0.01)	4	(0.01)
4 th quartile	53	(0.03)	40	(0.03)	19	(0.02)	6	(0.01)	11	(0.02)
By occupation of household head										
Private sector	54	(0.02)	42	(0.02)	19	(0.02)	6	(0.01)	8	(0.01)
Public service	51	(0.03)	37	(0.03)	19	(0.03)	5	(0.01)	5	(0.01)
Self-employed	43	(0.04)	30	(0.04)	16	(0.03)	3	(0.01)	7	(0.02)
By marital status of household head										
Single	34	(0.03)	22	(0.02)	14	(0.02)	3	(0.01)	1	(0.01)
Married/partnership	45	(0.02)	35	(0.02)	15	(0.01)	5	(0.01)	6	(0.01)
Divorced/separated	37	(0.03)	25	(0.03)	15	(0.02)	2	(0.01)	3	(0.01)
Widowed	17	(0.03)	14	(0.03)	6	(0.01)	3	(0.01)	0	(0.00)
By age of household head										
<25	25	(0.07)	12	(0.05)	20	(0.06)	8	(0.05)	x	x
25 to 35	50	(0.04)	38	(0.04)	16	(0.02)	4	(0.01)	7	(0.02)
35 to 45	56	(0.02)	42	(0.02)	20	(0.02)	5	(0.01)	8	(0.01)
45 to 55	53	(0.04)	38	(0.04)	21	(0.03)	6	(0.02)	7	(0.02)
55 to 65	42	(0.03)	34	(0.03)	13	(0.02)	5	(0.01)	3	(0.01)
65 to 75	20	(0.02)	15	(0.02)	7	(0.01)	2	(0.01)	1	(0.00)
>75	13	(0.03)	9	(0.03)	5	(0.02)	1	(0.01)	x	x
By educational level of household head										
Compulsory education	27	(0.03)	18	(0.03)	12	(0.02)	3	(0.01)	1	(0.01)
Apprenticeship	40	(0.02)	30	(0.02)	14	(0.01)	4	(0.01)	4	(0.01)
Higher secondary education	41	(0.02)	31	(0.02)	15	(0.02)	4	(0.01)	7	(0.01)
University, technical/vocational college	44	(0.03)	33	(0.03)	14	(0.02)	3	(0.01)	6	(0.02)
By place of residence										
Federal provinces	41	(0.02)	33	(0.01)	12	(0.01)	4	(0.01)	5	(0.01)
Vienna	34	(0.02)	20	(0.02)	17	(0.01)	4	(0.01)	2	(0.01)
By inheritance										
Not inherited	40	(0.02)	28	(0.01)	16	(0.01)	4	(0.01)	4	(0.01)
Inherited	38	(0.02)	31	(0.02)	11	(0.01)	4	(0.01)	5	(0.01)

Source: OeNB, based on the Survey on Households' Financial Wealth (2004).

Note: Standard errors are given in parentheses.

Credit Claims as Eligible Collateral for Eurosystem Credit Operations

Birgit Sauerzopf¹

The introduction of a “single list” of eligible collateral common to all Eurosystem credit operations on January 1, 2007, replaced the two-tier framework in place until then. Euro area credit claims (i.e. bank loans) have become eligible for use as collateral under the single list, provided they fulfill conditions specified by the ECB. Even though credit claims are more complex than marketable securities in legal as well as administrative terms, their mobilization by Austrian banks as collateral in credit operations with the Oesterreichische Nationalbank (OeNB) has surged since the beginning of 2007. Moreover, the conditions for the cross-border use of credit claims have been adapted for the new single framework; these procedures and euro area enlargement upon Slovenia’s accession lead to the expectation that the cross-border use of credit claims by OeNB counterparties in credit operations with the OeNB will increase.

JEL classification: E5, K1

Keywords: credit claims, single list, assignment for security purposes.

1 Introduction

The ECB and the national central banks (NCBs) accept assets as collateral for monetary policy operations. This study takes the introduction of a “single list” of eligible collateral common to all Eurosystem credit operations as an opportunity to take a closer look at the use of credit claims as collateral. Counterparties must supply adequate collateral to the NCB conducting a credit operation² under an open market operation and or granting intraday credit.³ Article 18 of the Statute of the ESCB/ECB requires all Eurosystem credit opera-

tions to be based on adequate collateral.⁴ The single list is to be consulted on the securities eligible as collateral for euro area credit operations.

Under civil law, rights on an asset are either in rem – pertaining to the ownership of property and not based on any personal relationship – or personal. In rem collateral includes e.g. liens on tangible and intangible assets and collateral assigned for security purposes. In the event of insolvency of the debtor, in rem collateral gives the NCBs holding the collateral a preferential status vis-à-vis other creditors. Personal security includes

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² Open market operation: an operation executed on the initiative of a central bank in the financial market. Open market operations can be divided into four categories: main refinancing operations, longer-term refinancing operations, fine-tuning operations and structural operations. Reverse transactions are the main open market instrument of the Eurosystem.

³ Intraday credit may be extended by central banks to even out mismatches in payment settlements and can take the form of: (1) a collateralized overdraft, or (2) a lending operation against a pledge or in a repurchase agreement (ECB, 2006).

⁴ Article 18 of the Statute of ESCB and of the ECB: “In order to achieve the objectives of the ESCB and to carry out its tasks, the ECB and the national central banks may

- operate in the financial markets by buying and selling outright (spot and forward) or under repurchase agreement and by lending or borrowing claims and marketable instruments, whether in Community or in non Community currencies, as well as precious metals;
- conduct credit operations with credit institutions and other market participants, with lending being based on adequate collateral.”

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Gerhard Winkler, OeNB.

sureties, guarantees and joint and several liabilities.

Section 2 of this study outlines general aspects of monetary policy in the euro area, and changes to monetary policy operations following the extension of the single list to credit claims (debt obligations of a debtor vis-à-vis a Eurosystem counterparty) are analyzed in section 3. In a next step, the Correspondent Central Banking Model (CCBM), which is key to the cross-border use of credit claims, and the concept of the Assisting National Central Bank Model are presented. Subsequently, the concerns arising in connection with credit claims submitted as collateral are addressed in section 4 against the backdrop of the current provisions.

2 Implementation of the Single Monetary Policy in the Euro Area

One of the core tasks of the Eurosystem in Stage Three of Economic and Monetary Union (EMU) is the determination and implementation of the single monetary policy. The Eurosystem consists of the ECB and the NCBs of those EU Member States which have adopted the euro as the single currency in accordance with the Treaty establishing the European Community. Its decision-making bodies are the Executive Board of the ECB and the Governing Council, which in turn consists of the members of the Executive Board and of

the governors of the Eurosystem NCBs. The Governing Council has the central role of formulating the single monetary policy for the euro area and of establishing the necessary guidelines for their implementation.

By adopting an amending guideline⁵ related to monetary policy implementation on August 31, 2006, the Governing Council introduced a single list of collateral in the monetary policy framework for the entire Eurosystem. This list now includes credit claims (i.e. bank loans to third-party debtors) as eligible collateral, meaning that counterparties of Eurosystem NCBs may submit credit claims as collateral for central bank credit. With the aims of protecting the Eurosystem from incurring losses in its monetary policy operations and of ensuring the equal treatment of counterparties, as well as of enhancing operational efficiency, underlying assets have to fulfill certain criteria.

2.1 General Documentation on Eurosystem Monetary Policy Instruments and Procedures

Since Slovenia's entry on January 1, 2007, the euro area has comprised Belgium, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal, Slovenia and Finland.⁶ The document which is decisive for the conduct of the single monetary policy in these countries is the above-mentioned ECB guideline on monetary policy

⁵ *Guideline of the ECB of 31 August 2006 amending Guideline ECB/2000/7 on monetary policy instruments and procedures of the Eurosystem (ECB/2006/12).*

⁶ *The NCBs of those EU Member States which have not adopted the single currency in accordance with the Treaty retain their powers in the field of monetary policy according to national law and are thus not involved in the conduct of the single monetary policy. These Member States currently comprise Bulgaria, the Czech Republic, Denmark, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Romania, Slovakia, Sweden and the United Kingdom.*

instruments and procedures of the Eurosystem ECB/2006/12.⁷ This guideline, which went into force two days after its adoption, comprises just four articles but an extensive annex,⁸ which is the actual monetary policy framework and is entitled General Documentation on Eurosystem Monetary Policy Instruments and Procedures (referred to as General Documentation in brief). This annex, which the NCBs are obliged to implement, went into force on January 1, 2007. The guideline is applicable to euro area NCBs, which must implement the single monetary policy in line with its provisions. The OeNB implemented the amendment by changing the Terms and Conditions of the Oesterreichische Nationalbank Governing Monetary Policy Operations and Procedures⁹ which have since been examined and verified by the ECB.

Because the General Documentation is the basis for the implementation of euro area monetary policy, it will be described briefly below. The document is divided into seven chapters. Chapter 1 gives an overview of the operational framework for the monetary policy of the Eurosystem. In Chapter 2, eligibility criteria for counterparties (banks) taking part in Eurosystem monetary policy operations are specified. Chapter 3 describes open market operations, while Chapter 4 presents the standing facilities¹⁰ available to counterparties. Chapter 5 specifies procedures ap-

plied in the execution of monetary policy operations. In Chapter 6, the eligibility criteria for underlying assets in monetary policy operations are defined. Chapter 7 describes banks' obligation to hold minimum reserves with their NCBs.

Moreover, seven short annexes contain examples of monetary policy operations, a glossary, criteria for the selection of counterparties for Eurosystem foreign exchange intervention operations and for foreign exchange swaps¹¹ for monetary policy purposes, a presentation of the reporting framework for the money and banking statistics of the ECB, a list of the Eurosystem websites, and a description of the procedures and sanctions to be applied in the event of noncompliance with counterparty obligations.

Annex 7 – Creation of valid security over credit claims – is of particular interest, as it serves to reduce any risks of credit claims used as collateral for Eurosystem monetary policy operations. Numerous measures are cited as legal requirements to ensure that a valid security is created over a credit claim submitted as collateral. Before using a credit claim, NCBs are obliged to take various steps to verify the existence of a credit claim, including the quarterly self-certification by the counterparty to the NCB with respect to the existence of credit claims submitted. Moreover, NCBs, supervisors or external auditors must verify the procedures that counterparties use to submit the information

⁷ OJ L 352 of 13 December 2006.

⁸ The document is available on the ECB's website at www.ecb.eu/pub/pdf/other/gendoc2006en.pdf

⁹ The amended Terms and Conditions of the Oesterreichische Nationalbank Governing Monetary Policy Operations and Procedures are available from the OeNB or at www.oenb.at

¹⁰ Standing facility: a central bank facility available to counterparties at their own initiative (ECB, 2006).

¹¹ Foreign exchange swap: the simultaneous spot purchase/sale and forward sale/purchase of one currency against another (ECB, 2006).

on the existence of credit claims. Furthermore, there are provisions to ensure that the NCBs can swiftly realize the credit claims in the event of a counterparty default.

2.2 Key Changes since January 1, 2007

The single list of eligible collateral now serves as the basis for all Eurosystem credit operations (i.e. liquidity-providing monetary policy and intraday credit operations). In its press release of September 15, 2006, the ECB explained that it was replacing the two-tier collateral system that had been in place since the start of EMU by a single list for eligible collateral – with two distinct asset classes, marketable and nonmarketable assets – from January 1, 2007.¹² Marketable assets are basically securities traded on a capital market, whereas nonmarketable assets – e.g. banks' credit claims on their customers – have no comparable "market."

The Eurosystem adopted the original two-tier collateral framework to ensure a smooth transition to the euro. The eligible assets submitted as collateral by the NCBs' counterparties in the framework of monetary policy operations were divided into two tiers to accommodate differences in financial structures between Member States at the beginning of EMU. Tier one assets consisted of marketable assets that fulfilled euro-area wide eligibility criteria, while tier two assets comprised assets deemed of particular importance at the national level, for which specific eligibility criteria were established by the respective NCBs. Tier two assets were purely "national" securities that

could only be submitted as collateral for central bank credit operations to the NCB which had put the respective security on its list of eligible securities. Hence, tier two securities were not eligible throughout the Eurosystem. The OeNB had already accepted credit claims as collateral before the introduction of the single list, albeit at conditions that differ from those applicable under the new regime.

Tier two assets that do not qualify under the eligibility criteria for the single framework under the new guideline were phased out by May 31, 2007.

No distinction is made between marketable and nonmarketable assets with regard to the quality of the assets and their eligibility for the various types of Eurosystem monetary policy operations, except that nonmarketable assets are not used by the Eurosystem for outright transactions.

Since the beginning of 2007, all assets in the *single list* eligible for Eurosystem monetary policy operations may be used on a cross-border basis throughout the euro area. Before January 1, 2007, the cross-border use of bank loans was possible only in Germany, Ireland, Spain, France, the Netherlands and Austria, as only the NCBs of these countries had put them on their lists of tier two assets.

3 Credit Claims as Part of the Single List

In conducting a single monetary policy, in 2006 the ECB faced the difficult task of formulating a suitable framework for the national and cross-border use of credit claims applicable

¹² ECB press release of September 15, 2006, at http://www.ecb.eu/press/pr/date/2006/html/pr060915_1.en.html

to the entire euro area. For one thing, it had to meet the “adequate collateral” requirement of Article 18 of the Statute of the ESCB, and for another, it had to ensure that credit claims could be mobilized as collateral throughout the euro area. This is difficult with regard to bank loans, as full transfer of title (assignment)¹³ – in particular restricted transactions in rem such as assignments for security purposes or pledges – are governed by different laws in different euro area member states. Some legal systems require notification of the third-party debtor for valid mobilization, others have a public register for credit claims which have been pledged or assigned and are therefore handled differently. Moreover, not all euro area countries have a legal system that recognizes assignments for security purposes. The mobilization of bank loans on a cross-border basis might be subject to different jurisdictions in different countries, and hence to conflict-of-law regimes (reference standards). As a consequence, legal problems might have to be resolved according to laws other than that of the country of origin of the bank loan. For instance, the debtor of the bank loan to be transferred may be resident of one country, the creditor of another country; moreover, the loan agreement may have been drawn up in yet another country or the guarantor may be established in another euro area country. In view of this complex legal situation, a viable framework had to be established to limit the risk involved in these different jurisdictions as much as possible.

A particular disadvantage for the euro area-wide use of credit claims as

collateral is that there is no harmonized Community law of obligations and no Community civil law. For example, the cost of collateralization (e.g. assignment for security purposes or pledge) might rise if for every assignment or pledge a legal opinion on the collateralization procedure or on possible conflict-of-law situations has to be drawn up.

3.1 Criteria Governing the Mobilization of Bank Loans

Against this background, the ECB established the following eligibility criteria for nonmarketable assets in Section 6.2.2 of the Annex to Guideline ECB/2006/12 in order to establish a uniform euro area-wide legal framework for the use of such eligible assets, to the extent that this is possible. The OeNB has implemented these eligibility criteria in Article 21 of the Terms and Conditions Governing Monetary Policy Operations and Procedures; they are presented in table 1.

Let us take a closer look at the last item in table 1. Unlike the provisions applicable before January 1, 2007, under which the credit claim agreement had been governed by the law of the country of the correspondent central bank (section 3.3.1) and the third-party debtor also had to be established in the country of the correspondent central bank, the only condition applicable under the new regime is that no more than two jurisdictions apply to the transaction. This easing naturally increases the number of credit claims potentially eligible as collateral. Since January 1, 2007, counterparties have been allowed to submit bank loans under the jurisdic-

¹³ An assignment is the transfer of a receivable from one creditor to another without changing its content. The creditor changes, whereas the claim itself and the debtor do not.

Table 1

Eligibility Criteria for Nonmarketable Assets/Credit Claims

Type of asset:	Credit claim
Type of debtor/guarantor:	Public sector entities, nonfinancial corporations, international or supranational institutions
Place of establishment of the debtor/guarantor:	Euro area (exception: international or supranational organizations)
Currency:	Euro
Minimum size at the time of submission for use as collateral from January 1, 2007 to December 31, 2011: ¹	<ul style="list-style-type: none"> – Domestic use: NCBs determine minimum size (in Austria: minimum size threshold of EUR 50,000 at the time of first submission) – Cross-border use: EUR 500,000
Governing laws applicable to the credit claim agreement and its mobilization:	<p>The credit claim agreement and the agreement between the counterparty and the NCB mobilizing the credit claim as collateral ("mobilization agreement") must both be governed by the law of a Member State belonging to the euro area.</p> <p>The total number of different governing laws that are applicable to the counterparty, the creditor, the debtor, the guarantor (if relevant), the credit claim agreement and the mobilization agreement may not exceed two.</p>

Source: ECB.

¹ As from January 1, 2012, a common minimum threshold of EUR 500,000 will be applicable to all credit claims throughout the euro area.

tion of the country of the NCB conducting a credit operation, with *one* element of the transaction under the jurisdiction of another euro area country. As a case in point, an Austrian counterparty may submit a bank loan governed by Austrian law as collateral even though the third-party debtor or the guarantor is established in Italy. However, it is not possible that the counterparty (and thus the Home Central Bank – HCB) is established in country A, the credit claim agreement is governed by the law of country B and the third-party debtor (and thus the Correspondent Central Bank – CCB) is established in country C. The relevant asset is not eligible as collateral, as the jurisdictions of three countries are involved.

Whereas prior to January 1, 2007, third-party debtors were required to be enterprises and the remaining life of the Austrian credit claim submitted as collateral was not allowed to

exceed two years, this requirement was dropped in the OeNB's Terms and Conditions Governing Monetary Policy Operations and Procedures as amended from January 1, 2007, which is in line with the intention of Guideline ECB/2006/12.¹⁴ Credit claims that have become eligible under the new regime may have as their debtor a public sector entity (federal, regional or local government) or an international or supranational institution (such as the United Nations). This extension makes credit claims more attractive as collateral for central bank credit operations. However, the condition that eligible credit claims taken in by the OeNB must have a minimum residual maturity of ten days (Article 21(8) Terms and Conditions of the Oesterreichische Nationalbank Governing Monetary Policy Procedures) has remained unchanged.

¹⁴ Article 21(1) and (3) of the Terms and Conditions of the Oesterreichische Nationalbank Governing Monetary Policy Operations and Procedures as amended until January 1, 2007.

To ensure that marketable and nonmarketable assets comply with the same high credit standards, a Eurosystem credit assessment framework (ECAAF) has been set up, which relies on four different credit assessment sources:¹⁵ (1) NCBs' in-house credit assessment systems (ICASs), (2) external credit assessment institutions (ECAIs), (3) counterparties' internal ratings-based (IRB) systems, or (4) third-party providers' rating tools (RTs).

The OeNB offers an ICAS. Under Article 23(7) of the OeNB's Terms and Conditions Governing Monetary Policy Operations and Procedures, counterparties may select one system from among the available credit sources, which they must keep for a minimum period of one year (Article 23(7) lit. b). After this period, a

counterparty that wishes to change credit assessment sources must submit a reasoned request to the OeNB. Article 23(7) lit. f of the OeNB's Terms and Conditions Governing Monetary Policy Operations and Procedures defines the special provisions applicable to the assessment of a public sector debtors or guarantors.

3.2 Overview of the Legal Situation in the Case of Domestic Mobilization of Credit Claims

Although the administrative burden is higher for mobilizing a credit claim than for using securities as collateral for central bank credit, the described changes in the eligibility criteria have certainly contributed to the rise in the amount of bank loans submitted to the OeNB as collateral in exchange for central bank liquidity.

Box 1

Assignment for Security Purposes Defined

Koziol and Welser (2006) provide the following explanation of assignment for security purposes: A debtor may use claims against borrowers as the basis for obtaining credit himself by assigning such claims as collateral. Assignment for security purposes is tantamount to establishing a trust for own benefit.¹ The assignee acquires a claim on the debtor of the assigned claim (debtor cessus, third-party debtor) under the obligation that he collect the debt and satisfy his claim only if his assignor is in default.² As the objectives of assignments for security purposes are the same as those of pledges over loan claims, the disclosure provisions applicable to pledges (liens) apply to assignments for security purposes mutatis mutandis. These disclosure requirements include notification of the debtor cessus (third-party debtor) or book entry in the accounting records of the assignor. This allows third parties who check the accounting records to determine if and when there has been a subrogation. Assignments of which third-party debtors are not notified are referred to as undisclosed assignments. Their purpose is to preclude any doubts about the economic viability of the assignor.

¹ Trust is a fiduciary relationship in which rights are assigned to a trustee – a person (or institution) to whom legal title to property is entrusted to use for another's benefit – that the trustee exercises in his own name as agreed and as bound by his relationship to the trustor – an individual who establishes a trust by giving property to a trustee for the benefit of another. (Translated and paraphrased from Koziol and Welser, 2006, Vol. I, p. 218).

² However, in his relationships with third parties, the assignee has full rights to the entrusted property; these are not infringed if the assignor defaults on his debt. The assignee is entitled to assert the claim assigned to him for security purposes; within the bankruptcy proceedings, he may only assert preferential rights ("Absonderungsgläubiger"), though, pursuant to Article 10 paragraph 3 Bankruptcy Act. However, once he has reassigned his claim to the assignor for collection, he may assert rights of separation and recovery ("Aussonderungsrecht").

¹⁵ All permissible credit assessment sources are available on the ECB's website (www.ecb.eu/paym/coll/eliss/html/index.en.html).

Therefore, Article 22 of the OeNB's Terms and Conditions Governing Monetary Policy Operations obligates counterparties to identify claims assigned as collateral in their books. Moreover, the OeNB has the right to inform third-party debtors about collateral assignments at any time. Once the third-party debtor has gained knowledge of the assignment for security purposes, it may repay its bank loan, i.e. discharge its debt, only to the OeNB (the new creditor).

Article 30 of the OeNB's Terms and Conditions Governing Monetary Operations and Procedures provides for out-of-court realization of credit claims in the event of insolvency and in other cases in line with the unconditional preferential right of the OeNB under Article 77 of the Federal Act on the Oesterreichische Nationalbank.¹⁶ In the event of default¹⁷ (such as the insolvency of a counterparty), the OeNB has the right, without consulting the counterparty or involving the courts, to sell any or all of the assets assigned as collateral or pledged, or to buy the assets and to credit any amounts exceeding the loan receivables including penalty interest to the counterparty's settlement account. An out-of-court realization is more advantageous for the OeNB, as it requires no court proceedings that could incur high costs and the outcome of which may be uncertain. In the event of default, the OeNB has the right – but not the obligation – to immediately sell the credit claim assigned. It could also wait until the

third-party debtor has repaid the bank loan to the OeNB (the creditor).

3.3 Cross-Border Use of Credit Claims

3.3.1 Correspondent Central Banking Model

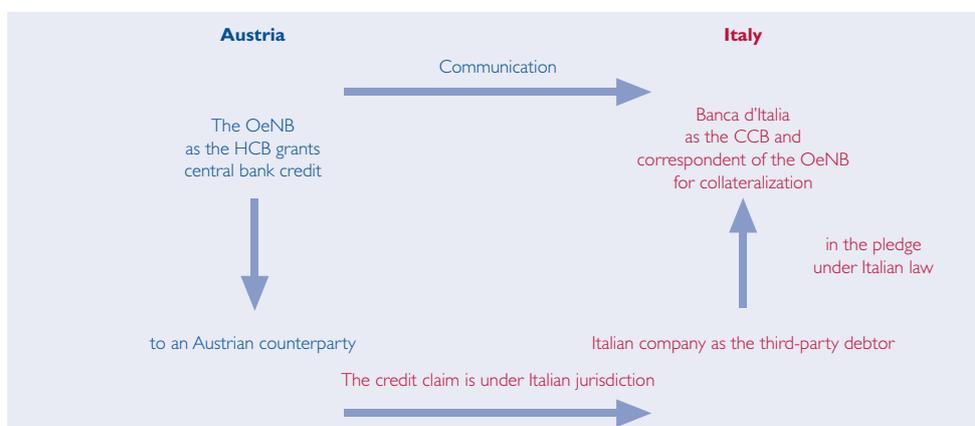
The Correspondent Central Banking Model (CCBM) has been in place since Stage Three of EMU, but has rarely been used for credit claims. The CCBM serves to transfer cross-border collateral in Eurosystem monetary policy and intraday credit operations. The use of the CCBM ensures that the principle enshrined in the Annex to Guideline ECB/2006/12 that all eligible collateral – including credit claims, which are comparatively complex in legal and administrative terms – may be used on a cross-border basis. However, the cross-border use of collateral does not entitle domestic counterparties to remote access to a foreign NCB. An Austrian counterparty can conduct monetary policy transactions with no NCB other than the OeNB; it may not transact directly e.g. with the Banca d'Italia just because it wishes to use a credit claim subject to Italian law as collateral.

Under the CCBM, NCBs act as custodians (“correspondents”) for each other in respect of assets accepted in their local depository or settlement system. An ESCB agreement governs the distribution of tasks between the refinancing NCB (home NCB – HCB) and the correspondent central bank (CCB), which acts as the

¹⁶ Article 77, Federal Act on the Oesterreichische Nationalbank: “The Bank shall have an unconditional preferential right to use any monies, bills of exchange or other valuables or stores of value in its possession in settlement of its own claims or as collateral for such claims.”

¹⁷ Article 52 of the OeNB's Terms and Conditions Governing Monetary Policy Operations lists the events of default.

The Correspondent Central Banking Model: An Example



Source: OeNB.

home central bank's local representative. The CCB is always the NCB of the country to whose jurisdiction the credit agreement is subject. The main task of the CCB is to settle collateralization transactions, which may take the form of an assignment, pledge or assignment for security purposes. It is assumed that the process of assignment (mobilization) of collateral is governed by the law of the CCB. The relevant provisions and procedures are detailed in Additional Terms and Conditions of NCBs applicable to their activity as CCBs. If the OeNB acts as a CCB, foreign counterparties must observe both the Terms and Conditions of their HCB and the Additional Terms and Conditions of the OeNB.¹⁸ Securities submitted by counterparties are taken in custody by the CCB on behalf and for the account of the HCB. The counterparties contact the CCB via the HCB as soon as the latter signals its agreement with the cross-border transac-

tion. Every euro area country has a different procedure for realization of collateral (in insolvency proceedings or otherwise). The rapid and simple realization of collateral as provided for by Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements is not applicable to credit claims, because no harmonization has taken place in this area yet (section 4).

Chart 1 shows an example of the cross-border use by an Austrian counterparty of a credit claim under Italian jurisdiction. The Austrian counterparty pledges this "Italian" credit claim to the Banca d'Italia, as the OeNB's correspondent, according to Italian law as collateral for central bank credit from the OeNB.

Table 2 provides an overview of the different legal instruments the NCBs offer as correspondent central banks for the collateralization of bank loans.

¹⁸ The Additional Terms and Conditions of the OeNB are available at the OeNB's website at www.oenb.at/de/img/ergaenzende_geschaeftsbestimmungen_tcm14-49980.pdf (in German).

Table 2

Overview of Euro Area Collateralization Instruments

National Central Banks	Collateralization Instruments Offered
National Bank van België/Banque Nationale de Belgique	pledge
Deutsche Bundesbank	assignment
Banco de España	pledge
Bank of Greece	pledge
Banque de France	assignment
Central Bank and Financial Services Authority of Ireland	floating charge
Banca d'Italia	pledge
Banque centrale du Luxembourg	pledge
De Nederlandsche Bank	pledge
OeNB	assignment for security purposes and pledge
Banco de Portugal	pledge
Suomen Pankki – Finlands Bank	pledge
Banka Slovenije	pledge and assignment

Source: ECB, OeNB.

The ECB Annual Report 2006 notes that the CCBM accounted for 39.7% of the total collateral provided to the Eurosystem in 2006. Assets held in custody through the CCBM increased from EUR 353 billion at the end of 2005 to EUR 414 billion at the end of 2006. As credit claims are hardly mobilized on a cross-border basis, as already indicated, these values refer primarily to marketable securities, but they also evidence the progress in euro area financial market integration and the growing importance of the CCBM.

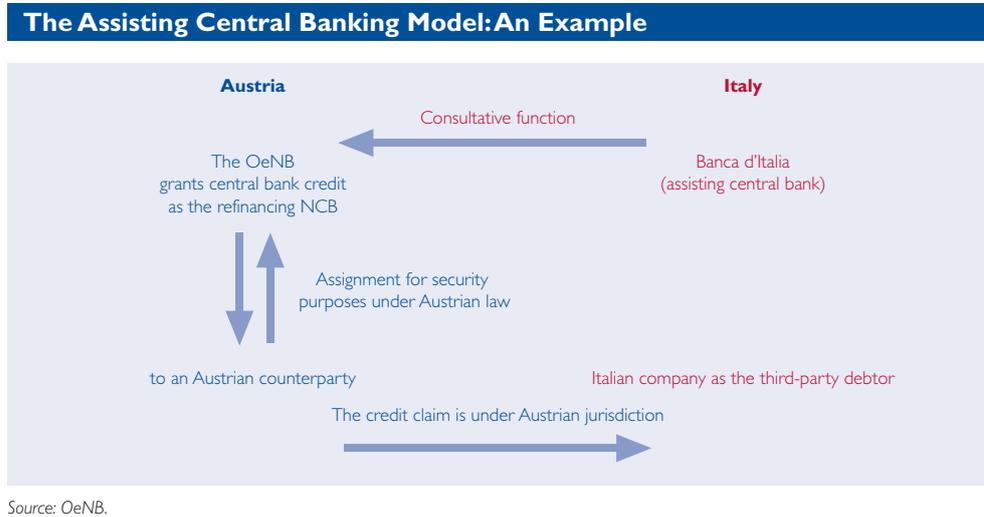
3.3.2 Assisting Central Bank Model

Since January 1, 2007, euro area counterparties have been able to use the Assisting Central Bank Model in addition to the CCBM; in this model, an NCB plays the role of an assisting central bank for the refinancing NCB. This model is used when a credit claim eligible as collateral is subject to the jurisdiction of the country in which the refinancing NCB is located

and the debtor or the guarantor of this claim is located in another country. In such a case, the NCB of the latter country assists the refinancing NCB as a contact or consultant and provides its support in the collateralization of the central bank credit. This could be especially important if the collateral is to be realized.

The following example shows the involvement of an assisting central bank: In a reverse transaction, an Austrian counterparty submits a credit claim for collateralization purposes to the OeNB. This credit claim is subject to Austrian law and is a claim on a company registered in Italy. The only cross-border link in this case is the Italian third-party debtor. In this example, the Banca d'Italia plays the assisting central bank role. As both the credit agreement and the collateralization procedure (e.g. assignment for security purposes) are governed by Austrian law, the probability that a conflict-of-law standard under international private law¹⁹ be-

¹⁹ International private law (IPR) pertains to conflict-of-law regimes; its provisions are conflict-of-law rules (= reference standards). The underlying notion is that a conflict arises as to which of the national legal systems involved in a cross-border case is in fact applicable. IPR solves this problem by determining the applicable legal system (Schwimann, 1999).



comes applicable is decidedly lower than in the case of the CCBM. Here, it is unlikely that legal issues arise that require a response under the Italian legal system. Hence, this model will be easier to apply in practice than the CCBM.

Chart 2 illustrates the example of the cross-border mobilization of a credit claim using the assisting central bank model. It should be added that in this case there is no link between the Banca d'Italia and the third-party debtor, an Italian company.

4 Summary and Outlook

As the EU has only a very restricted competence for the harmonization of private law issues, it began to issue directives on the settlement of transactions with financial instruments and their use as collateral for transactions only fairly recently. Directive 98/26/EC of the European Parliament and of the Council of 19 May 1998 on settlement finality in pay-

ment and securities settlement systems represented a first important harmonization step.²⁰ Pursuant to Article 9(1) of this directive, the rights of the NCBs and the ECB to collateral security provided to them are not affected by insolvency proceedings against the counterparty which submitted the collateral to the respective NCB. This provision entitles the NCBs to a preferential right to satisfaction in the event that the counterparty becomes insolvent.²¹

Once Directive 98/26/EC had been issued, the development to harmonize financial law issues gained momentum, leading to the adoption of Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements.²² The aim of this directive is to harmonize the financial collateral arrangements and to allow for rapid and unbureaucratic realization of specific financial instruments. The directive does not explicitly deal with the use of credit claims as eligi-

²⁰ OJ L 166 of 11 June 1998.

²¹ *Right of separation and recovery.*

²² OJ L 168 of 27 June 2002.

ble collateral, which is why the legal provisions governing collateralization and the enforcement of credit claims may differ from country to country.

As Ludwigs (2006) notes, the harmonization of obligations through EU Directives spans a steadily growing number of individual issues. Up to now, the Community legislature has pursued a selective approach by adopting directives on specific agreements²³ or marketing techniques,²⁴ in particular pertaining to consumer contract law, where the need for harmonization was determined to be especially pressing. The lack of an overarching concept integrating each of the Community harmonization measures has attracted criticism for some time now. In response, the European Parliament has called for greater harmonization of civil law. Because the principles of conferral and subsidiarity apply in the EU, no general solution for civil law issues as a whole could be found yet.

The provision on which the principle of conferral is based is to be found in Article 5 of the Treaty (establishing the European Community): “The Community shall act within the limits of the powers conferred upon it by this Treaty and of the objectives assigned to it therein.” Accordingly, the Community’s competence extends only to those areas explicitly conferred upon its bodies in the Treaty. As a matter of principle, this rules out activities by the

Community only the basis of the objectives and tasks of the Treaty alone. As the Community treaties do not provide for EU-wide harmonization of the law of obligations and of civil law, the European Commission cannot of its own accord undertake any large-scale harmonization.

With regard to credit claims, the European Commission proposes an extension of the scope of Directive 2002/47/EC of the European Parliament and of the Council of 6 June 2002 on financial collateral arrangements to include certain credit claims that have been eligible as collateral for Eurosystem credit operations from January 1, 2007.²⁵ Currently, this directive covers only cash collateral (i.e. holdings on accounts), but not banknotes or financial instruments such as stocks and equivalent securities. However, implementing the proposed amendment gives rise to numerous questions, as the creation of valid security (e.g. through assignment for security purposes) is subject to different provisions in different countries. It will not be simple to introduce a uniform procedure across the EU. Principally, the European Commission considers that the extension of the scope of Directive 2002/47/EC will increase the liquidity of EU financial markets and is therefore open to further developments in this direction. The introduction on January 1, 2007, of the single list for eligible collateral common to

²³ See Council Directive 90/314/EEC on package travel, package holidays and package tours (OJ L 158 of 23 June 1990), or Directive 1999/44/EC of the European Parliament and of the Council on certain aspects of the sale of consumer goods and associated guarantees (OJ L 171 of 7 July 1999).

²⁴ See Directive 85/577/EEC Council Directive 85/577/EEC to protect the consumer in respect of contracts negotiated away from business premises (OJ L 372 of 31 December 1985) or Directive 97/7/EC of the European Parliament and of the Council on the protection of consumers in respect of distance contracts (OJ L 144 of 4 June 1997).

²⁵ See <http://europa.eu/rapid>, reference IR/07/22, of 9 January 2007. The report of the European Commission is available at http://ec.europa.eu/internal_market/financial-markets/collateral/index_en.htm

all Eurosystem credit operations represented an important step toward this aim.

Since that date, euro area counterparties have been able to submit credit claims (bank loans) to the NCBs as collateral for central bank credit as long as the securities used meet the underlying eligibility criteria. By introducing the single list, the ECB has substantially extended the range of credit claims eligible as collateral for central bank credit. In the single list, for example, credit claims that have links to a second country – e.g. because the third-party debtor or the guarantor is established abroad –

may be deemed eligible. Since uniform conditions apply throughout the euro area, it is likely that both the national and the cross-border use of credit claims as collateral for central bank credit will increase. By introducing the single list, the ECB has contributed to raising the efficiency and strengthening the integration of euro area financial markets. It will be especially interesting to observe whether counterparties' tendency to restructure their collateral accounts to include more credit claims will grow and how much of a liquidity-enhancing effect the strategic optimization of their collateral will have.

References

- ECB. 1992.** Protocol on the Statute of the European System of Central Banks and of the European Central Bank (Statute of the ESCB). Official Journal.
- ECB. 2006.** The Implementation of Monetary Policy in the Euro Area: General Documentation on Eurosystem Monetary Policy Instruments and Procedures. Frankfurt/Main. September.
- ECB. 2006.** Guideline of the European Central Bank of 1 August 2006 amending Guideline ECB/2000/7 on Monetary Policy Instruments and Procedures of the Eurosystem (ECB/2006/12). Official Journal.
- ECB. 2007.** Annual Report 2006. Frankfurt/Main.
- Financial Market Authority (FMA) and OeNB. 2004.** Techniken der Kreditrisikominderung. Guidelines on Credit Risk. Vienna.
- Koziol, H. and R. Welser. 2006.** Grundriss des bürgerlichen Rechts. Band I und II. Vienna: Manz.
- Löber, K. 2006.** The Developing EU Legal Framework for Clearing and Settlement of Financial Instruments. In: Legal Working Paper Series 1. Frankfurt/Main: ECB.
- Ludwigs, M. 2006.** Europarecht. Heft 3. Harmonisierung des Schuldvertragsrechts in Europa – Zur Reichweite der gemeinschaftsrechtlichen Zuständigkeit für eine Europäisierung des Privatrechts. Bonn.
- OeNB. 2006.** Federal Act on the Oesterreichische Nationalbank 1984. May 17, 2006. Vienna.
- OeNB. 2007.** Additional Terms and Conditions of Oesterreichische Nationalbank (OeNB), when acting as Correspondent Central Bank (CCB). As at January 1, 2007. Vienna.
- OeNB. 2007.** Terms and Conditions of the Oesterreichische Nationalbank Governing Monetary Policy Operations and Procedures. January 1, 2007. Vienna.
- Smits, R. 1999.** Kommentar zum EU-/EG-Vertrag. Art. 102a–136a EG-V. In: Groeben-Thiesing-Ehlermann (ed.). Vol. 3. 5th edition. Baden-Baden: Nomos Verlagsgesellschaft.
- Schwimmann, M. 1999.** Internationales Privatrecht. Vienna: Manz.
- Thun-Hohenstein, C., F. Cede and G. Hafner. 2005.** Europarecht. 5th edition. Vienna: Manz.

Capturing the Link between M3 Growth and Inflation in the Euro Area – An Econometric Model to Produce Conditional Inflation Forecasts

In this paper, we capture the link between M3 growth and inflation with a vector error correction model. The analysis also includes the 10-year government bond yield, the three-month EURIBOR interest rate and GDP. The long-run link between M3 growth and inflation is observable in the raw data. Over the years 1980–2006, we find that M3 growth and inflation are cointegrated, which means that deviations from long-term average real money growth lead to mean-reverting adjustment processes to restore the average level of real money growth. The full effect of an unexpected monetary shock thus materializes over time in the level of inflation, after a transitory period during which GDP and interest rates have been affected as well. Out-of-sample yearly conditional inflation forecasts are produced from 2001 to 2006 which are compared to Eurosystem staff projections. Qualitatively, the monetary model predicts future inflation rates which are consistent with the ECB's assessment of future inflation prospects.

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JEL classification: C32, E31, E37, E58

Keywords: M3, monetary analysis, inflation forecasts.

1 Introduction

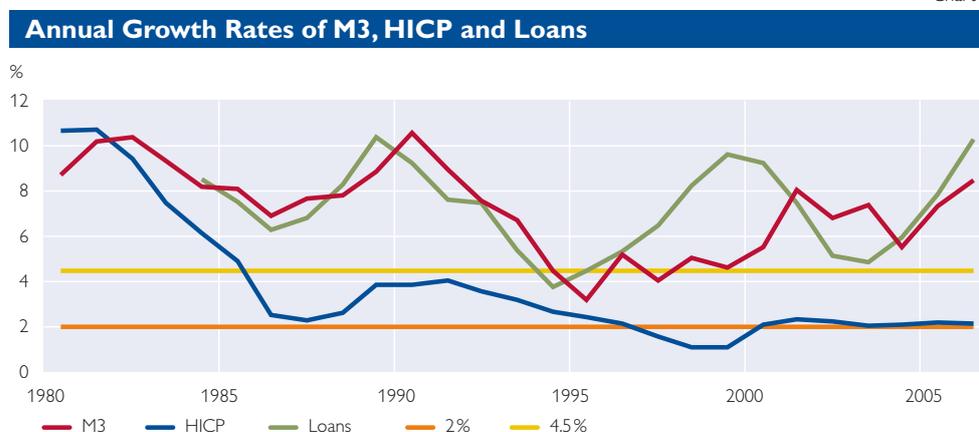
Over the past seven years, two questions have repeatedly been addressed in debates on the relevance of monetary analysis for the conduct of monetary policy in the euro area. The first question concerns the relationship between money growth and inflation. After the first four years of policy implementation in the euro area, the Governing Council, in May 2003, confirmed and clarified the two-pillar approach of the ECB's monetary policy strategy (ECB, 2004). The Governing Council stated that monetary analysis, which constitutes the second pillar of the approach, is relevant for assessing the medium- to long-term liquidity perspectives for the euro area, as it exploits the long-run link between money and prices. Although the reference value for M3 growth was never intended to be interpreted as a target rate, the fact that yearly M3 growth rates have exceeded this reference value (4.5%) since 1999 (chart 1) has

fueled the debate on the two-pillar approach. Unusually high growth rates between 7% and 8% were observed from 2001 to 2003. However, the ECB's internal assessment of underlying trend growth rates and corrections for estimates of non-resident holdings of marketable instruments issued by financial institutions and for temporary portfolio shifts did not indicate inflationary pressures for the medium- to long-term horizon (Fischer et al., 2007, p. 29). In 2005 and 2006, M3 growth surged again to 7% and 9%, respectively. In contrast to the previous period, however, considerable inflationary pressures built up this time, given that monetary expansion was accompanied by increasing loan growth rates (8% and 10%, respectively) and that economic recovery was gaining momentum (Fischer et al., 2007, p. 32).

The second question which has been repeatedly raised in recent years concerns the stability of the money demand function, which traditionally

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Chart 1



Source: Author's calculations.

has been regarded as a prerequisite for monetary analysis to be meaningful in the policy implementation process. The increase in M3 growth rates occurred unexpectedly, rising from a quarterly rate of 0.7% in the fourth quarter of 2000 to 4% in the first quarter of 2001. This shift in the level of M3 had the consequence that no stable relationship between nominal money, prices and income could be estimated anymore with time series extending beyond 2001. Excess liquidity measured by the difference between M3 and the usual determinants of money demand, which are income and opportunity costs, remains substantial and persistent since 2001. Carstensen (2006) and Greiber and Lemke (2005) explain excess liquidity with changes in liquidity preferences since 2001, which are due to increased uncertainty and decreased confidence of economic agents. Including measures of stock market returns and volatility, and indicators of overall uncertainty, these authors can

restore a stable money demand function. Including inflation beside the nominal interest rate as an additional opportunity cost of holding real balances, Dreger and Wolters (2006) also document that money demand is stable for observation samples extending beyond 2001.

In the present paper, we do not address this issue. If the rise in M3 growth is temporary, which means that it shifts the level of M3 once without affecting the trending rate, M3 growth will exceed the long-term average growth level once and then return back to its long-term average, which means that the inflation rate will not increase to a permanently higher level in the future. In this sense the discussion of the long-run relationship between money growth and inflation is independent from the issue of money demand stability.¹ For an analysis of the latter issue see Kaufmann and Kugler (2006).

Several studies have discussed the information content of money growth

¹ Note that occasional shifts in the money demand function do not invalidate the relationship between money and the price level. Moreover, as long as the frequency of shifts remains low and as long as shifts are detectable to be taken into account within a short period of time, monetary analysis yields relevant results that may complement the first pillar of the ECB's monetary policy strategy.

for inflation. Among others, the studies by Neumann and Greiber (2004), Bruggeman et al. (2005), Assenmacher-Wesche and Gerlach (2006) document the relevance of “trend” or core money growth for “trend” or core inflation by estimating the trend components with the Hodrick-Prescott filter (HP filter), with an exponentially weighted moving average filter or with a low-frequency band filter. Kugler and Kaufmann (2005) show that a stable relationship between nominal money growth and inflation is observable also in the raw data. Hofmann (2006) presents a comprehensive study which evaluates whether the inclusion of monetary variables (and also many other real variables) can improve naive or simple autoregressive forecasts of inflation. Generally, he finds that M3 growth and trend M3 growth can improve forecasts at a two-year horizon, whether they are computed directly or dynamically. Carstensen (2007) reaches the conclusion that various measures of core money growth contain valuable information for future inflation. The forecasting performance of single-indicator inflation models and of semi-structural models is improved when core money growth measures are included. The latter study also documents the stable forecasting performance of the semi-structural inflation models.

These results are not inconsistent with those derived from structural models, which traditionally assign no direct role to money. As Woodford (2006) shows, the results of the empirical literature are perfectly compatible with predictions derived by means of a standard New Keynesian dynamic stochastic general equilibrium model. The model can be complemented by a money demand func-

tion without affecting the main behavioral equations describing the dynamics of inflation and production and the monetary policy reaction function, irrespective of the parameterization of the money demand function and irrespective of whether money demand is stable or not. Woodford shows that, given the empirical fact that core money growth impacts on core inflation, core money growth may enter the Phillips curve as a proxy for core or “target” inflation in monetary policymaking. Beck and Wieland (2007) show that the inclusion of an assessment of monetary developments in the monetary policy reaction function may be useful. If measures of real unobservable variables like the output gap or the equilibrium real interest rate are subject to systematic errors, stabilization benefits may be obtained by taking into account developments in long-term money growth.

In the present paper, we use the same empirical model as Kugler and Kaufmann (2005) to estimate the relationship between money growth and inflation observable in the raw data. We also include the ten-year government bond yield, the three-month EURIBOR interest rate and GDP in the analysis to account for the effects on inflation coming from the real and the financial market side of the economy. Section 2 offers an economic interpretation of the empirical model that is used to analyze the relationship between the variables. After describing the data and analyzing their statistical properties, the model is estimated. The results yield evidence for a stable long-run relationship between money growth and inflation. Mean reverting dynamics drive money growth and inflation on a balanced growth path, which means

that real money growth in the long run equates real GDP growth and changes in the income velocity of money. Impulse response functions and the forecast error variance decomposition document the relevance of shocks in nominal money growth for inflation. A shock in nominal money growth leads to a permanent increase in inflation in the long run and explains more than 40% of the inflation forecast error variance after six years.

Section 3 uses the model to produce out-of-sample yearly conditional inflation forecasts for the period from 2001 to 2006 and compares them to Eurosystem staff projections published in the December issues of the ECB's Monthly Bulletin of the respective years. The forecasts at the end of 2001 and 2002 are qualitatively in line with Eurosystem staff projections. The model predicts no rising inflationary pressures at a two-years horizon despite a persistent level of inflation. By contrast, the forecasts made at the end of 2005 and 2006 suggest rising inflationary pressures stemming from the monetary side of the economy. These forecasts are in line with the qualitative assessment of two-year-ahead monetary developments provided by the ECB. Therefore, we conclude in section 4 that conditional inflation forecasts obtained from the vector error correction model provide one alternative of cross-checking inflation projections based on the economic assessment of Eurosystem staff.

2 An Econometric Model for Money Growth and Inflation

2.1 Economic Intuition

The starting point of money demand analysis is the relationship between real money balances ($m - p$, assum-

ing unitary price elasticity), real income (y) and a measure for the opportunity costs of holding money ($R - r$):

$$m - p = \beta_0 + \beta_y y - \beta_r (R - r) - v \quad (1)$$

where v represents the deviation from equilibrium. The spread between the long-term (R) and the short-term (r) interest rate is used here as a measure for opportunity costs. Alternatively, one could include "own M3 opportunity costs" using the spread between the return on assets not included in M3 and those included in M3 (as in Coenen and Vega, 2001) or using the inflation rate (as in Dreger and Wolters, 2006).

Expressed in terms of growth rates, the equation becomes

$$\Delta m - \Delta p = \beta_y \Delta y - \Delta v \quad (2)$$

which relates real money growth to real income growth. If we interpret the equation as a long-run or equilibrium relationship, a change in the inflation rate will not affect the spread, although it affects the level of nominal interest rates (Fisher effect). Therefore, we neglect changes in the spread. Under this assumption, the last term Δv obtains the interpretation of velocity change. The equilibrium relationship also implies that, as long as real money growth equates real income growth and velocity changes, no change in the inflation rate will be observed. A monetarist interpretation would be that a one-time increase in the nominal money growth rate would lead to an equal increase in the inflation rate in the long run, where real money growth would again equate real income growth and velocity changes. During the transition to higher growth levels, the effects on real in-

Table 1

Data Labels and Frequency		
r	Three-month EURIBOR FM.M.U2.EUR.4F.MM.EURIBOR3MD_ LST	monthly
R	Ten-year government bond yield FM.M.U2.EUR.4F.BB.U2_10Y.YLD	monthly
y	Real GDP (euro area fixed composition) ESA.Q.I2.S.0000.B1QG00.1000.TTTT.Q.U.A	quarterly, SA
m	M3 historical time series index (euro area-11 + GR until December 2000, euro area-12 from 2001 onward)	monthly, NSA
p	HICP overall index ICP.M.U2.N.000000.4.INX	monthly, NSA

Source: ECB statistical website and Area-Wide Model Data.
Note: SA: seasonally adjusted; NSA: not seasonally adjusted.

come, inflation, interest rates and velocity will ultimately depend on the transmission mechanism (see also Friedman, 1971, pp. 55–61). A reduced-form empirical estimation of the relationship between the variables would capture these effects by allowing general dynamics in the model.

2.2 Data and Statistical Properties

The relationship between money growth and inflation is investigated using quarterly data covering the years from 1980 to 2006. The data are taken from the ECB's statistics website and are combined with the data from the Area-Wide Model (AWM) for the euro area to obtain series dating back to 1980. The ten-year government bond yield (R) and the three-month EURIBOR interest rate (r) are simply linked. Real GDP (y) and HICP (p) are chained by growth rates. M3 (m) corresponds to the historical index series published by the ECB.² Table 1 contains data sources, frequency and seasonal adjustments. Quarterly data are obtained by calculating the average of

monthly data. Seasonal adjustment is performed in EViews using the Census X12-procedure.

A first look at the data reveals that over the sample period real money grew at an average quarterly rate of 0.87%, which equals an annual rate of nearly 3.6%. The fact that real GDP growth averaged at a quarterly rate of 0.52% (annual rate: 2%) implies that velocity decreased at 1.6% on average. In table 2 we investigate the unit root (augmented Dickey-Fuller – ADF) and the stationarity (Kwiatkowski-Phillips-Schmidt-Shin – KPSS) properties of the data. The null of a unit autoregressive root cannot be rejected for the level of both interest rates, M3 growth, inflation and GDP. The null of stationarity is rejected for all these variables. The statistics obtained with the first difference of the variables reject the unit root hypothesis and do not reject the null of stationarity. For real money growth the results indicate stationarity and for the spread they indicate marginal stationarity. Thus, nominal M3 growth (Δm) and inflation (Δp)

² We use the index series which from October 1997 onward is adjusted for reclassifications, revaluations and exchange rate variations.

Table 2

Unit Root and Stationarity Tests					
Series	Trend included	ADF ¹		KPSS ²	
		Statistic	p-value	Statistic	
R	no	-1.01	0.75	0.82**	
	yes	-2.55	0.31	0.29**	
ΔR	no	-5.84**	0.00	0.25	
r	no	-1.53	0.52	0.82**	
Δr	no	-7.00**	0.00	0.10	
Δm	no	-1.90	0.33	0.62*	
	yes	-1.73	0.73	0.21*	
$\Delta\Delta m$	no	-14.49**	0.00	0.12	
Δp	no	-2.29	0.18	0.85*	
	yes	-1.65	0.76	0.21*	
$\Delta\Delta p$	no	-3.74**	0.00	0.22	
y	no	0.16	0.97	1.44**	
	yes	-1.74	0.73	0.14	
Δy	no	-3.70**	0.01	0.31	
$\Delta m - \Delta p$	no	-3.07*	0.03	0.41	
R-r	no	-2.85	0.05	0.20	

Source: Author's calculations.

¹ Augmented Dickey-Fuller-test: The number of lags is selected according to the modified SIC criterion (Ng and Perron, 2002).

² Kwiatkowski-Phillips-Schmidt-Shin-test: Newey-West bandwidth selection (Kwiatkowski et al., 1992); ** and * denote significance at the 1% and the 5% level, respectively.

each follow a non-stationary process, while their linear combination, real money growth ($\Delta m - \Delta p$), follows a stationary process,³ i.e. Δm and Δp are cointegrated.

In this empirical setting, cointegration between nominal money growth and inflation is an important issue for monetary policy. Given non-stationary inflation, the best forecast for future inflation would be the current level of inflation with a forecast confidence interval which increases over time. Theoretically, inflation could reach any level in the future as all shocks permanently feed into the level of inflation. Non-stationarity without cointegration would thus imply that inflation (and ultimately the

price level) could not be controlled by monetary policy actors. The link to nominal money growth is therefore crucial. The assumption that policy actions which use interest rates as an instrument endogenously affect money holdings and money growth restores controllability. For given stationary velocity changes and real GDP growth, changes in nominal money growth will be reflected in inflation changes.

2.3 Vector Error Correction Model

Given the cointegration properties of the data, we proceed and analyze the dynamic relationships setting up a vector error correction model (VECM). In the vector

³ A nonstationary autoregressive process contains a unit root, which means that the best forecast of future growth rates (in the absence of a drift and of shocks) is today's growth rate. If uncertainty about future shocks is taken into account, the variance of the forecast increases with the forecast horizon. Econometrically, if Δx_t represents the growth rate of a variable, this may be expressed as $\Delta x_t = \Delta x_{t-1} + \varepsilon_t = \sum_{i=0}^t \varepsilon_{t-i}$ with $\varepsilon_t \sim N(0, \sigma^2)$. Assuming zero future shocks, the best univariate forecast is then $E(\Delta x_{t+h}) = \Delta x_t$ with variance $Var(\Delta x_{t+h}) = h\sigma^2$. Thus, the growth rate does not converge to a constant value, but may drift to any rate given that it equals the sum of all past shocks. A stationary process has an autoregressive root less than unity and returns to a constant value. If $\Delta x_t = c + \rho\Delta x_{t-1} + \varepsilon_t = \sum_{i=0}^{\infty} \rho^i(c + \varepsilon_{t-i})$ with $\rho < 1$, then with increasing horizon, the forecast will converge to a growth rate of $c / (1 - \rho)$ with a variance of $\sigma^2 / (1 - \rho^2)$.

$X_t = (R, r, \Delta m, \Delta p, y)$ we collect the long- and short-term interest rate, money growth, inflation and (loga-

$$\Delta X_t = C + A_1 \Delta X_{t-1} + \dots + A_p \Delta X_{t-p} + \alpha \beta X_{t-1} + \varepsilon_t \quad (3)$$

with $\varepsilon_t \sim iid N(0, \Sigma)$. The vector C captures drifts in the level variables; the matrices A_1, \dots, A_p capture the dynamics between the data. The cointegrating relationships detected in the data are contained in the vector

$$\beta = \begin{bmatrix} 1 & -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & -1 & 0 \end{bmatrix}.$$

Deviations from the long-run relationships ($\beta X_{t-1} \geq 0$) initiate adjustments in the variables to restore the long-run equilibrium. The adjustment coefficients are found in α . In this setup, nominal money growth obtains a role for future inflation dynamics, not only through past changes in nominal money growth by themselves, but also through adjustments to deviations from long-run average real money growth, i.e. nominal money growth relative to inflation.

System (3) is estimated by maximum likelihood (Johansen, 1995), which makes it possible to estimate all parameters simultaneously. Two lags ($p = 2$) of the variables suffice to remove autocorrelation in the residuals. We find evidence for two cointegration relationships, one including the term spread and the other real money growth. Table 3 shows the estimated cointegration relationships and table 4 the adjustment coefficients. The restrictions on the cointegrating vectors and the zero restrictions on the adjustment coefficients are jointly tested and not rejected. The χ^2 -statistic with 9 degrees of

rhythmic) real GDP. We then estimate the model in first differences:

freedom is 15.39 with a p-value of 0.08. Using this approach, we observe that real GDP enters the cointegration space with the spread. For the observation sample, this may reflect the relationship between expected investment returns and growth prospects affecting GDP level.⁴ The zero restrictions on the adjustment coefficients (table 4) are based on statistical insignificance. The remaining estimated coefficients have the right sign. Deviations from long-term real money growth lead to significant adjustments of nearly equal extent in both inflation and money growth. The lagged adjustment of inflation to excess real money growth may be explained by short-term price rigidities. Lagged adjustment in nominal money growth implies that nominal money growth is not weakly exogenous. This may on the one hand reflect policy reactions, such as a monetary policy tightening (or easing) if the real money growth rate exceeds (or falls short of) the long-term average. On the other hand, in a rational expectations model with fully flexible prices, expectations about future nominal money growth are already incorporated in today's inflation. Therefore, the impression may arise that money lags inflation. In the last line of table 4 we find the adjusted R^2 . The quoted figures are considerably high for the equations of the quarterly change in money growth and quarterly inflation acceleration. In these cases, the sys-

⁴ Given that the spread is marginally stationary according to the univariate unit root test, on statistical grounds it is also sensible that a non-stationary variable enters the cointegration space in the multivariate approach.

Table 3

Cointegrating Vectors						
	R	r	Δm	Δp	y	
β_1	1	-1	0	0	-0.03	(0.01)
β_2	0	0	1	-1	0	
X^2_9	15.39 (p-Wert: 0.08)					

Source: Author's calculations.
Note: Standard error of freely estimated parameters in brackets.

Table 4

Error Correction Coefficients					
Error term	Adjustment in				
	ΔR	Δr	$\Delta \Delta m$	$\Delta \Delta p$	Δy
$R - r - \beta_1 y$	-0.07 (0.04)	0.04 (0.05)	0 (-)	0 (-)	0.12 (0.05)
$\Delta m - \Delta p$	0 (-)	0 (-)	-0.19 (0.09)	0.14 (0.05)	0.18 (0.11)
adjusted R^2	0.29	0.3	0.25	0.38	0.19

Source: Author's calculations.
Note: Standard errors in brackets.

tem explains 25% and 38%, respectively, of the variation in the variables.

The estimated adjustment coefficients suggest that a substantial share of 15% to 20% of excess real money growth materializes in inflation changes and money growth within one quarter. To give an example: If real money growth unexpectedly increased by 1 percentage point, next to other dynamic adjustments, error correction in the following quarter would lead to an increase in inflation by 0.14 percentage point and to a decrease in money growth by 0.19 percentage point. Thus, real money growth in the following period would still exceed average growth by 0.67 percentage point. Conditional on the assumption that no further shocks occur, the rest of the adjustment pro-

cess to the new levels of nominal money growth and inflation also takes into account the dynamic relationship between the variables, which runs through the matrices A_1, A_2 . These dynamic adjustments are depicted in chart 2, which contains the impulse responses along with the 95 percentile interval.⁵

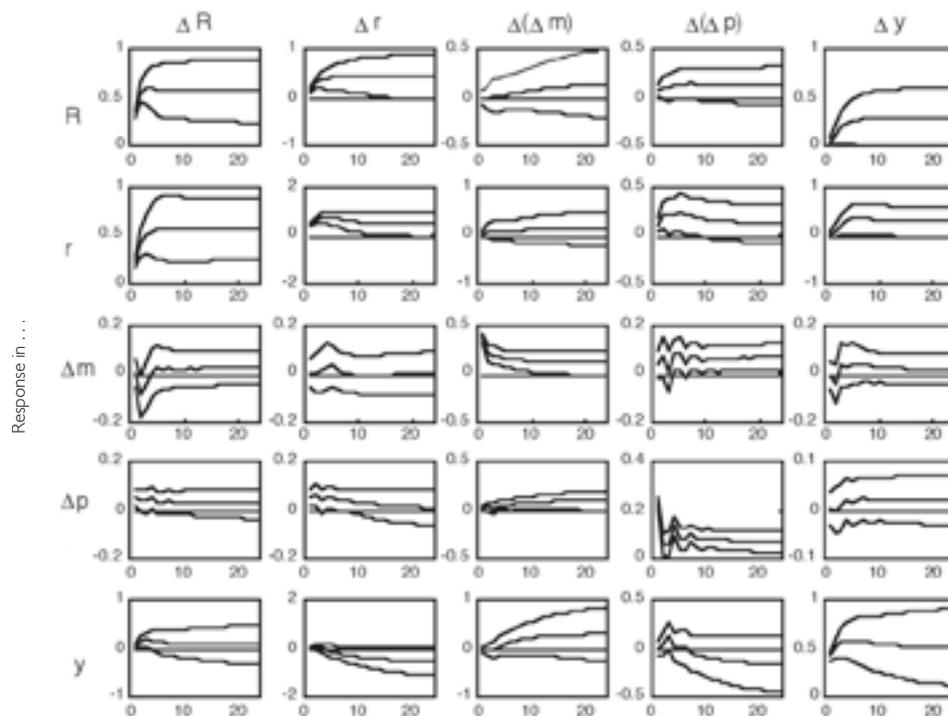
Table 5 presents test results for the model estimated respectively up to the end of 2001 to 2006 to assess the validity of the restrictions in the models used to produce conditional inflation forecasts in section 3. Based on the p-values in brackets, the trace test, which indicates at most two cointegrating vectors for the model estimated up to the end of 2006, does not reject cointegration for the other samples. Moreover, assuming two cointegration vectors for each sample

⁵ To build the interval, we draw 1,000 times from the joint coefficient and error covariance distribution, compute generalized impulse responses for each draw and take the 2.5th and the 97.5th percentiles of the responses at each point in time.

Chart 2

Generalized Impulse Response Functions

Shock to ...



Source: Author's calculations.

Note: Mean reaction with 95 percentile interval.

Table 5

Johansen Cointegration Trace Test: Stability of Test Results

Number of cointegrating vectors	Estimation Up To					
	Q4 01	Q4 02	Q4 03	Q4 04	Q4 05	Q4 06
0	78.69* (0.01)	71.47* (0.04)	73.87* (0.02)	79.02* (0.01)	82.77* (0.00)	80.33* (0.01)
≤ 1	43.79 (0.11)	45.37 (0.08)	47.55* (0.05)	50.93* (0.03)	54.06* (0.01)	50.82* (0.03)
≤ 2	25.56 (0.14)	26.08 (0.13)	27.34 (0.09)	29.97* (0.05)	32.85* (0.02)	29.50* (0.05)
χ^2_0	12.49 (0.19)	11.19 (0.26)	12.40 (0.19)	13.81 (0.13)	12.54 (0.18)	15.39 (0.08)

Source: Author's calculations.

Note: p-value in brackets; * denotes significance at the 5% level.

period, the joint restrictions on the cointegration space as in table 3 and the zero restrictions on the adjustment coefficients as in table 4 are not rejected. The χ^2 -statistics, except for the estimation sample ending in 2006, all have p-values well above 10%. Therefore, we will work with the restricted model in the following.

2.4 Impulse Responses and Variance Decomposition

To use the econometric model to produce conditional inflation forecasts, it is sensible to assess whether unexpected movements, so-called shocks, in the variables determine inflation dynamics and if so, which one are most influential. For forecasting, the relevance of variables does not de-

Table 6

Generalized Forecast Error Variance Decomposition

(a) Forecast error variance in Δm

Horizon	Attributable to				
	ΔR	Δr	$\Delta \Delta m$	$\Delta \Delta p$	Δy
1	0.05	0.01	0.89	0.05	0.02
4	0.06	0.03	0.82	0.08	0.04
8	0.06	0.04	0.80	0.11	0.05
12	0.06	0.04	0.78	0.13	0.05
16	0.06	0.05	0.77	0.14	0.05
20	0.07	0.05	0.75	0.16	0.05
24	0.07	0.05	0.74	0.18	0.05

(b) Forecast error variance in Δp

Horizon	Attributable to				
	ΔR	Δr	$\Delta \Delta m$	$\Delta \Delta p$	Δy
1	0.09	0.13	0.06	0.90	0.01
4	0.12	0.16	0.13	0.82	0.03
8	0.12	0.15	0.23	0.72	0.04
12	0.11	0.14	0.31	0.65	0.05
16	0.11	0.13	0.37	0.59	0.05
20	0.10	0.12	0.41	0.55	0.05
24	0.10	0.11	0.44	0.52	0.05

Source: Author's calculations.

pend on whether the driving forces originate from monetary policy actions or from economic developments, however. Therefore, we do not identify a model in which we could interpret the shocks structurally as monetary policy (supply) or demand shocks. Rather, we clean each shock, the impulse in each variable, from the contemporaneous influence from shocks in other variables. This means, for example, that a shock in money growth can then be interpreted as a shock in money growth, irrespective of whether it originates from a money supply or money demand shock. The advantage of this approach, based on a generalized decomposition of the error covariance matrix, is that the impulse responses and the variance decomposition are independent of the variable ordering (Pesaran and Shin, 1998).

The responses depicted in chart 2 are consistent with economic intuition; in general it takes about one

and a half years for each shock to fully materialize at the new long-term level of all variables. Our interest focuses on the relationship between inflation and money growth. A shock to money growth (chart 2, third column) leads to a significant permanent increase in inflation (fourth line). Temporarily, inflation also reacts positively to interest rate shocks, which is consistent with cost channel effects in monetary policy transmission (Ravenna and Walsh, 2006; Chowdhury et al., 2006; Kaufmann and Scharler, 2006). Money growth reacts positively to shocks in inflation, but only marginally significantly. We observe a transitory short-term negative reaction to shocks in the long-term interest rate, a reaction which is consistent with portfolio allocation considerations. Interest rates react positively to shocks in GDP and to shocks in the inflation rate. Finally, GDP has a hump-shaped reaction to shocks in the short-term interest rate and de-

creases permanently in the long-run. Though not significant, the reaction to shocks in money growth is positive, that to inflation shocks negative.

The importance of money growth for inflation developments is assessed with the forecast error variance decomposition, which is also based on a generalized decomposition of the error covariance matrix. Table 6 presents the decomposition for money growth and inflation at various time horizons.⁶ For nominal money growth, the major share of the forecast error variance at all horizons is explained by own shocks. This share decreases from 89% at the one-quarter-ahead horizon to 74% at the six-year-ahead horizon. The share of inflation shocks increases to approximately 20% as the time horizon increases. For inflation, we observe that, as in the case of nominal money growth, the share explained by own shocks is larger than the share explained by money growth shocks. Over time, up to the six-year-horizon, it decreases to 52%. Money growth shocks, however, explain an increasing share of the forecast error variance in inflation over time, amounting to 44% in the long run.

These results are consistent with those obtained from the frequency-filtered data in Assenmacher-Wesche and Gerlach (2006). The latter find that low-frequency components of money growth (core money growth) influence low-frequency components of inflation (core inflation). This is reflected here in the fact that money growth and inflation are cointegrated, i.e. that they contain the same stochastic, or long-term, component.

Permanent shocks which disequilibrate balanced growth between the variables lead to a first, partial error correction adjustment in the following period. The full adjustment to the new long-term growth level implied by the initial shock occurs gradually over time through the dynamics linking the variables of the system. Permanent shocks thus do not feed through immediately into inflation but fully materialize only over time. This pattern is confirmed in the forecast error variance decomposition.

3 Conditional Inflation Forecasts

We now use the model to produce out-of-sample conditional inflation forecasts up to a two-year horizon based on estimated samples for the period from 2001 to 2006. We compare the forecasts to published Eurosystem staff projections. Given the conditional nature of the forecasts and the projections, an evaluation of the forecasts with usual formal statistical criteria like the root mean squared error is not sensible. Therefore, we qualitatively compare the inflation forecasts with respect to their indication for future inflation prospects to evaluate the usefulness of the inflation forecast obtained by the VECM in cross-checking the inflation projections based on the Eurosystem staff economic assessment.

3.1 Forecast Setting

From June 2001 to June 2004, the ECB published semiannually inflation projections based on Eurosystem staff macroeconomic projections. Since June 2004, inflation projections have been published quarterly. In the pres-

⁶ We omit the variance decomposition of both interest rates and GDP to save space and because, for all variables, the main share of the forecast error variance is explained by own shocks.

ent study we concentrate on the projections published in the December issues of the ECB's Monthly Bulletin, which report a precise estimate of current-year inflation and the projections for the following two years based on information obtained up to mid-November. The ECB reports a projection range, the range being symmetric around the mean projected value. The size of the range corresponds to twice the average absolute differences between actual outcomes and past projected values (ECB, 2001). In the following, we compare inflation forecasts derived from the VECM presented in section 2

with the projections published in the Monthly Bulletin of the ECB. To create an information level similar to that reflected in the Eurosystem staff projections, we condition the forecasts on data up to the third quarter in each year. Of course, as we are using finally published data series, we still have an information advantage, in particular with respect to GDP. The comparison of projections using real-time data vintages is addressed in Kaufmann and Kugler (2007).

We make conditional dynamic inflation forecasts by keeping the short-term interest rate at its actual level over the forecast horizon h :

$$\Delta X_{T+h|T} = C + A_1 \Delta X_{T+h-1|T} + \dots + A_p \Delta X_{T+h-p|T} + \alpha \beta X_{T+h-1|T} + \varepsilon_{T+h}$$

For $T+h-j < T$, $j=1, \dots, p$, observed values are substituted for $\Delta X_{T+h-j|T}$, $\Delta X_{T+h-j|T} = \Delta X_{T+h-j}$; otherwise the forecasted values are inserted. The future level of the variables $X_{T+h-1|T}$ is obtained by cumulating the forecasted changes in the variables $X_{T+h-1|T} = X_{T+h-2|T} + \Delta X_{T+h-1|T}$. The short-term interest rate is kept constant over the entire forecasting horizon, i.e. the second element in $\Delta X_{T+h-j|T}$ equals zero in each period $T+h-j > T$. This is achieved by feeding in the shock combination ε_{T+h} necessary to obtain a projected zero change in the short-term interest rate, taking into account the dynamics A_1, \dots, A_p , the error adjustment α and the covariance structure Σ .

We produce out-of-sample forecasts, which means that we estimate the model up to the third quarter of each year, starting in 2001 up to 2006. Forecasts of yearly inflation Y are obtained by summing up the quarterly dynamic inflation forecasts of a specific year y (e.g. 2001):

$$Y_y = \sum_{t=T-2}^{T+H} X_{t|T} I_{t \in y}$$

where $I_{t \in y}$ is the indicator function, which means that it equals 1 if quarter t falls into year y and is zero otherwise. The summation begins in $T-2$ to take into account that we already have observed values for the current year's inflation rate. The forecast horizon extends to two years ahead, which means that $H=9$.

3.2 Comparing Results against Eurosystem Staff Projections

Table 7 contains the conditional forecasts. The first two lines reproduce the inflation projections published in the Monthly Bulletin. The mean of the projection range is added for expositional convenience. The next two lines present the conditional forecasts obtained from the VECM model. We observe that at the end of 2001 and of 2002, the VECM model forecasted persistent inflation in contrast to the Eurosystem staff projections for the

Table 7

Eurosystem Staff Projections and Conditional VECM Inflation Projections

Monthly Bulletin	Information available up to	Projection year							
		2001	2002	2003	2004	2005	2006	2007	2008
Dec. 01	15. 11. 2001	2.7 ¹ (2.6–2.8)	1.6 (1.1–2.1)	1.5 (0.9–2.1)					
	Q3 01	2.1 (2.0–2.3) ²	2.5 (2.0–3.0)	2.2 (1.5–3.0)					
Dec. 02	15. 11. 2002	2.5	2.2 (2.1–2.3)	1.8 (1.3–2.3)	1.6 (1.0–2.2)				
	Q3 02		2.2 (2.1–2.4)	2.1 (1.6–2.6)	2 (1.3–2.8)				
Dec. 03	15. 11. 2003		2.3	2.1 (2–2.2)	1.8 (1.3–2.3)	1.6 (1.0–2.2)			
	Q3 03			2 (1.8–2.1)	1.7 (1.1–2.2)	1.6 (0.9–2.4)			
Dec. 04	20. 11. 2004			2.1	2.2 (2.1–2.3)	2 (1.5–2.5)	1.6 (1.0–2.2)		
	Q3 04				2.1 (2.0–2.3)	2 (1.5–2.5)	1.9 (1.1–2.6)		
Dec. 05	21. 11. 2005				2.1	2.2 (2.1–2.3)	2.1 (1.6–2.6)	2 (1.4–2.6)	
	Q3 05					2.1 (2.0–2.3)	2.8 (2.3–3.3)	2.9 (2.2–3.7)	
Dec. 06	14. 11. 2006					2.2	2.2 (2.1–2.3)	2 (1.5–2.8)	2.2 (1.6–2.8)
	Q3 06						1.9 (1.8–2.1)	2.6 (2.1–3.1)	2.7 (1.9–3.4)

Source: Eurosystem staff macroeconomic projections for the euro area and author's calculations.

Note: For each year, the first two lines reproduce the mean projection and the projection range published by the ECB; the next two lines display the mean projection and the projection interquartile range of the VECM. The bold-faced values are the finally released inflation figures.

¹ The mean point of the ECB projection range is added for expositional convenience.

² The interval is the interquartile range of the projection distribution.

years 2002–2003 and 2003–2004. In both years the conditional inflation forecast remained at 2% or some decimal percentage points higher, while decreasing inflation rates were projected based on Eurosystem staff assessments. The VECM conditional inflation forecasts and Eurosystem staff projections are comparable both in level and direction at end-2003 and end-2004. Recently, at the end of 2005 and 2006, the VECM indicates stronger inflationary pressures at the two-year horizon than Eurosystem staff projections. Qualitatively, the conditional forecasts reflect the ECB's assessment of current monetary developments with respect to inflation

prospects. The ECB viewed increasing money growth rates driven by credit expansions and good economic prospects as indicating upside risks for future inflation.

For the year 2006, the finally released inflation rate is 2.2%. The VECM forecasted 1.9% based on data up to the third quarter of 2006. The discrepancy vis-à-vis the Eurosystem staff projections may be explained by the fact that the ECB's focus lies on yearly inflation measured as average year-on-year inflation. The conditional forecasts computed here, on the other hand, measure yearly inflation as the sum of quarterly inflation rates, i.e. the year's average inflation.

In years during which the inflation rate increases or decreases the two measures differ slightly.

Of course, the conditional forecasts of the VECM are based on a restricted information set and contain crude information on inflationary prospects stemming from the monetary side of the economy. The model does not include expectations about developments in other real or price variables like the unemployment rate, unit labor costs or producer prices, which may affect future inflation. Nevertheless, given the stable relationship between money growth and inflation over the past, conditional forecasts may provide an indicator that can be used in cross-checking the forecasts obtained from structural modeling. As Beck and Wieland (2007) show, the inclusion of information from monetary developments may improve inflation forecasts and policy reactions in situations where the uncertainty about real unobservable variables like the output gap and the real interest rate is high.

4 Conclusions

We use the empirical model presented in Kugler and Kaufmann (2005) to analyze quarterly data covering the period from 1980 to 2006. The model is estimated for data on nominal M3, HICP, the government bond yield, the three-month interest rate and real GDP. We then produce yearly out-of-sample conditional inflation forecasts for the period from 2001 to 2006 and compare them to Eurosystem staff projections published in the Monthly Bulletin of the ECB.

For the sample period, we find that nominal M3 growth and inflation are non-stationary but cointegrated. This means that real money

growth, which in the period under review averages 3.6% annually, is stationary. This also means that deviations from this long-term average lead to dynamic adjustments in inflation and money growth to restore the level of 3.6% in the long run. The full effect of an unexpected monetary shock thus materializes over time in the level of inflation, after a transitory period during which GDP and interest rates have been affected as well. The impulse responses show that a shock in nominal money growth affects inflation permanently and that the dynamic adjustment to the new long-term level takes about one and a half years. At the same time horizon, nominal money growth shocks explain about 30% of the inflation forecast error variance. The share increases to 44% at the six-year horizon. Shocks to inflation also have a permanent effect on nominal money growth, though marginally significant. Their share in explaining nominal money growth forecast error variance is low, amounting to 12% at the one-and-a-half-year and to 18% at the six-year horizon.

To obtain conditional inflation forecasts, we keep the short-term interest rate at the current level over the entire forecasting horizon. At the end of 2001 and 2002, the model does not forecast rising inflation rates, although the latter are predicted to remain at slightly above 2% over the forecasting period. At the end of 2005 and 2006, the model predicts inflation rates to rise above 2.5%, a value which exceeds that predicted by Eurosystem staff projections. Qualitatively, however, these results are consistent with the ECB's assessment of future inflation prospects. Monetary expansion driven by rising credit growth against the back-

ground of favorable economic prospects is viewed as a critical upside risk to inflation.

Of course, the inflation forecasts presented in this study are based on restricted information and do not use additional information contained in

real or price variables other than GDP and interest rates. They may prove useful in cross-checking inflation forecasts based on structural models, however, as they provide information on inflation prospects stemming from the monetary side of the economy.

References

- Assenmacher-Wesche, K. and S. Gerlach. 2006.** Understanding the Link Between Money Growth and Inflation in the Euro Area. CEPR Discussion Paper 5683.
- Beck, G. W. and V. Wieland. 2007.** Money in Monetary Policy Design under Uncertainty: The Two-Pillar Phillips Curve versus ECB-Style Cross-Checking. In: Journal of the European Economic Association 5. 524–533.
- Bruggeman, A., G. Camba-Méndez, B. Fischer and J. Sousa. 2005.** Structural Filters for Monetary Analysis. The Inflationary Movements of Money in the Euro Area. ECB Working Paper 470.
- Carstensen, K. 2006.** Stock Market Downswing and the Stability of European Monetary Union Money Demand. In: Journal of Business & Economic Statistics 25. 395–402.
- Carstensen, K. 2007.** Is Core Money Growth a Good and Stable Inflation Predictor in the Euro Area? Kiel Working Paper 1318.
- Chowdhury, I., M. Hoffmann and A. Schabert. 2006.** Inflation Dynamics and the Cost Channel of Monetary Transmission. In: European Economic Review 50. 995–1016.
- Coenen, G. and J.-L. Vega. 2001.** The Demand for M₃ in the Euro Area. In: Journal of Applied Econometrics 16. 727–748.
- Dreger, C. and J. Wolters. 2006.** Investigating M₃ Money Demand in the Euro Area – New Evidence Based on Standard Models. DIW Berlin Discussion Papers 561.
- Greiber, C. and W. Lemke. 2005.** Money Demand and Macroeconomic Uncertainty. Deutsche Bundesbank Discussion Paper Series 1(262).
- ECB. 2001.** A Guide to Eurosystem Staff Macroeconomic Projection Exercises.
- ECB. 2004.** The Monetary Policy of the ECB.
- Fischer, B., M. Lenza, H. Pill and L. Reichlin. 2007.** Money and Monetary Policy: The ECB Experience 1999–2006. ECB. Mimeo.
- Friedman, M. 1971.** A Theoretical Framework for Monetary Analysis. National Bureau of Economic Research Occasional Paper 112.
- Hofmann, B. 2006.** Do Monetary Indicators (still) Predict Euro Area Inflation? Deutsche Bundesbank Discussion Paper Series 1(18).
- Johansen, S. 1995.** Likelihood-based Inference in Cointegrated Vector Autoregressive Models. Oxford University Press.
- Kaufmann, S. and P. Kugler. 2006.** Expected Money Growth, Markov Trends and the Instability of Money Demand in the Euro Area. Working Paper 131. OeNB. September.
- Kaufmann, S. and J. Scharler 2006.** Financial Systems and the Cost Channel Transmission of Monetary Policy Shocks. Working Paper 116. OeNB. March.
- Kaufmann, S. and P. Kugler. 2007.** A Monetary Real-Time Forecast of Euro Area Inflation. OeNB. Work in progress.
- Kugler, P. and S. Kaufmann. 2005.** Does Money Matter for Inflation in the Euro Area? Working Paper 103. OeNB. September.

- Kwiatkowski, D., P. C. B. Phillips, P. Schmidt and Y. Shin. 1992.** Testing the Null Hypothesis of Stationarity against the Alternative of a Unit Root. In: *Journal of Econometrics* 54(1–3). 159–178.
- Neumann, M. J. M. and C. Greiber. 2004.** Inflation and Core Money Growth in the Euro Area. *Deutsche Bundesbank Discussion Paper Series* 1(36).
- Ng, S. and P. Perron. 2001.** Lag Length Selection and the Construction of Unit Root Tests with Good Size and Power. In: *Econometrica* 69. 1519–1554.
- Pesaran, H. H. and Y. Shin. 1998.** Generalized Impulse Response Analysis in Linear Multivariate Models. In: *Economics Letters* 58. 17–29.
- Ravenna, F. and C. E. Walsh. 2006.** Optimal Monetary Policy with the Cost Channel. In: *Journal of Monetary Economics* 53. 199–216.
- Woodford, M. 2006.** How Important is Money in the Conduct of Monetary Policy? Queen's University, Department of Economics, Working Paper 1104.

Bidding Behavior in Austrian Treasury Bond Auctions

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To issue Treasury securities by auctions is a common method in many countries all over the world. The auction mechanisms used vary across countries. As our understanding of bidder behavior in Treasury auctions is still rather limited it is not surprising that the question which auction mechanism should be chosen is still unresolved.

In this study, we analyze the bidding behavior in Austrian Treasury bond auctions, using a dataset which contains all bids submitted by each bidder as well as the results of 137 Austrian Treasury auctions from February 1991 to May 2006. Bidders in bond auctions have various means to react to changing market conditions: They may change the degree of bid shading, the quantity of Treasury bonds demanded and the dispersion of their bids. This paper aims to investigate how bidders adjust their strategies to varying uncertainty in the bond market, to different numbers of participating bidders and to changes in the volume of bond issues.

JEL classification: D44, G10

Keywords: treasury auctions, discriminatory price auctions, bid shading, intra-bidder dispersion.

1 Introduction

Based on a dataset provided by the Österreichische Bundesfinanzierungsagentur (ÖBFA) and the Oesterreichische Kontrollbank (OeKB), this paper analyzes the bidding behavior in Austrian Treasury bond auctions. The dataset contains all bids submitted by each bidder as well as the results in 137 Austrian Treasury auctions over the period from February 1991 to May 2006.

Compared to other auctions, Treasury auctions leave much more room for strategic maneuvers to bidders as these are allowed to submit multiple bids for multiple quantities of bonds as price/quantity pairs.

Starting with the highest bid, the OeKB ranks the submitted bids until the amount of bonds that is offered by the Treasury is met. Austrian Treasury auctions are discriminatory auctions, which means that winning bidders pay what they bid in contrast to uniform-price auctions, where all winning bidders pay the same price per unit of the auctioned good. For almost all auction formats, theory predicts that rational bidders place their bids below what they believe the good is worth, i.e. bidders shade their bids.⁴

In bond auctions, bidders have various means to react to changing market conditions: They may adjust

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⁴ In the context of bond auctions bid shading means that, given a certain price, bidders demand less than they would actually like to receive at the bid price. Hence, some authors prefer to call this phenomenon “demand reduction” instead of “bid shading” (Krishna, 2002).

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the degree of bid shading, the total amount of bonds demanded and the dispersion of their bids. The aim of this paper is to investigate how bidders adjust their strategies to varying uncertainty in the bond market, to varying numbers of participating bidders and to changes in the volume of bond issues.

There is a considerable amount of primarily empirical papers that investigate bond auctions in various countries: Cammack (1991) and Sundaresan (1994) discuss the U.S.A., Umlauf (1993) Mexico, Hamao and Jegadeesh (1998) deal with Japan, Gordy (1999) analyzes Portugal, Hortaçsu (2002) Turkey, Nyborg et al. (2002) discuss Sweden, and Keloharju et al. (2005) Finland. Given the focus of this study and the similarities between the various auction mechanisms, this paper closely relates to Nyborg et al. (2002) and Hortaçsu (2002).

The paper is organized as follows. The Austrian Treasury auctions are described in section 2. The relevant auction theory is discussed in section 3 with an emphasis on testable implications. Section 4 presents the estimation results and section 5 concludes.

2 Treasury Auctions in Austria

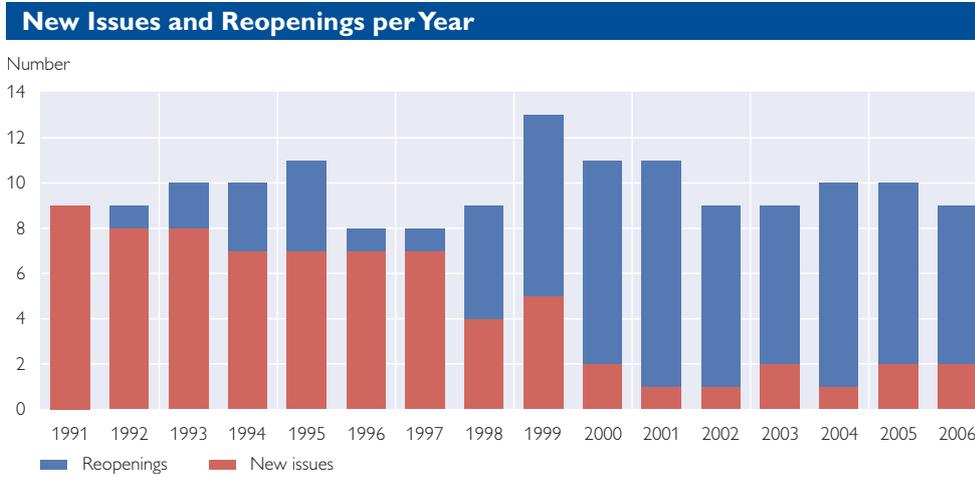
Since 1991 Austrian Treasury bonds have been sold through sealed, multiple-bid, discriminatory yield tenders or price auctions. Treasury auctions are organized by the OeKB on behalf of the ÖBFA. New bonds may be issued through yield tenders or through a syndicate of banks. In the recent past only the latter method was used.

Whereas new issues prevailed in the 1990s, Treasury policy now focuses on reopening existing instruments to enhance the liquidity in these bonds. New securities are issued only occasionally (one or two issues per year) to close gaps in traded maturities (chart 1). In 2001 the ÖBFA changed the method used to issue reopenings from yield tenders to price auctions. Participation in these auctions is managed by the ÖBFA. Banks that meet certain requirements in terms of capital, number of employees, number of branches, and trading volume in euro-denominated government bonds are eligible to apply for participation. They have to be approved by ÖBFA. From 1991 to 1996 there were between 12 to 15 bidders per auction. Owing to regulatory changes, this number increased to 20 to 25 bidders in the years to follow (chart 2). Currently there are 25 approved bidders who not only may, but must submit competitive bids in every Treasury auction.⁵

In Austria, Treasury auctions are held approximately every six weeks (except for August). The preliminary schedule for each year is advertised one year in advance at the end of each year. One week before each auction, the ÖBFA announces the characteristics of the bond to be auctioned, i.e. maturity, annual coupon dates and size in the case of new issues and, for reopenings, the bond to be reopened and the nominal value to be issued. Competitive bids must be submitted electronically between 10:00 a.m. and 11:00 a.m. on the auction day (which usually is a Tuesday). The issuer has the right to recall the auction until noon. This option has been ex-

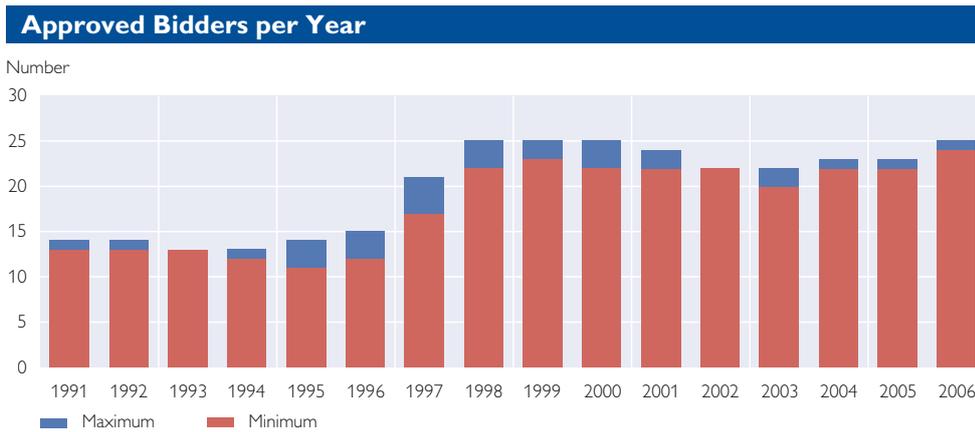
⁵ For a more detailed description of Austrian Treasury auctions see Oesterreichische Kontrollbank AG (2007).

Chart 1



Source: OeKB.

Chart 2



Source: OeKB.

exercised only once since 1998. The results of the auction are published immediately after the issuer approves the auction. This publicly available information is rather detailed and includes the aggregate quantity of bonds bid for, the highest bid, the lowest winning bid (stop-out price), the lowest bid, the quantity-weighted average bid and the quantity-weighted average winning bid. 15% of the competitive

volume of bonds is offered for non-competitive bids, which may be submitted until 11:00 a.m. on the next day. 10% of the issued volume is retained by the Treasury to be sold on the secondary market. Settlement takes place three days after the auction and is matched with settlement in the secondary market. New issues are listed at Wiener Börse AG three days after the relevant auction.⁶

⁶ Austrian bonds are traded on the secondary market. There is no when-issued market, however.

Tender example

Suppose the Treasury announces to reopen a bond by issuing another EUR 1,000 of face value. The features of the bond (coupon payments, time to maturity) are known. There are two bidders, A and B. As it is a reopening, the submitted bids consist of a quantity of bonds in terms of face value and a price per EUR 100 of face value at which the bidder is willing to buy this quantity. Bidder A submits the following bids: EUR 600 at a price of EUR 105, and EUR 500 at a price of EUR 80. B's bids are EUR 400 at a price of EUR 110, EUR 300 at EUR 105, and EUR 400 at EUR 100. The Treasury ranks the bids according to the price until supply equals demand. At a price of EUR 110 the aggregate demand equals EUR 400. At a price of EUR 105 the aggregate demand equals EUR 1,300 and exceeds the supply. The bids at the stop-out price of 105 are rationed proportionally. The amount bid for at EUR 105 is EUR 900 of face value, but only EUR 600 of face value are available. Hence, bidder A wins EUR 400 ($=600 \cdot (2/3)$) and B wins EUR 200 ($=300 \cdot (2/3)$) at a price of EUR 105, and EUR 400 at a price of EUR 110. In a discriminatory auction the bidders pay what they bid. A pays $400 \cdot 105 = \text{EUR } 42,000$ and B pays $400 \cdot 110 + 200 \cdot 105 = \text{EUR } 65,000$. If we assumed a uniform auction, winning bidders would have to pay the stop-out price. So A would pay EUR 42,000 and B EUR 63,000. Note, however, that bidders take into account whether it is a discriminatory or a uniform auction when they submit their bids. So they will bid differently in uniform auctions than in discriminatory auctions.

Now suppose the Treasury issues a new bond via a yield tender. In this case bidders submit bids consisting of a quantity of bonds demanded in terms of face value and a coupon rate, i.e. par yield. Assume the bond matures in two years and pays one coupon per year. The actual coupon rate will equal the quantity-weighted average winning yield. The Treasury sells EUR 1,000 of face value. Suppose bidder A submits the following bids: EUR 600 at a yield of 5% and EUR 400 at a yield of 10%. Bidder B's bids are EUR 400 at a yield of 4%, EUR 300 at a yield of 5%, and EUR 400 at a yield of 6%. Clearly, the Treasury prefers a lower par yield. So the bids are ranked ascending. The stop-out price is 5%. A wins EUR 400 at a yield of 5%, B wins EUR 400 at a yield of 4% and EUR 200 at a yield of 5%. The coupon rate of the bond issue equals the weighted average winning yield of 4.6%. This translates into a price of EUR 101.13 per EUR 100 of face value at a yield of 4% and EUR 99.26 at a yield of 5%. A has to pay EUR 39,702.49 ($=400 \cdot 99.26$) and B has to pay EUR 60,303.91 ($=400 \cdot 101.13 + 200 \cdot 99.26$).

Competitive bids consist of an integer multiple of EUR 100,000 of face value and – depending on whether the method used is a yield tender or a price auction – the yield or price at which the bidder is willing to buy the quantity of bonds in question. Bidders may submit multiple bids and usually do so. The average number of bids per bidder in Austrian Treasury auctions is 5 (median: 4) and the maximum number is as high as 27. The minimum demand for each

participating bank is equal to the total face value issued divided by the number of participants. This lower limit can always be met by submitting sufficiently low-price (high-yield) bids. If the total amount issued is above EUR 1 billion, bidders are not allowed to bid for more than 30% of the total amount issued. This limit seems to be binding as at least one bidder demands 30% of the issue in almost every auction in which the total amount issued is above EUR 1 bil-

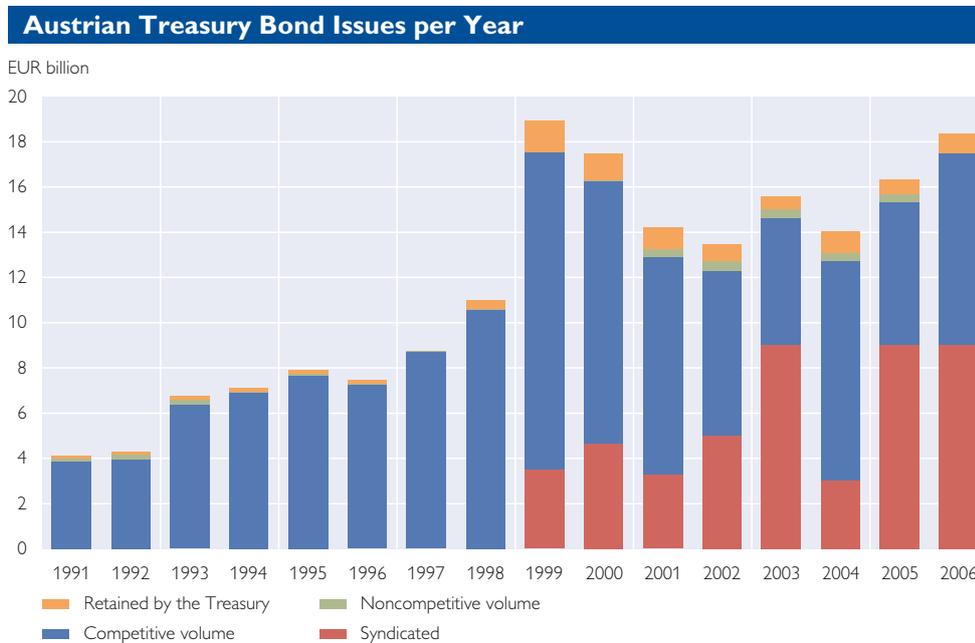
lion.⁷ In smaller auctions (below EUR 1 billion) the maximum demanded and, more importantly, the maximum awarded fraction of the issued bonds is in general above 30%. The submitted bids are ranked according to yield (ascending) or price (descending) until supply equals demand at the stop-out price. For each winning bid the bidder pays what he bid. Proportional rationing at the highest winning yield or the lowest winning price is possible.

Noncompetitive bids are quantity bids at a price that is equal to the quantity-weighted average of the winning competitive bids. The participating banks have the right, but not the obligation, to submit noncompetitive bids at every auction. The quantity of bonds that bidders might demand depends on the weighted aver-

age of the competitive awards of the two preceding auctions.

Chart 3 shows the volumes in terms of face value issued per year. Even though there are only a few new issues per year, they account for a significant fraction (approximately 50% in 2006) of the overall issued amount of bonds. The issued face values of the individual auctions and the ratio of quantity demanded to quantity supplied are displayed in chart 4. The issued amounts per auction proved quite stable up to 1997 and became rather volatile thereafter. The ratio of quantity demanded to quantity supplied decreases with the size of the auction. It hit its minimum of 1.22 in 2000 when the amount issued reached a historical maximum of EUR 2.5 billion. The maximum value was 6.5 when the amount issued was as low as

Chart 3



Source: OeKB.

⁷ Bidding for 30% of the issued amount does not necessarily imply that the bidder has such a high demand at a reasonable price as the entire demand could be at very low prices. In the present dataset we find that the total demanded quantity is not related to the "seriousness" of the bids. There is no connection between the demanded quantity and the ratio of awarded quantity to demanded quantity.

Chart 4



Source: OeKB.

EUR 0.4 billion. The average demand/supply ratio is 2.63, with a standard deviation of 0.89.

The total number of bids in our sample is 12,850, averaging 93.8 bids per auction. The average spread between the highest and the lowest bids for yield tenders (price auctions) is 23 basis points (58 cent per EUR 100 of face value) and the average spread between the highest bid and the stop-out price is 4.5 basis points (9.2 cent). The ratio between these two spreads lies between 10% and 40%, with a mean value of 20%. The fact that the stop-out price is much closer to the highest bid than to the lowest suggests that some bids are rather low to meet the above-mentioned minimum quantity requirement.

The approved bidders are heterogeneous in terms of total assets. We therefore expect and find that there is a lot of variation in the demanded quantities (similarly to Hortaçsu, 2002). The award concentration in Austrian Treasury bond auctions is high. The four bidders with the highest allotments in an auction purchase, on average, 65% of the issue (minimum 40%, maximum 100%). The

ten highest bids are on average awarded 22% of the total volume of bonds.

3 Theoretical Considerations and Empirical Specification of Bidder Behavior

Bidders in Treasury auctions submit price/quantity pairs. Other strategic instruments that are available to bidders are the number of submitted bids and the dispersion of their bids. How bidders use these instruments will depend on the value of the respective bond and on whether there is a resale market for this bond, on the number of bidders that participate in the auction and on the size of the auction. In this section, we outline the implications of auction theory on bidders' behavior and describe the related empirical models. We analyze bidders' behavior in the Austrian Treasury market by separately investigating bid shading, i.e. the difference between the value of the bond and the submitted bid in the auction, the quantities of bonds demanded by bidders and the intra-bidder dispersion of bids. For the definition of the variables and the regression equations used in our

analysis, we follow the approaches suggested by Nyborg et al. (2002) and Hortaçsu (2002).

If we consider auctions as strategic games, the players' bidding behavior is our main concern as it will determine the price that will be attained in the auction and thus the seller's expected revenue. There are various possibilities of viewing Treasury auctions as games. First, we may see them as appropriately summarized by a single-unit auction. In this case we ignore the fact that bidders submit entire demand schedules consisting of multiple price/quantity pairs instead of single bids. Despite this simplification, considerations based on theoretical auction literature will provide us with certain insights. The other possibilities are to view Treasury auctions as multi-unit auctions or as share auctions. The main difference between these two types is that the latter assumes that the units for sale are perfectly divisible.

The auction literature further distinguishes between independent private and common value auctions. The value of the unit for sale is thought to be of a private nature to the bidder if he knows the exact value the unit offered for sale has to him. If this is not the case or if there is the possibility of resale, a unit for sale is thought to have a common value.⁸ As there is a secondary market for bonds, Treasury auctions are usually considered as common value auctions. One exception is Hortaçsu (2002, 2006), who argues that the main aim of banks which participate in Turkish

Treasury auctions is to fulfill their reserve requirements.

The final determinants in an auction are the allocation of the units for sale and the payment mechanism. The allocation is always such that the highest bidder(s) obtain(s) the unit(s) for sale, whereas the payment mechanism differs depending on the type of auction. In sealed single-unit auctions, we distinguish between first-price and second-price auctions.⁹ The corresponding types in multi-unit or share auctions are discriminatory or uniform auctions.¹⁰ First-price and discriminatory auctions are characterized by a pay-as-bid principle. In first-price auctions, the winning bidder pays the amount he submitted as a bid and in discriminatory auctions the highest bidders pay the price they submitted as bids. In second-price auctions, the highest bidders only pay the bid of the second highest bidder, and in uniform-price auctions the highest bidders pay the highest losing bid. As a consequence, bidders adapt their strategic bidding behavior to the different payment mechanisms.

3.1 Theoretical Considerations for Treasury Auctions

We first lay out the strategic behavior of bidders in a single-unit first-price auction with independent private values. We then proceed to a single-unit first-price auction with a common value and finally, we discuss discriminatory multi-unit and share auctions.

Assume a single indivisible good is for sale to one of I risk-neutral bid-

⁸ For mixtures of these two extremes see Milgrom and Weber (1982).

⁹ Other single-unit auctions are the ascending (or English) auction and the descending (or Dutch) auction. See e.g. Krishna (2002).

¹⁰ Other types are the Vickrey auction and the Ausubel auction. See for example, Krishna (2002).

ders. Each of the bidders knows the private value he assigns to the relevant good, but he does not know anything about the values assigned by the other bidders. Let v_i be bidder i 's valuation of the good. These valuations v_i are modeled as independent draws from a continuous probability distribution. Bidders are assumed to behave competitively and not to collude. These assumptions allow us to treat auctions as a noncooperative game. A strategy for bidder i is a function mapping his valuation v_i into a bid $b_i \geq 0$. Bidder i wins the auction if his bid exceeds the bids of all other bidders. The price he has to pay is his bid. The decision problem bidder i faces is to choose, conditional on his valuation, a bid b_i that maximizes the expected value minus the price. It can be shown that the equilibrium strategy is a function of the bidder's own valuation, the number of participating bidders and the distribution of valuations, F .¹¹ The optimal bidding behavior is to shade one's own bid as a function of the number of participating bidders I . It can be shown that bid shading, i.e. the difference between the value bidder i assigns to the good and his bid, $\delta_i = v_i - b_i$, decreases with the number of bidders.

Let us now consider the common value model. The object to be sold has an unknown common value of v . Each of the I risk-neutral bidders receives a signal s_i with a mean of v and a standard deviation of η_s . These signals are modeled as independent draws from a continuous probability distribution. Based on these signals, bidders have different estimates of

the good's post-auction price. The winning bidder realizes that he is the bidder who made the highest estimate of the object's value. Winning the auction implies that he most likely overvalued the object's price. This phenomenon is called the winner's curse. Rational bidders optimally shade their bids to account not only for competition in the auction itself, but also for the winner's curse, where the variance η_s of the received signal determines the degree of bid shading. We expect that higher uncertainty, i.e. a larger η_s , leads to higher bid shading. If we now define bid shading as the difference of the common value v and bidder i 's bid, i.e. $\delta_i = v - b_i$, it is, via the submitted bid, a function of uncertainty η_s and the number of bidders I .

If there is more than one unit for sale and bidders additionally demand more than one unit, Ausubel (2004) demonstrates that in a common value model the winner's curse might be even more pronounced than in a single-unit auction.¹² The more units a bidder wins, the worse he is off. Ausubel refers to this phenomenon as the "champion's plague." Rational bidders adjust for champion's plague by reducing their demand for any given price. Thus, we expect higher uncertainty to be followed by more bid shading (δ_i), by higher intra-bidder dispersion (σ_i) and lower quantity demanded (y_i). Nyborg et al. (2002) further argue that when bidders are capacity-constrained, bid shading might also be a function of the auction size Q , i.e. the number of units for sale. They provide similar argu-

¹¹ See e.g. Milgrom and Weber (1982) or Krishna (2002).

¹² There is a difference between multi-unit auctions at which bidders demand one unit and multi-unit auctions at which bidders demand more than one unit. Milgrom and Weber (2000) describe the optimal bidding behavior for the first type of auctions.

mentation for intra-bidder dispersion and the quantity demanded by bidders.

Another model of a multi-unit auction is the share auction model described by Wilson (1979). In this model, there are Q units of a perfectly divisible good for sale. Risk-neutral bidders are assumed to submit downward sloping demand schedules, i.e. bid functions, and the market clearing price will be at the point where bidder i 's demand curve intersects his "residual supply curve," i.e. total supply minus the demand of all other bidders as a function of the price. Wilson (1979) assumes the common value model and shows that under specific distributional assumptions a seller might experience a reduction in revenue compared to a single-unit auction. Back and Zender (1993) demonstrate that, when bidders' marginal value v for the auctioned good is constant across bidders and when this value is perfectly known, all bidders pay the same price and make no profits. Wang and Zender (1998) additionally incorporate risk aversion and uncertainty about total supply and the value of the auctioned good into the bidding environment. Bidders, however, are still assumed to have no private information on the value of the auctioned good. Hortaçsu (2002) derives the predictions of the above model for bid shading, $\delta_i = v - b_i$. Bid shading increases as the uncertainty in the value of the good, η_v , increases and decreases with the number of bidders I . Hortaçsu (2002) further describes the predictions for a model where bidders have access to private information on the value of the auctioned good. He shows that bid shading, $\delta_i = v_i - b_i$, increases with the precision of bidders' valuations η_v and that, under certain conditions, it also

increases with the number of bidders, I . He further shows that the slope of the bid function is independent of the uncertainty η_v and decreases with the number of bidders I .

3.2 Empirical Implementation of the Models

Theoretical argumentation suggests that bid shading is a function of uncertainty, auction size and/or the number of bidders. The same is true for intra-bidder dispersion, the quantities demanded by bidders and bidders' profits. To test the theoretical predictions, we set up regression equations like Nyborg et al. (2002) or Hortaçsu (2002) and estimate various specifications with data from Austrian Treasury auctions. For the estimations we have to construct variables that measure bid shading, the intra-bidder dispersion of bids and uncertainty. We use different measures, thereby following Nyborg et al. (2002) and Hortaçsu (2002). The descriptive statistics of these measures are given in table 1.

Nyborg et al. (2002) measure bid shading using a bidder-specific discount and an average discount. The first measure is equal to

$$(1) \delta_{il}^{NRS} = p_l - p_{il}$$

where p_l is the post-auction price and p_{il} is the quantity-weighted average bid of bidder i in auction l , with $i=1, \dots, I_l$, and $l=1, \dots, L$. The second measure is the mean of (1) and is equal to

$$(2) \delta_l^{NRS} = E_i [\delta_{il}^{NRS}]$$

where E_i denotes the mean with respect to $i=1, \dots, I_l$. Nyborg et al. (2002) measure uncertainty, i.e. η^{NRS} , as the auction day volatility of bond returns using an ARCH(2) process. Their basic regression equation uses bid shading δ_{il}^{NRS} as the dependent variable, and uncertainty η^{NRS}_l and the

Table 1

Descriptive Statistics					
Variable	Number of observations	Mean	Standard deviation	Minimum	Maximum
NRS measure for bid shading $\delta^{NRS} \times 10^{-2}$	995	-0.04	0.43	-1.56	1.15
Hortaçsu measure for bid shading δ^H	754	-0.14	0.42	-1.80	0.83
NRS measure for uncertainty $\eta^{NRS} \times 10^{-6}$	1,848	0.98	0.79	0.18	4.08
Hortaçsu measure for uncertainty η^H	1,848	0.01	0.05	0.04	0.22
Auction size	1,848	0.93	0.33	0.30	1.60
Number of bidders	1,848	22.61	1.01	20.00	25.00
Dispersion of bids	922	0.05	0.05	0.00	0.65
Quantity demanded by bidders	995	0.12	0.01	0.02	0.70
Profits	519	-0.18	0.43	-1.62	0.64
Slope	754	-2.33	3.01	-23.79	-0.08

Source: Authors' calculations based on OeKB data.

Note: Table 1 presents the descriptive statistics of the variables used in the regression equations. The NRS (= Nyborg et al., 2002) measure for bid shading δ^{NRS} is the discount defined in equation (1). The Hortaçsu (2002) measure for bid shading δ^H is defined in equation (8). The NRS measure for uncertainty η^{NRS} is defined as the auction day volatility of bond returns using an ARCH(2) process. The Hortaçsu measure for uncertainty η^H is defined by the standard deviation of inventory requirements and by the dispersion of the intercepts of bidders' linearized demand schedules, i.e. $\eta^H = SD_i[\alpha_i]$, where SD_i is the standard deviation with respect to $i = 1, \dots, I$.

auction size Q_i as the independent variables:

(3) $\delta^{NRS}_{it} = \gamma_0 + \gamma_1 \eta^{NRS}_i + \gamma_2 Q_i + \omega_{it}$
 where ω_{it} is an error term. We expect a positive sign for γ_1 . A higher uncertainty should translate into higher bid shading. Nyborg et al. (2002) use auction size to control for the impact of the behavior of capacity-constrained bidders. The relative amount these bidders can demand is obviously smaller in larger auctions. A larger auction size might induce these bidders to bid more cautiously and thus to shade their bids more. If there are no capacity constraints, we expect no effect of the auction size on bid shading because both the price bidders submit in the auction as well as the post-auction price should decrease. We extend this specification to account for the effect of competition as follows

(4) $\delta^{NRS}_{it} = \gamma_0 + \gamma_1 \eta^{NRS}_i + \gamma_2 Q_i + \gamma_3 I_i + \omega_{it}$
 where I_i is the number of bidders and ω_{it} is an error term. In a private value setting, we would expect γ_3 to be negative. The larger the number of bidders, the lower the degree of bid shading. In a common value setting,

the effect of increased competition is ambiguous Hortaçsu (2002).

To assess the impact of uncertainty on the intra-bidder dispersion of bids, the quantity demanded by bidders and on the profits and measures for award concentration, Nyborg et al. (2002) define further dependent variables and estimate models analogous to (3). We do the same but use equation (4) instead. The intra-bidder dispersion of bids is defined as the quantity-weighted standard deviation of bidder i 's bids in auction l :

(5) $\sigma_{il} = SD_j [p_{ijl} q_{ijl} / q_{il}]$
 where p_{ijl} and q_{ijl} are the j^{th} bid of bidder i in auction l , $j = 1, \dots, J_{il}$, and J_{il} is the number of bids bidder i submits in auction l . q_{il} is equal to the total demand. SD_j denotes the standard deviation with respect to $j = 1, \dots, J_{il}$. Bidders react to an increase in uncertainty with more dispersed bids. Auction size is expected to have a positive impact on intra-bidder dispersion, and the number of bidders is expected to have a negative impact. The quantity demanded by bidder i in auction l as a fraction of auction size is equal to

$$(6) y_{il} = q_{il} / Q_l$$

where Q_l is the size of auction l . Bidders demand lower quantities when there is an increase in uncertainty (Nyborg, 2002). Auction size is expected to have a positive impact on the quantity demanded by bidders, and the number of bidders is expected to have a negative impact. A measure of revenue is the profit per unit sold, which we define as the post-auction price minus the quantity-weighted winning bid:

$$(7) \Pi_{il} = p_l - E_i [p_{w_{ijl}} q_{w_{ijl}} / q_{w_{il}}]$$

where the subscript w denotes winning prices and winning quantities, and where $q_{w_{il}}$ is equal to the total awarded demand of bidder i in auction l . Finally, we define bid-specific and bidder-specific award concentration as the fraction of awards captured by the five highest individual bids and by the five largest firms and denote them with BAC_l and FAC_l . We use each of these variables as a dependent variable in equation (4).

Hortaçsu (2002) tests theoretical predictions with different measures for bid shading and uncertainty. His definition of bid shading is based on the consideration that bidders' demand schedules can be described by a linear function. He defines bid shading as follows

$$(8) \delta_{il}^H = p_l - E_i [\alpha_{il}]$$

where $E_i [\alpha_{il}]$ is the mean of the intercepts α_{il} of the bidder-specific demand schedules in auction l . To obtain the intercepts α_{il} , we regress for each bidder i and each auction l the bid-specific price p_{ijl} on the bidder-specific aggregated quantity a_{ijl} :

$$(9) p_{ijl} = \alpha_{il} + \beta_{il} a_{ijl} + \varepsilon_{ijl}$$

where α_{il} and β_{il} are the bidder-specific coefficients to be estimated, ε_{ijl} is an error term and j denotes the bids bidder i submits in auction l with ($j = 1, \dots, J_{il}$). Hortaçsu (2002) mea-

sures uncertainty by the standard deviation of the bidders' reserve requirements and by the dispersion of the intercepts of bidders' linearized demand schedules, i.e. $\eta_{il}^H = SD_i [\alpha_{il}]$, where SD_i is the standard deviation with respect to $i = 1, \dots, I_l$. We assume that banks' reserve requirements are constant over time. Therefore, we use only the volatility of the intercepts as an uncertainty measure. To test the predictions of Wang and Zender (1998), Hortaçsu (2002) uses bid shading δ_{il}^H as the dependent variable and uncertainty η_{il}^H and the number of bidders I_l as the independent variables:

$$(10) \delta_{il}^H = \gamma_0 + \gamma_1 \eta_{il}^H + \gamma_2 I_l + v_{il}$$

where v_{il} is an error term. Wang and Zender (1998) expect bid shading to increase with uncertainty, i.e. ($\gamma_1 > 0$), and decrease with the number of bidders, i.e. ($\gamma_2 < 0$). We extend this specification to account for the effect of the auction size and also to make it comparable to (4) as follows:

$$(11) \delta_{il}^H = \gamma_0 + \gamma_1 \eta_{il}^H + \gamma_2 I_l + \gamma_3 Q_l + v_{il}$$

where v_{il} is an error term.

Hortaçsu (2002) further argues that the slopes of the bidder-specific demand schedules are a log-linear function of uncertainty and the number of bidders. To test these predictions, he uses the logarithm of the absolute value of the bidder-specific slopes as the dependent variable and a measure for uncertainty and the number of bidders as the independent variables:

$$(12) \log[|\beta_{il}|] = \gamma_0 + \gamma_1 \eta_{il}^H + \gamma_2 I_l + \mu_{il}$$

where μ_{il} is an error term. According to the predictions of Hortaçsu (2002), we expect γ_1 to be insignificant and γ_2 to be positive.

4 Estimation Results

This section presents the results obtained from the above estimations.

Tabelle 2

Estimation Results with Bidder-Specific Bid Shading as Dependent Variable

	(1)	(2)	(3)	(4)
Constant	0.0014 (3.03)**	-0.0190 (5.94)***	-0.1738 (0.84)	-0.3509 (1.69)
NRS measure for uncertainty	0.2638 (3.85)***	0.4012 (5.70)***		
Hortaçsu measure for uncertainty			0.7133 (3.36)***	0.3061 (1.34)
Auction size	-0.0026 (6.33)***	-0.0032 (7.82)***		-0.1362 (4.45)***
Number of bidders		0.0009 (6.44)***	0.0023 (0.25)	0.0175 (1.80)
Bidder-specific fixed effects	yes (2.30)***	yes (2.24)***	yes (2.28)***	yes (2.67)***
Number of observations	995	995	707	707
R-squared	0.0640	0.1027	0.0171	0.0453

Source: Authors' calculations based on OeKB data.
 Note: Table 2 presents the estimation results obtained with bidder-specific bid shading as the dependent variable. Column 1 presents the basic specification of NRS (= Nyborg et al., 2002) with uncertainty and auction size as the independent variables; column 2 extends the specification presented in column 1 by the number of bidders. Column 3 presents the basic specification of Hortaçsu (2002) with uncertainty and the number of bidders as the independent variables; column 4 extends the specification presented in column 3 by auction size. All specifications are estimated with bidder-specific fixed effects. Absolute values of t-statistics are shown in parentheses below the parameter estimates. For the bidder-specific fixed effects, the values of the F-statistics are shown.

We estimate equations (3), (4), (10) and (11) with ordinary least squares and, when appropriate, with bidder-specific fixed effects. We run additional regressions with intra-bidder dispersion, the quantities demanded by bidders and the profits and measures for award concentration as the dependent variable, respectively. Finally, we test the predictions for the slopes of the bidder-specific demand schedules. As reliable secondary market prices for the first part of our sample are lacking, we use a subsample of price auctions (44 auctions from February 2001 to May 2006) for our estimations.

Table 2 and table 3 present the estimation results for bid shading. Table 2 includes the estimation results when we use bidder-specific bid shading as the dependent variable. Each of the regressions in this table is estimated with bidder-specific fixed effects.¹³

We find that most of the coefficients have the expected sign and are significant. We also find that the bidder-specific fixed effects are significant. The explanatory power of the regressions is low. R-squared lies between 1.7 and 10.3% and is roughly in line with Nyborg et al. (2002).

As expected, uncertainty has a positive effect on bid shading. A 1% increase in price volatility results in an increase in the above defined discount measure by 0.26% of the face value (column 1). Auction size is included to control for capacity-constrained bidders. We obtain a negative estimated coefficient for auction size, which means that bidders shade their bids to a lesser extent when a larger quantity is offered. The economic effect of the auction size is small, however. A EUR 1 billion increase in auction size reduces the discount by 0.0026%. This result indi-

¹³ We do not report the results obtained from estimations without bidder-specific fixed effects as there are no differences to the results obtained when using specifications including bidder-specific fixed effects.

Table 3

Estimation Results with Average Bid Shading as Dependent Variable

	(1)	(2)	(3)	(4)
Constant	0.0014 (0.62)	-0.0204 (1.32)	-0.2531 (0.31)	-0.4680 (0.56)
NRS measure for uncertainty	0.2334 (0.71)	0.3822 (1.12)		
Hortaçsu measure for uncertainty			0.5290 (0.65)	0.0995 (0.11)
Auction size	-0.0025 (1.28)	-0.0032 (1.61)		-0.1439 (1.15)
Number of bidders		0.0010 (1.43)	0.0067 (0.18)	0.0238 (0.61)
Number of observations	44	44	41	41
R-squared	0.0585	0.1040	0.0127	0.0469

Source: Authors' calculations based on OeKB data.

Note: Table 3 presents the estimation results obtained with average bid shading as the dependent variable. Column 1 presents the basic specification of NRS (= Nyborg et al., 2002) with uncertainty and auction size as the independent variables; column 2 extends the specification presented in column 1 by the number of bidders. Column 3 presents the basic specification of Hortaçsu (2002) with uncertainty and the number of bidders as the independent variables; column 4 extends the specification presented in column 3 by auction size. Absolute values of t-statistics are shown in parentheses below the parameter estimates.

icates that the aggregate demand function is highly elastic.

When we add the number of bidders to the regression equation, the estimated coefficients of uncertainty and of auction size change only slightly and remain significant (table 2, column 2). The estimated coefficient of the number of bidders, however, does not have the expected sign. It is positive, i.e. the more bidders participate in an auction, the higher the bid shading will be. As previously argued, theoretical considerations predict the contrary.

The results obtained when using the definitions by Hortaçsu (2002) are poorer than those obtained when using the definitions by Nyborg et al. (2002). The estimated coefficients – presented in columns 3 and 4 (table 2) – show larger standard errors and a lower explained variance. Nevertheless, the estimated coefficients of uncertainty, auction size and the number of bidders are in line with the specifications presented in columns 1 and 2 (table 2). We observe positive coefficients for uncertainty and the

number of bidders and negative coefficients for auction size. Hortaçsu (2002) obtains similar results but also suggests adding a term for the interaction of the number of bidders and shortfall, i.e. the ratio of total supply to total demand, to the regression equation. If bidders have to meet reserve requirements, participation in an auction might depend on the shortfall. We test such a specification for our dataset and find no evidence for this claim.

Table 3 includes the estimation results obtained when we use average bid shading as the dependent variable. We estimate the same specifications as presented in table 2 and find the same results as before but as the number of observations is low, the significance of the estimated coefficients is poor. We also find that the explanatory power of our regressions is again rather low. We obtain R-squareds between 1.3% and 10.4%. As there are no qualitative differences between the estimated coefficients of the chosen specification and the specification in which we use bidder-specific bid

Table 4

Further Estimation Results					
Dependent variable	(1) Dispersion	(2) Quantities	(3) Profits	(4) Award concentration	(5) Slopes
Constant	-0.0691 (1.94)	0.0588 (1.01)	-2.1936 (4.84)***	0.1643 (0.77)	0.3255 (0.50)
Nyborg measure for uncertainty	2.4357 (3.11)**	-1.0037 (0.78)	41.3303 (4.17)***	13.9587 (2.95)**	
Hortaçsu measure for uncertainty					5.2474 (8.37)***
Auction size	-0.0070 (1.55)	0.0670 (9.03)***	-0.2361 (3.82)***	-0.0990 (3.55)***	
Number of bidders	0.0051 (3.23)**	0.0001 (0.04)	0.0950	0.0017 (0.18)***	-0.0262 (0.92)
Bidder-specific fixed effects	yes (5.39)***	yes (22.57)***	yes (0.98)	no	yes (25.88)***
Number of observations	922	995	519	44	754
R-squared	0.0187	0.0883	0.0765	0.3613	0.0886

Source: Authors' calculations based on OeKB data.

Note: Table 4 presents the estimation results obtained when using intra-bidder dispersion, the quantity demanded by bidders, profits and the logarithm of the absolute value of the slopes of the bidder-specific demand schedules as the dependent variables. Columns 1 to 3 present the extended specification introduced in NRS (= Nyborg et al., 2002) with uncertainty, auction size and the number of bidders as the dependent variables. Column 4 presents the specification of Hortaçsu (2002) with uncertainty and the number of bidders as the independent variables. Absolute values of t-statistics are shown in parentheses below the parameter estimates. For the bidder-specific fixed effects, the values of the F-statistics are shown.

shading as the dependent variable, we do not comment on these results any further.

Table 4 presents further estimation results using intra-bidder dispersion, the quantity demanded, profits, a measure for award concentration and the logarithm of the absolute value of the slopes of bidder-specific demand schedules as the dependent variable. As before, the explanatory power of these results lies within the range of 2% to 9%. Only the explanatory power of the regression for award concentration is rather high with an R-squared of 34%.

According to the theoretical predictions discussed in section 3, an increase in uncertainty goes along with an increase in the dispersion of bids (table 4, column 1). A larger auction size entails a lower dispersion, and a larger number of bidders leads to a broader dispersion. Although insignificant, an increase in uncertainty

implies an increase in the quantity demanded by bidders (table 4, column 2). Auction size and the number of bidders have a positive effect on the quantities demanded. The results we report in column 2 are obtained using absolute quantities demanded by bidders as the dependent variable. When we use the relative quantity demanded by bidders, we observe similar results – with the only difference that the coefficient of auction size is then negative. Hence, absolute demand increases less strongly than auction size, which means that relative demand decreases. Profits are positively influenced by uncertainty and the number of bidders and negatively influenced by auction size (table 4, column 3). These results reflect the results we obtain for bid shading (column 1 in table 2). Award concentration increases with uncertainty (table 4, column 4). This might indicate that bidders' strategic reactions

to uncertainty vary. When uncertainty is high, some bidders may bid more cautiously than other bidders. The bidders who do not react in such a pronounced manner are most likely larger banks. A second observation is that award concentration decreases with auction size. The number of bidders has no significant effect on award concentration. The results for the slopes of the bidder-specific demand schedules are displayed in column 5 (table 4). We obtain a positive and significant effect of uncertainty and no effect of the number of bidders in contrast to the predictions of Hortaçsu (2002) but in line with his estimation results.

5 Summary and Concluding Remarks

In this study, we analyze the bidding behavior in Austrian Treasury bond auctions, which are discriminatory auctions that are characterized by a pay-as-bid principle. The winning bidders pay the amount they submitted as bids. Auction theory predicts that rational bidders shade their bids and that the amount of bid shading varies with the uncertainty that exists in the bond market, the number of participating bidders and the volume of bond issues. Beyond bid shading, bidders in bond auctions have additional means to react to market conditions, such as adjusting the total quantity demanded and the dispersion of their bids. We investigate how bidders in Austrian Treasury auctions adjust their strategies to the varying uncertainty in the bond market, to the different number of participating bidders and to changes in the volume of bond issues. Our dataset contains all bids submitted by each bidder as well as the awards won in 137 Austrian Treasury auctions from Febru-

ary 1991 to May 2006. For technical reasons, we have to restrict the sample to the 44 price auctions from February 2001 to May 2006 in our estimations.

The estimation results are in line with those presented in Nyborg et al. (2002) and Hortaçsu (2002). We find that the main driving force behind bid shading, intra-bidder dispersion, profits, and award concentration is uncertainty in the bond market. Only the quantity demanded does not react to bond market uncertainties. The fact that award concentration increases with uncertainty, in particular, indicates that asymmetries across bidders play an important role analyzing the strategic behavior of bidders. A future research task would therefore be to consider asymmetric auction models. Other variables that we investigated in the present study are auction size and the number of bidders. The effects of these two variables are very often significant, but do not always carry the expected sign. Auction size has a negative effect on bid shading, on intra-bidder dispersion, on the relative quantity demanded by bidders and on profits and award concentration and a positive effect on the absolute quantity demanded by bidders. Unexpectedly, the number of bidders has a positive effect on all strategic variables available for bidders.

For our regressions, we use different measures for bid shading and uncertainty. The results obtained when using the definitions by Hortaçsu (2002) are similar but qualitatively poorer than those obtained when using the definitions by Nyborg et al. (2002). A possible reason for this phenomenon might be that some of the assumptions put forward in Hortaçsu (2002) may not be applica-

ble to Austrian Treasury auctions. We are therefore inclined to interpret the better results we obtain for the chosen specifications – in line with Nyborg et al. (2002) – as evidence for winner’s curse and champion’s plague, respectively.

The explanatory power of the proposed regressions is low, but this is again in line with Nyborg et al. (2002) and Hortaçsu (2002). Overall, our results indicate that the com-

mon value aspect seems to be prevalent in Austrian Treasury auctions and that asymmetries across bidders should not be neglected when analyzing Treasury auctions. To further decompose bid shading into an effect caused by uncertainties in the bond market and an effect that depends on the respective auction mechanism, a structural bidding model would have to be estimated, which remains a task for future research.

References

- Ausubel, L. M. 2004.** An Efficient Ascending-bid Auction for Multiple Objects. In: *American Economic Review* 94(5), 1452–1475.
- Back, K. and J. F. Zender. 1993.** Auctions of Divisible Goods: On the Rationale for the Treasury Experiment. In: *Review of Financial Studies* 6, 733–764.
- Bjornes, G. 2001.** Winner’s Curse in Discriminatory Price Auctions: Evidence from the Norwegian Treasury Bill Auctions. SIFR Research Report Series 3, Swedish Institute for Financial Research.
- Cammack, E. B. 1991.** Evidence on Bidding Strategies and the Information in Treasury Bill Auctions. In: *The Journal of Political Economy* 99(1), 100–130.
- Gordy, M. B. 1999.** Hedging Winner’s Curse with Multiple Bids: Evidence from the Portuguese Treasury Bill. In: *The Review of Economics and Statistics*, 81(3), 448–465.
- Hamao, Y. and N. Jegadeesh. 1998.** An Analysis of Bidding in the Japanese Government Bond Auctions. In: *The Journal of Finance* 53(2), 755–772.
- Hortaçsu, A. 2002.** Bidding Behavior in Divisible Good Auctions: Theory and Evidence from the Turkish Treasury Auction Market. Mimeo.
- Hortaçsu, A. 2006.** Mechanism Choice and Strategic Bidding in Divisible Good Auctions: An Empirical Analysis of the Turkish Treasury Auction Market. Mimeo.
- Keloharju, M., K. Nyborg, and K. Rydqvist. 2005.** Strategic Behaviour and Underpricing in Uniform Price Auctions: Evidence from Finnish Treasury Auctions. In: *The Journal of Finance* 60(4), 1865–1902.
- Krishna, V. 2002.** *Auction Theory*. Academic Press, San Diego.
- Milgrom, P. R. and R. J. Weber. 1982.** A Theory of Auctions and Competitive Bidding II. In: *Econometrica* 50, 1089–1122.
- Milgrom, P. R. and R. J. Weber. 2000.** A Theory of Auctions and Competitive Bidding II. In: Paul Klemperer (ed.): *The Economic Theory of Auctions*, Edward Elgar, 179–194.
- Nyborg, K. G., K. Rydqvist and S. M. Sundaresan. 2002.** Bidder Behavior in Multiunit Auctions: Evidence from Swedish Treasury Auctions. In: *Journal of Political Economy* 110(2), 394–424.
- Oesterreichische Kontrollbank AG. 2007.** Das Auktionsverfahren für österreichische Bundesanleihen.
- Sundaresan, S. 1994.** An Empirical Analysis of U.S. Treasury Auctions: Implications for Auction and Term Structure Theories. In: *Journal of Fixed Income*, 35–50.

- Umlauf, S. R. 1993.** An Empirical Study of the Mexican Treasury Bill Auction. In: Journal of Financial Economics 33(3). 313–340.
- Wang, J. D. and J. F. Zender. 1998.** Auctioning Divisible Goods. Manuscript, University of Utah.
- Wilson, R. 1979.** Auctions of Shares. In: Quarterly Journal of Economics 94. 675–689.

60 Years of Marshall Plan Aid – A Critical Appraisal from an Austrian Perspective

Josef Haas¹

Marking the 60th anniversary of the Marshall Plan Speech, which was delivered on June 5, 1947, this paper looks back on the evolution of one of the most important and probably most successful economic programs of recent history – the European Recovery Program (ERP).

The famous speech George C. Marshall², then U.S. Secretary of State, gave in front of Harvard faculty members and students 60 years ago, outlined his concept of a comprehensive economic program designed to aid the reconstruction of post-war Europe, which was stricken with hunger, poverty and desperation.

This marked the beginning of a momentous economic assistance program under which 16 European states and the Free Territory of Trieste benefited from economic aid in the amount of roughly USD 17 billion between 1948 and 1953. Of this amount, about USD 1.1 billion went to Austria, either in the form of goods or grants, whereas most other Western European countries received U.S. aid in the form of loans. The reason Austria was treated as a special case was primarily its geographically exposed location between East and West.

JEL classification: F35.

Keywords: Marshall Plan, reconstruction of post-war Europe, U.S. aid.

1 Introduction

June 5, 2007, marked the 60th anniversary of the Marshall Plan – an occasion on which politicians, diplomats and the business community commemorated George C. Marshall's life-time achievement.

The aid Austria received under the Marshall Plan was designated to be channeled into a capital cycle by granting investment loans to businesses rather than to produce quick fixes. This is why Austrian businesses today still benefit from the U.S. capital originally donated under the Marshall Plan, i.e. in the form of subsidized ERP loans.

In the following we discuss the implementation of the Marshall Plan, the consequent transfer of ERP funds to Austria and the allocation of ERP funds in line with ERP annual pro-

grams and defined allocation policies. We also explore the historic and current role of the Oesterreichische Nationalbank (OeNB) in the management of ERP funds. Section 4 contains a critical appraisal of the Marshall Plan aid, primarily from an Austrian perspective, while section 5 discusses its economic implications for Austria based on existing literature. Section 6 concludes.

2 Historical Background

2.1 Role of the United States

From the very beginning, the European Recovery Program (ERP) was more than just an initiative to revive the European economy. It was also motivated by the intention to create the conditions for lasting peace and, not least, to politically prevent the Soviet Union from gaining an even

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² George Catlett Marshall (1880–1959), U.S. Secretary of State from 1947 to 1949.

stronger influence in Europe. The broader objective was to lay the foundation for transatlantic cooperation, understanding and mutual respect, and to create an environment in which the United States and Europe could forge a partnership based on common economic and democratic values. At the same time, the ERP would enable the United States to gain a market platform in Europe. Many U.S. products first entered and established themselves on the European markets thanks to the Marshall Plan, as is illustrated by chart 1, which documents how the U.S. share in Austrian imports developed over time.

The official starting point for the ERP came in 1948, when the U.S. Congress passed the legislation which was to form the basis for the greatest economic assistance program in history.

Chart 1

**Development of the U.S. Share
in Austrian Imports**



Source: Butschek, 1985.

2.2 Europe's Position

The European governments reacted to the Marshall Plan Speech with great interest. As early as June 17 to 19, 1947, the first talks between British and French government officials about the proposed plan took

place in Paris. From June 27 to July 2, 1947, a conference of the foreign ministers of the United Kingdom, France and the Soviet Union was convened in Paris to discuss Marshall's concept. However, the Soviet Union refused to participate further in the ERP and, as a consequence, the Central and Eastern European countries under Soviet influence also withdrew.

On July 3, 1947 – only four weeks after Marshall had offered U.S. aid – 16 European countries, among them Austria, accepted the invitation to the planned Paris Economic Conference and founded the Committee of European Economic Cooperation (CEEC), which was to be presided over by the United Kingdom. The CEEC negotiated the economic assistance to be granted under the ERP with the United States. Initially this support took the form of interim aid and assistance provided by the Allied Forces, before the Marshall Plan was officially launched in July 1948.

**3 Marshall Plan Funding
for Europe and Austria**

After several downward revisions, the CEEC stated that economic aid in the amount of roughly USD 22 billion would be necessary for Europe's economic recovery. Based on the findings of three committees (the Nouse, Krug and Harriman Committees), the United States put the required amount at a maximum of USD 17 billion (of direct and indirect aid). However, there was no legal basis for this economic aid until the U.S. Congress had passed the Economic Cooperation Act of 1948 on April 2, 1948, and President Truman had signed it the following day. Until then, those countries which, in the U.S. view, were particularly strongly

affected by economic hardship (Austria, France and Italy) received the previously mentioned interim aid. Also other countries, like Canada and the United Kingdom, contributed to this interim aid and the assistance provided by the Allied Forces.

On April 6, 1948, President Truman appointed Paul G. Hoffman, president of the U.S. automaker Studebaker, as head of the newly established Economic Cooperation Administration (ECA) in Washington. The ECA was responsible for allocating economic goods (indirect aid) among the various European states and for determining in which cases U.S. direct aid should take the form of loans/bonds (repayable) and in which cases it was to be donated outright. On April 3, 1948, ERP funds started to flow into 17 European countries.³ The implementation of the Marshall Plan also led to the foundation of the Paris-based OEEC,⁴ which, on October 16, 1948, devised the first ERP annual plan for the period from July 1, 1948, to June 30, 1949 (effective retroactively). In the wake of these ERP-related developments, the OEEC Council, on the same day, signed an inter-European payment and compensation agreement, which represented a milestone for further financial cooperation in Europe.

3.1 Implementation of the Marshall Plan in Austria

Next to the Paris agreement, a bilateral legal agreement between the United States and Austria concluded on July 2, 1948 (Federal Law Gazette No. 206 of July 20, 1962), still forms

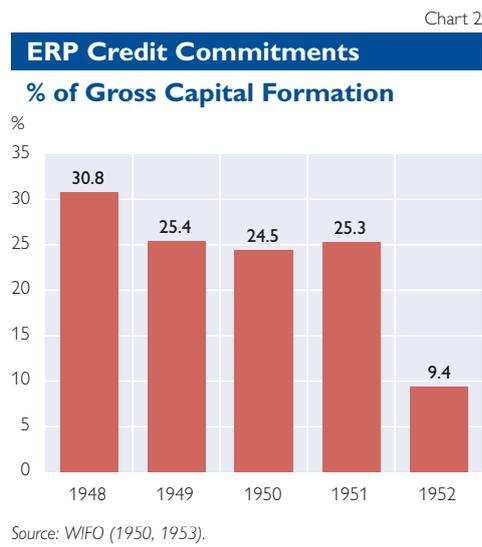
the legal basis for the management of ERP funds in Austria. Further provisions are laid down in the ERP Fund Act of 1962 (ERP-Fonds-Gesetz) and in an agreement between the ERP Fund and the Oesterreichische Nationalbank (OeNB), which was last amended in 1998. From 1947 to 1953, Austria received economic aid in the amount of roughly USD 1.1 billion, which then corresponded to about ATS 17.6 billion. Of this amount, ATS 7.2 billion were used to purchase basic foodstuffs and seeds, to rebuild infrastructure and to reform the currency (one-off effects), leaving ATS 10.4 billion for medium- and long-term economic assistance within the ERP framework. Measured against standard economic indicators like GDP or gross capital formation, this foreign aid was considerable, especially in the case of Austria, which received this aid without any repayment obligations. In the period directly after the war, the share of foreign aid in Austria's GDP (in terms of purchasing power parity) was more than 10%; in the first two years of the Marshall Plan (1949 and 1950), this share still ranged between 7% and 8%. By 1952, it had dropped to approximately 2% (Seidel, 2005).

The fact that parts of the Marshall Plan funds were spent on consumption (which meant also poorer consumers could afford subsidized import goods) allowed for wage moderation, which according to many authors (e.g. Eichengreen) decisively contributed to the strong economic expansion after World War II. The remaining ERP funds, measured as actual ERP credit commitments as a

³ Belgium, Denmark, Western Germany, France, Greece, United Kingdom, Ireland, Iceland, Italy, Netherlands, Luxembourg, Norway, Portugal, Sweden, Turkey, Austria and the Free Territory of Trieste.

⁴ Organisation for European Economic Cooperation (OEEC), Paris; predecessor of the OECD.

percentage of Austrian gross capital formation, were used to finance a significant share of gross fixed capital formation (about one-quarter in the period from 1948 to 1952).



From the beginning, the OeNB played an important role in ERP transactions: As the banking system had yet to be rebuilt, the OeNB took on the responsibility for the financial administration of ERP loans, for managing the ERP account, and for the necessary foreign currency exchange. Moreover, the OeNB managed a special account on behalf of the Federal Ministry of Finance on which the revenues from realizing the donated goods were deposited (counterpart funds account).⁵

Austria enjoyed twice the benefits of the ERP compared to other European countries. After all, Austria got to keep all of the funds accumulated on the counterpart funds account on

the basis of monetary transfers and the realization of donated goods, while most other countries had to repay substantial shares (e.g. Germany: one-third) or even all of the ERP transfers. Furthermore, at approximately USD 160 per inhabitant, Austria received the highest per capita ERP aid ratio after Norway, Ireland and the Netherlands. The financial means accumulated on the counterpart funds account provided the initial basis for the ERP lending system which is still in operation today. Funding is made available to Austrian businesses in the form of low-interest loans (with a maturity of up to 15 years).

Until 1949, the so-called “Krausland Ministry” (ministry for asset protection and economic planning) was responsible for developing economic plans for Austria; later on, some of the ministry’s responsibilities were divided among the central office for ERP affairs in the Federal Chancellery (later on part of the Federal Ministry for Foreign Affairs), the Federal Ministry of Finance and the Federal Ministry of Transport and State Enterprises. Questions of competency appear to have been of great importance even then, not least because the ERP funds, as mentioned earlier, were substantial (relative to investment volume and even relative to gross domestic product). However, up to 1961, all ERP projects and the related allocation of ERP funds were subject to authorization by the ECA via its ERP office in Paris.

⁵ In line with Article IV of the bilateral agreement on economic cooperation between Austria and the United States, the schilling revenues gained from realizing the donated goods were to be accumulated on this counterpart funds account held at the OeNB. Based on the Foreign Assistance Act, the accumulated counterpart funds could be used only for productive investments and for currency interventions.

3.1.1 Allocation of Marshall Plan Funds between 1948 and 1952

Initially, Marshall Plan funds were primarily granted for rebuilding important infrastructures and developing the Austrian economy, with a focus on commodities and (heavy) industry. The United States made it clear from the beginning, however, that next to its economic component the Marshall Plan also had political aspects.

This is, among other things, evident in the fact that the Eastern Zone (under Soviet administration) was disadvantaged during the first years in which ERP funds were allocated. The per capita ratios of loans granted to the industry sector in Styria, Upper Austria and Salzburg were two-and-a-half, four and twelve times as high, respectively, as in Lower Austria, which was located in the Eastern Zone. The regional distribution of ERP funds, which was controlled by the United States, was to favor the Western provinces of Austria for long time. All in all, the Western provinces received the lion's share of the allocated funds (81%), whereas Vienna, Lower Austria and Burgenland had to make do with the remaining 19%. The Eastern provinces also suffered from the fact that economic goods and production equipment were frequently dismantled and transported to the Soviet Union.

This political motivation behind the allocation of ERP funds was partially responsible for the heterogeneous economic development in Austria that followed. Obviously, also the frequent lack in productivity among the Soviet-run "USIA" companies in

Austria offers an explanation for the difference in growth rates across the country. Owing to the ERP allocation policy, the economic East-West divide widened. Together with the Strategic Control Plan, which governed all of Austria's economic contacts with the East, this laid the foundation for the increasingly visible orientation of the Austrian economy toward the West (table 1).

Table 1

Development of Austria's External Trade

Distribution of external trade in %

Year	Exports		Imports	
	EU-12	Eastern Europe	EU-12	Eastern Europe
1922	24	28	23	29
1937	44	28	34	32
1946	28	22	38	23
1955	58	10	59	9

Source: Bischof and Stiefel (1999).

Within the individual Austrian regions, the specific allocation of ERP funds, which initially focused on industry (including infrastructure and energy) and agriculture, largely followed Austrian suggestions. This fact should be underlined, as Austria's strategic planners pursued a very ambitious and controversial policy in the industry sector that had negative repercussions on the trade in goods position in the Austrian current account up until the late 1990s.

The responsible ministry officials had decided to turn the basic industry facilities which remained after the war into the heart of Austria's industrial structure. This decision contradicted the views of renowned political economists (e.g. Nemschak, Taucher, Kamitz, Wirlander),⁶ who

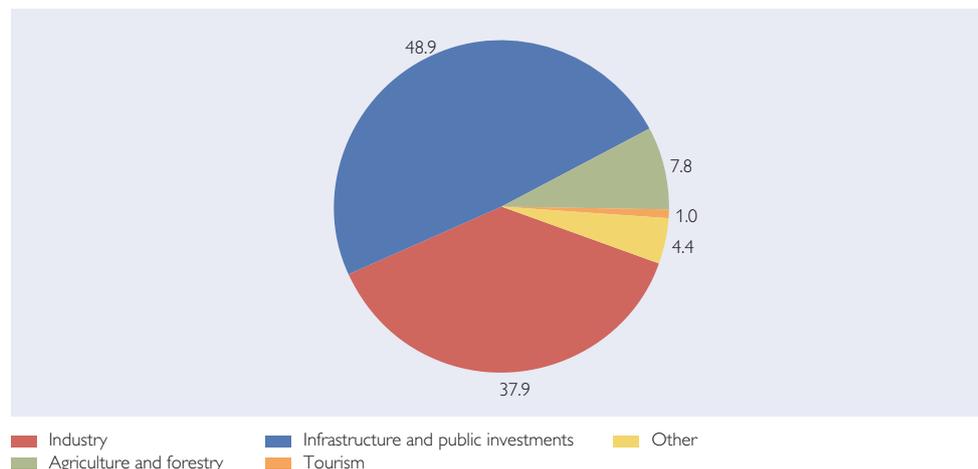
⁶ Tweraser (2000).

Chart 3

Allocation of ERP Funding under the First Annual Program (1948–1949)

Breakdown by Sectors

% of total allocated amount (EUR 104.3 million)



Source: Annual programs and financial statements of the ERP Fund.

correctly argued that the funds should primarily be used for the factor endowment of the processing and the manufacturing industries. The political protagonists of the time nevertheless opted for the described industrial policy because basic industry was in fact quite profitable and because most enterprises were state-owned, which facilitated planning and made it easier to exert control. This, in fact, reflected an accurate assessment of the post-war boom which was to materialize in the basic industry sector; however, Austria's economic planners of the time failed to fully realize that far better technological and value creation prospects in terms of current account, employment and export potential were presenting themselves in the final goods sector. It was not until the inflow of new Marshall Plan funds stopped that strategists fully recognized the value and importance of the final goods and the tourism industries, and that, consequently, annual programs began to take into account these sectors more strongly.

Nevertheless, Austrian industry continued to center on the basic industry sector for decades to come.

Although resource allocation may not have been ideal from the vantage point of industrial policy, the Marshall Plan funds made a psychologically important contribution to Austria's recovery, which stimulated investments. Thanks to ERP funding, commodity supplies could be quickly stabilized, which favored strong economic growth and thus reduced unemployment. By 1949, this had led to a growing reversal of basic food shortages and to a positive spirit among Austrians, who were now feeling more confident about facing the challenges of a new beginning. These developments laid the foundation for the oft-cited "economic miracle" which was about to materialize in Austria.

Austria's central government initially also used the counterpart funds granted for the extension of loans to the industrial, energy and business sectors to reduce its debt vis-à-vis the

OeNB. The OeNB, in turn, pledged to support reconstruction by accepting bills of exchange submitted by businesses and industrial enterprises to the Austrian banking sector, in an amount equal to the debt payments it was receiving. Given that the OeNB acted as the actual lender and that these bills of exchange were entered into the OeNB's balance sheet as underlying assets (collateral), Austria's central bank thus was included in the ERP-related financial assessment procedure.

3.1.2 Period from 1952 to 1962 (ERP Fund Act)

The United States more or less expected Austria to embrace the U.S. economic policy agenda, which, in a few cases of “noncompliance,” even went so far that funds were blocked or recalled. The United States' attempts to steer economic policy decisions were among other things aimed at ensuring that the receiving countries addressed those micro- and macroeconomic structural deficits which were causing the need for foreign aid. Accordingly, a large part of U.S. interventions and demands can be said to have been motivated by a balance of payments-oriented economic policy. This is substantiated by the fact that annual payments to Austria under the Marshall Plan were strongly correlated with Austria's balance of payments results, which were consistently negative until 1953.

From an economic point of view, it is perfectly understandable that the United States expected measures designed to reduce Austria's need for economic aid. The targets defined by the United States also were intended to urge the receiving countries in Western Europe to adopt the U.S. market economy model; this proved

difficult, considering that the overall economic environment in Europe was characterized by small and very small sized enterprises, a trade union movement, a reform deadlock in the financial sector, a universal bank system, underdeveloped capital markets and a need for foreign exchange controls. Last but not least, the United States' efforts can also be seen as a reaction directed against the emergence of Communism in Europe. Against the backdrop of the incipient Cold War and the Korea Crisis somewhat later, the struggle against Communism remained the main strategic motif for the United States' strong economic presence in Western Europe.

Be that as it may, the United States encouraged the Austrian government to implement sensible and necessary stabilizing measures after the cooling of the Austrian economy toward the end of 1951 (zero growth in 1952). In cooperation with the social partners, the Austrian government launched a stabilization package (repeated wage-price agreements) which was to form a first basis for the later hard currency policy. The reform of the OeNB through the Federal Act on the Oesterreichische Nationalbank in 1955 was also part of this package. As Marshall Plan funds ceased to flow in mid-1952, the ERP system from then on had to make do with the means previously accumulated on the counterpart funds account.

A large proportion of ERP funds that had been allocated in earlier years was tied up in energy projects. (The annual program of 1950–1951 had allocated as much as 87% of total funds to energy projects, i.e. power plant construction). This meant that any further ERP-related assistance relied on means returned from these previously subsidized projects.

Thanks to ERP funds, it was possible to lay the early foundation for the use Austria's hydropower (through river power plants, reservoir power stations), which also benefited Austria's current account. From the vantage point of industrial policy, these energy-related projects were primarily intended to ensure the energy supply of particularly energy- and capital-intensive projects in the basic industry sector.

1955 saw the first official talks concerning the final transfer of responsibility for managing the counterpart funds to Austria. The United States strongly favored the establishment of a separate investment fund management company, which, preferably, was to be under the OeNB's control. In addition, the United States requested that all counterpart means and returns should be administered by a single fund strictly separated from the government budget. Austria's government parties, however, presented an alternative de-

signed to secure a small slice of the pie for political projects (e.g. the Kamitz project, Kreisky's public housing scheme), while the remaining ERP funds were to be transferred to the OeNB.

The subsequent political compromise led to the establishment of the ERP Fund in 1962. The United States yielded on its demand that all counterpart means be channeled into the ERP Fund; in turn, the OeNB agreed to continue to make available those counterpart funds which it had initially received as debt repayment by the government for ERP projects in the industrial sector. The drawing rights pertaining to this ERP loan portfolio (owned by the OeNB) were laid down in the ERP Fund Act.

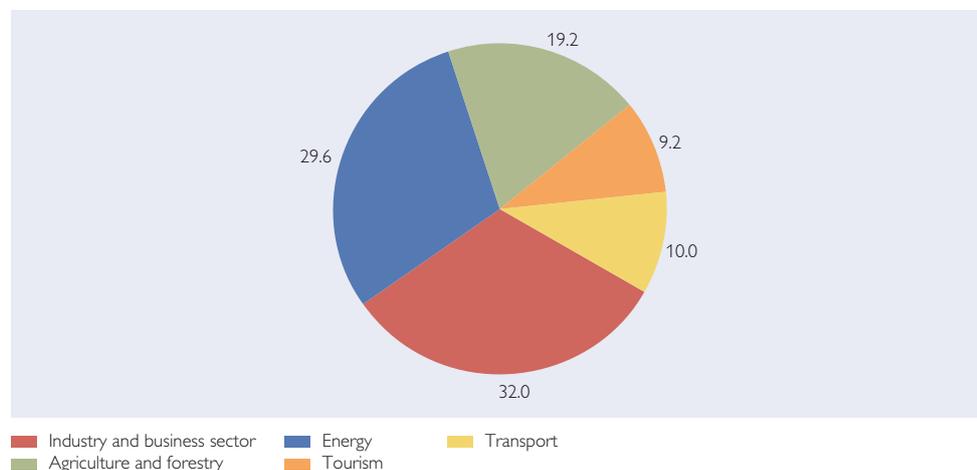
After the ERP Fund Act had entered into force on July 1, 1962, the remaining ERP counterpart means (subject to management by the ERP Fund), during the following months, were transferred to the ERP Fund's accounts held with the OeNB.

Chart 4

Allocation of Funding under the ERP Fund's First Annual Program (1962–1963)

Breakdown by Sectors

% of total allocated amount (EUR 56.7 million)



Source: Annual programs and financial statements of the ERP Fund.

3.1.3 Implementation of the 1962 ERP Fund Act

The ERP assets transferred to the ERP Fund amounted to roughly ATS 10.4 billion including the drawing rights vis-à-vis the OeNB. Of this amount, about ATS 5.7 billion were administered by the ERP Fund itself and approximately ATS 4.7 billion were to be managed by the OeNB from this time on.

In line with the ERP Fund Act, Austria's central government authorized the ERP Fund's first annual program as early as in July 1962 (chart 4) and appointed the 12 members of the first ERP credit approval committee (industrial financing) as well as the members of the expert committees (tourism, agriculture and transport). Moreover, the government designated the Austrian Court of Audit and the Ministry of Finance as the authorities responsible for auditing the ERP Fund.

Since then, ERP loan applications have been processed in line with the relevant annual program and applicable ERP guidelines (since 1996, these have been harmonized in cooperation with EU authorities). Currently, ERP loans are generally granted for a period of six years, the main incentive for applicants being subsidized interest. Submitted projects are assessed on the basis of economic, guideline-related and financial aspects. Financial evaluation takes place in cooperation with the OeNB within the legally competent committee. As the OeNB's official say in this committee is limited to matters pertaining to the industrial sector, the ERP loan portfolio managed by the OeNB is exclusively dedicated to industrial projects, which kept the administrative burden for the OeNB low from the very beginning.

The ERP guidelines for granting financial assistance, which are as a rule revised on a yearly basis in the course of drawing up the annual programs, have always taken into account economic policy focuses of the Austrian government. In the 1970s and 1980s, financial assistance mainly concentrated on projects to secure jobs and improve the current account. In conjunction with the "TOP" credit subsidization initiative, ERP funding was increasingly shifted from agriculture and tourism to industry. From the mid-1980s, the ERP Fund placed greater emphasis on ambitious structural policy projects. In deciding which projects should receive funding, external trade and employment effects thus played a more important role from the beginning on. Furthermore, the ERP guidelines took into consideration criteria related to ecological issues and energy policy as well as to enhancing competitiveness. Over the years, the guidelines also increasingly integrated regional policy objectives.

If one looks at the 1980s as a whole, it is evident that financial assistance, which often took the form of major ERP loan tranches spread out over several years, focused too strongly on longer-term investment projects designed to uphold existing structures in the still largely state-owned iron, steel and paper industries. The same applied to the first regional subsidization targets; often, technologically outdated production methods were maintained at noncompetitive labor and total costs (e.g. through special programs directed at coal mining and old industrial areas), instead of giving way to market forces. In some cases, this even led to the development of excess capacities and, as structural weaknesses were

not identified soon enough, the resulting idle capacity costs put an additional strain on the affected enterprises when structural change picked up from the mid-1980s on.

All in all, however, by the time the first internationalization wave occurred and structural change markedly accelerated in the 1990s, the ERP Fund, its guidelines and its economic assistance instruments were well positioned to support the Austrian economy in facing these new challenges. From then on, ERP means were primarily used to cofinance innovative, strongly export-oriented enterprises in high growth areas and newly emerging technology clusters (e.g. the airplane industry, biotechnology). The targeted allocation of ERP aid certainly made a long-term contribution to Austrian businesses' progress toward a modern service-based economy. In particular, the internationalization efforts of Austrian enterprises were supported from

1990 onward. From the ERP financial year 1990/91 on, the ERP Fund offered a separate assistance program for Eastern Europe, which laid an important (and forward-looking) foundation for Austrian businesses' later market opportunities in South-eastern Europe.

Companies capable of tapping into the capital market, for instance, only receive economic assistance in exceptional cases. In problematic sectors, funding decisions take into account already existing total capacities.

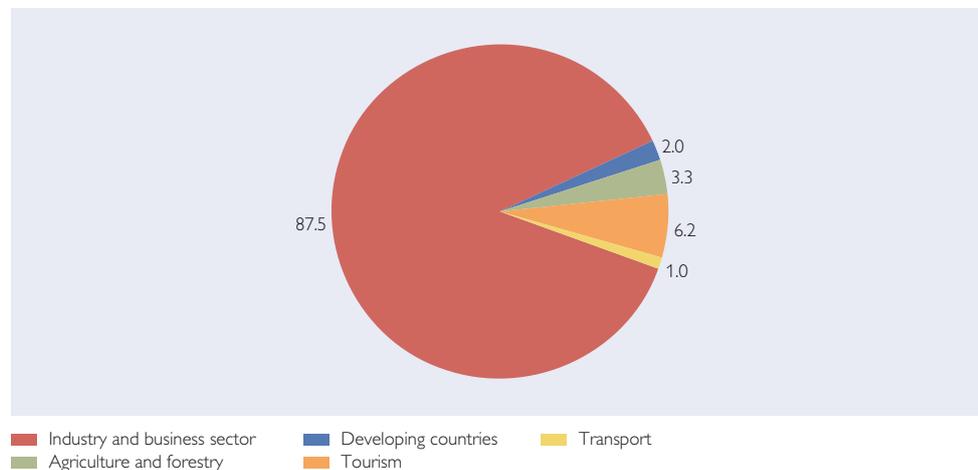
Based on these adjustments, the Marshall Plan evolved from an economic assistance and reconstruction program to a selective tool of business promotion. Today, future-oriented niche areas which guarantee a leadership position in the technology sector receive the highest amounts of funding. To ensure compliance with this self-imposed policy, the ERP authorities have defined a standard project assessment system.

Chart 5

Allocation of Funding under the ERP Fund's 2007 Annual Program

Breakdown by Sectors

% of total allocated amount (more than EUR 400 million)



Source: Annual programs and financial statements of the ERP Fund.

Allocation policies were further tightened with the beginning of a new Structural Funds period at the EU level in 2007. The latter is supposed to favor even stronger emphasis on promoting innovative, high-growth enterprises in the small and medium-sized enterprise (SME) sector.

Currently, ERP funding amounting to some EUR 2.8 billion is available in the form of long-term loans for corporate financing. Given an average loan term of about six years, repayments allow for annual ERP budgets (i.e. annual programs) in the amount of EUR 400 million to EUR 500 million.

350 to 400 selected businesses a year benefit from ERP funding; more than 87% of the financial means (a share that has recently been increasing) are allocated to projects in the Austrian industrial and manufacturing sectors. The extent to which businesses are supported depends on enterprise size, project-specific factors and a reference interest rate determined by the EU. This reference rate reflects the Austrian interest level, tax policies relative to other EU countries and interest rate advantages arising from ERP funding in a discounted present value factor. ERP aid in the amount of EUR 1 usually triggers additional funding of about EUR 2, which means that the financial aid made available under one ERP annual program may lay the foundation for investment projects amounting to as much as EUR 1.5 billion. According to the annual report of the Vienna-based Austria Wirtschaftsservice GmbH (aws), in 2006 the total investment volume of projects supported through ERP loans (in the amount of EUR 605 million) came to EUR 1,665 million.

4 Critical Appraisal of the Marshall Plan Aid

The Marshall Plan made a positive contribution to strengthening Western Europe's political and economic unity and laid an important foundation for the Treaty of Rome, which was signed just ten years later.

The U.S. aid for post-war Europe, on the one hand, supported Austria's speedy reconstruction and, on the other hand, contributed to an economic divide between Eastern and Western Europe and to the development of diverging growth rates in Europe. Austria, which was not only facing severe damage after World War II, but which had yet to overcome the repercussions of the massive territorial losses incurred in the wake of World War I, would hardly have managed to rebuild its economy and maintain its sovereignty without the economic assistance received under the Marshall Plan.

Initially, ERP funds were primarily invested in the basic industry sector, which led to structural deficits in Austria's industrial sector later on. Moreover, until 1955, the Marshall Plan favored Austria's Western provinces, which contributed to the development of an economic East-West divide in the country.

In the 1980s, subsidized loans were partially responsible for the conservation of structural weaknesses and the very reluctant implementation of adjustment measures (crisis in the state-owned sector). These deficits were countered through the ERP Fund's new subsidization policy and transparent allocation criteria (assessment matrix), which were introduced in 1985–1986.

Owing to the availability of subsidized economic aid, businesses tended

to have fewer incentives to seek out alternative sources of funding, which may have slowed down the development of the Austrian capital market.

5 The Marshall Plan's Economic Policy Implications for Austria

The Marshall Plan was the driving force behind the development of the transatlantic economic axis between Europe and the United States.

Without ERP funding, economic growth and the development of European trade relations would probably have been much slower. This assumption is backed by the fact that after the Marshall Plan funding was stopped in mid-1953, it took Austria until 1961 to reattain the investment level of 1952. However, since Austria had received the Marshall Plan aid exclusively in the form of donations and as ERP funds were (and still are) allocated based on a revolving system, Austria, unlike other countries, could still tap into ERP funds for economic assistance, even after the original Marshall Plan funding had been discontinued.

Thanks to its involvement in the ERP process, the OeNB has also gained valuable knowledge about the real economy, which is useful in carrying out its responsibilities in the area of monetary policy (refinancing operations, central bank money supply) and statistics (provision of annual online economic and industry indicators for Austrian businesses).

In terms of importance and allocation policies, the ERP in Austria – against the background of the declining value of available ERP funds relative to gross capital formation – has gradually evolved from a momentous reconstruction program during the post-war years to a selectively used

instrument of business promotion. In line with current allocation guidelines, funding today is increasingly granted to the innovative high-tech sector, an area in which ERP funding is still very important.

Over the past decade, the Marshall Plan funds have helped support necessary structural change in Austria's industrial sector and lately also in the tourism sector.

Thanks to the two ERP programs dedicated to internationalization and Eastern Europe, Austrian enterprises receive targeted support to promote their internationalization efforts and ventures into future-oriented industries (aircraft component suppliers, biotechnology, power engineering). Especially in the case of pioneering high-tech industries, ERP funding may provide an important incentive for businesses to remain in Austria rather than move to other countries, thus preventing a “competence drain” in the technology sector. Among the necessary investment measures and opportunities for Austrian businesses, the active promotion of ventures in Eastern Europe is likely to yield the highest benefit for Austrian entrepreneurs and the Southeastern European target areas.

An initiative to improve the capital base of Austrian enterprises (and thus their chances of entering the capital market) is the so-called “double equity” program. Under this program, Austrian businesses have the opportunity to “double” their equity by raising external funds, which then are matched by ERP funds.

EU cofinancing is also granted only up to the amount to which national funding is made available. Hence, ERP aid played an important role during the last ten years in en-

sure that Austrian enterprises could largely exploit the means reserved for Austria within specific Structural Funds periods. This in turn, helped to raise development standards in Burgenland, Austria's only Objective 1 region, to average European levels.

Furthermore, statistics provided by Austria Wirtschaftsservice GmbH (aws) show that ERP funding can be used to support economic upturns, as leading businesses are usually the first (or at least want to be the first) to take investment measures, which may be (co)financed through ERP aid. This in turn triggers subsequent investment by suppliers and in subsidiary industries. The ERP annual programs of 2005 and 2006, for instance, which made available above-average amounts, helped to promote the latest cyclical upswing.

6 Conclusions

All in all, the Marshall Plan's 60th anniversary offers a welcome opportunity to once more thank the United

States, which made available USD 80 per capita to grant economic assistance to Europe. In Austria's case, the funds initially provided, including interest, have grown to EUR 2.8 billion (EUR 1 billion managed by the OeNB).⁷ These funds form the basis for the selective ERP assistance still practiced today. Every year, 400 carefully selected Austrian enterprises receive ERP aid through low-interest long-term loans. 60 years ago ERP funding was still required to meet the basic needs of the population and to ensure economic reconstruction; today, ERP aid supports leading Austrian businesses in tackling new technological challenges, in strengthening their competitiveness and in opening up new markets (recently with a focus on Southeastern Europe). Even if the significance of Marshall Plan aid has declined since the reconstruction period (owing, not least, to monetary growth), the benefits it still offers to selected leading businesses in Austria should not be underestimated.

References

- Agreement between the ERP Fund and the Oesterreichische Nationalbank on the implementation of the ERP Fund Act (last version 1998).**
- ERP Counterpart Settlement Agreement** between the United States of America and the Republic of Austria of July 2, 1948.
- Austria Wirtschaftsservice GmbH (aws) – ERP-Fonds. Vienna.** Various annual programs and guidelines.
- Bischof, G. and D. Stiefel. 1999.** 80 Dollar. 50 Jahre ERP-Fonds und Marshall-Plan in Österreich 1948–1998. Vienna. 315–342.
- Butschek, F. 1985.** Die österreichische Wirtschaft im 20. Jahrhundert. Stuttgart: Fischer.
- Cincotta, H. and J. S. Holden. 1987.** United States Information Agencies. From the Ashes.
- Eichengreen, B. and M. Uzan. 1992.** The Marshall Plan: Economic Effects and Implications for Eastern Europe and the Former USSR. In: Economic Policy 7(14).
- Eichengreen, B. (ed.). 1995** Europe's Post-War Recovery. Cambridge University Press.
- ERP Fund. 1987.** 25 Jahre ERP-Fonds. Vienna.

⁷ The ERP loan portfolio managed by the OeNB consists of ERP funds owned by the OeNB, on which the ERP Fund has drawing rights in line with the ERP Fund Act of 1962.

- ERP Fund Act of June 13, 1962** (Federal Law Gazette No. 207/1962).
- Grell, N. 1950.** Österreich und der Marshall-Plan. Vienna: Gerlach & Wiedling.
- Mähr, W. 1989.** Der Marshallplan in Österreich. Graz: Styria.
- OeNB. 1988.** America Changes the Course of History.
- Seidel, H. 2005.** Österreichs Wirtschaft und Wirtschaftspolitik nach dem Zweiten Weltkrieg. Vienna: Manz.
- Tinhof, F. 1958.** Zehn Jahre ERP in Österreich. Vienna: Österreichische Staatsdruckerei.
- Tweraser, K. 2000.** The Marshall Plan and the Reconstruction of the Austrian Steel Industry 1945–1953. In: Bischof, G., A. Pelinka and D. Stiefel (eds.). 80 Dollar. 50 Jahre ERP-Fonds und Marshall-Plan in Österreich 1948–1998. Vienna. 290–322.
- WIFO. 1950.** Die Counterpartmittel und ihre Verwendung. In: WIFO-Monatsberichte.
- WIFO. 1953.** Die wirtschaftliche Bedeutung der ERP-Counterpartfonds. In: WIFO-Monatsberichte.

HIGHLIGHTS

Europe – Quo Vadis? 50 Years Treaty of Rome

Ingrid Ettl,
Franz Nauschnigg,
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Rhomberg

On March 25, 1957, France, Germany, Italy, Belgium, Luxembourg and the Netherlands signed the Treaty of Rome. To commemorate the 50th anniversary of this event, the Oesterreichische Nationalbank (OeNB) and the Austrian social partners organized a conference under the heading “Europe – quo vadis? 50 years Treaty of Rome.” The conference, which was part of a series of Austrian and Europe-wide activities to celebrate the 50-year anniversary, attracted more than 250 participants.

What originally started out as a Western European economic union of six states, today comprises 27 Member States joined in what has come to be known as the European Union. The EU unites a population of close to 500 million citizens whose interests are equally represented and who jointly pursue the aims laid down in the Treaty of Rome.

The conference, which was organized by the OeNB (European Affairs and International Financial Organizations Division and Communications Division) together with the Austrian social partners, started out with a press conference in which the OeNB’s Vice Governor *Wolfgang Duchatzek* stressed how much Austria had benefited from joining the European Union. With EUR 11,000 worth of exports per capita, Austria ranked seventh among all exporting countries in the world in 2005. In 2006, total exports for the first time surpassed the EUR 100 billion threshold, reaching EUR 107 billion.

In Duchatzek’s opinion, EU enlargement has been a win-win deal for Austria and the new Member States. Almost one-fifth of Austrian

exports already go to Central, Eastern and Southeastern European countries. Austria’s net direct investment assets primarily stem from the ten new Member States that joined the EU in 2004 as well as from new target regions in Eastern and Southeastern Europe. Austrian banks today have an average market share of 25% in Eastern and Southeastern Europe, in some countries even up to 60%.

Duchatzek pointed out that, within the European Economic and Monetary Union (EMU), Austria’s economy has performed above average and Austria has become one of the leading countries in terms of competitiveness, attractiveness as a business location and level of prosperity. Economic growth is robust and employment reached a high in the course of 2006. Unemployment is low by international standards and is likely to decrease in the next few years. Prices are very stable and Austria’s current account surplus reflects the country’s price competitiveness.

Moral suasion by EU institutions has encouraged Austrian policymakers to introduce the budgetary reforms the country needed. According to Duchatzek, it is important that the Austrian government uses the currently very bright economic outlook, which is expected to last until 2009, to swiftly consolidate its budget. The European monetary policy, above all, has to provide a stable monetary framework for sustainable, dynamic economic development. The Eurosystem’s strategy to ensure price stability in the medium term is the best possible contribution it can make to support growth and employment

in the euro area. Since EMU started out eight years ago, employment has increased by more than twelve million.

To compete in a global environment it becomes ever more important for a country to create appropriate conditions for attracting production. Austrian economic policymakers have taken this into account and introduced adequate reforms in the last few years. The current government program contains many elements which continue this successful trend. It is important that these reforms do not lose their momentum in the course of the implementation process.

Following these remarks by Vice Governor Duchatzek, a common declaration by the social partners was signed during the press conference by the four presidents *Rudolf Hundstorfer* (Austrian Trade Union Federation), *Christoph Leitl* (Austrian Federal Economic Chamber), *Rudolf Schwarzböck* (Austrian Chamber of Agriculture) and *Herbert Tumpel* (Federal Chamber of Labor). The declaration, entitled “50 years Treaty of Rome – On the way towards more growth and employment,” confirms the social partners’ intention to actively participate in the construction of a modern, peaceful, competitive and employment-oriented Europe. The social partners call on the Austrian government to embrace the 50th anniversary of the Treaty of Rome as an opportunity to promote resolute action within a future-oriented EU. According to the four presidents “we must aim at creating a future-oriented Europe that meets its citizens’ expectations. Above all, this implies increasing economic growth, creating jobs, dealing with the consequences of globaliza-

tion and encouraging sustainable development and solidarity.”

Another highlight followed when the president of Münze Österreich Aktiengesellschaft (Austria’s mint), *Dietmar Spranz*, presented the new EUR 2 coin dedicated to the 50th anniversary of the Treaty of Rome.

Wolfgang Duchatzek, the OeNB’s Vice Governor, opened the conference with an introductory statement, in which he emphasized that Austria’s overall experiences with EU integration were very positive.

The first prominent speaker was *Benita Ferrero-Waldner*, European Commissioner for External Relations and European Neighbourhood Policy. After presenting a short historical overview, Ferrero-Waldner stressed that further economic integration was only possible within a political union with clear boundaries and the support of its citizens. This, according to Ferrero-Waldner, means three things: First, the EU should continue to coordinate national sovereign interests and limit single-handed actions should be limited. The EU’s foreign policy must become more efficient, coherent and visible to be able to meet global challenges and to ensure prosperity and security for the EU’s citizens. Such a transformation, above all, depends on Member States’ political commitment. Second, a political union backed up by its citizens not only implies acting in the interest of the citizens; it also requires integrating citizens into the decision-making process. The negative outcomes of the referendums in France and the Netherlands have taught us an important lesson: “European” policy must not only be made by a small elite. In the future, we must ensure that the EU decides only in those cases in

which it makes sense to have a single decision for everyone. This implies strengthening the principle of subsidiarity. The European Constitution would provide a clear solution for this issue. Nevertheless, there is no doubt that the text needs some changes. Third, a union with clear boundaries must build and maintain good neighborhood relations. This requires pursuing a stronger foreign policy. Ferrero-Waldner, moreover, envisions that the European model – and with it stability and prosperity – is exported to the world and in particular to our neighboring countries. Within the framework of the “European Neighbourhood Policy,” for which Ferrero-Waldner has a special responsibility, countries surrounding the EU receive the opportunity to closely cooperate with the European Union on an economic and political level, without having the perspective of joining the EU.

The first panel of the conference entitled “Economic versus Social Issues – a Contradiction?” was chaired by Franz Nauschnigg (Head of the OeNB’s European Affairs and International Financial Organizations Division), and started with a presentation by *Karl Aiginger* (Head of the Austrian Institute of Economic Research). Aiginger stated that the European project, despite the constitutional crisis, short-term disappointments, different standpoints on the Iraq issue, and legitimization and democracy deficits in the European Union, has been a historic success from a *political* point of view. According to Aiginger, the disappointing economic developments in Europe are not a consequence of the single market and the European unification process. If it had not been for integration and enlargement, structures

would not have changed, reforms would not have been introduced and markets would not have opened. The problems we currently face would be much larger. All in all, however, Aiginger argued that European integration will not become a true *economic* success until incomes rise on a broad level and unemployment decreases.

The last decade was a difficult one for Europe. Introducing the euro required countries with high deficits to reduce their deficits and their debt and large countries to display a high level of discipline in order to turn the euro into a credible currency. Aiginger stated that, so far, there had been a lack of courage to put an end to these restrictive macroeconomic framework and to make growth a first priority. In his view, the Luxembourg summit was a step in the right direction: The stability and growth pact was relaxed, and the active strategy for the liberalization of services was successfully revised and broken down into national Lisbon programs to be integrated into national economic policies.

He pointed out that a lot of time had passed again, however, without there being significant increases in expenditure on innovation or education reforms. European infrastructure projects are only being implemented with great delays. Aiginger claimed that most countries were not taking advantage of the economic momentum of 2006 and 2007 to invest in structural and future-oriented reforms.

The Austrian Institute of Economic Research has developed a special white book for Austria, which lays out eleven strategies to boost growth and employment. There are four strategy groups:

- innovation, education and further training lift the medium-term growth path;
- infrastructure, dual-purpose technologies, energy and environmental policies and growth-promoting measures by the public sector are strategic elements of high economic policy priority;
- balanced flexibilization and a different outlook on competition reduce growth barriers; and
- the gender strategy and the transformation of informal work into formal employment boost supply, quality and demand on the employment market. The social security system is to be turned into a productive source that helps to take opportunity of the new challenges and transforms disadvantages and temporary losses into strengths in the long run.

In her contribution, *Karin Scheele*, Member of the European Parliament, stressed how essential it was to further develop the social agenda in Europe – both from the businesses’ and the citizens’ points of view. She believes that the European social model should enforce legislative measures to guarantee minimum social standards and an unconditional minimum income. When it comes to implementing EU directives, Scheele calls for increased “ownership” on part of the Member States, which often seem to expect the European Commission to assume sole responsibility; after all, the implementation and interpretation of the directives lies in the hands of the Member States. In this context it is particularly important that some countries serve as role models, setting “best practice” standards.

Heinz Zourek, Director General of the European Commission, stated that the term “economy” was often

reduced to competitiveness, and that social issues were frequently only viewed in terms of personal contentedness. However, when combined, these two terms stand for the productivity of the system and for its capability to meet demands. Zourek criticized that European social politics were marked by defensive discussions and a lack of clearly defined responsibilities. In Zourek’s opinion, key challenges for Europe are its demographic development, exploding health care costs, the cost of integrating the new Member States, and the question of how environmental damages can be prevented in the future. The underlying global concepts are good, but they must be equipped with instruments. So far, reforms have not been used to implement much-needed changes; they have merely served to maintain the status quo. Unfortunately, reform pressure in Europe is abating. According to Zourek, Germany, for instance, has an almost “erotic” relationship with its current account surplus and has put all other issues second. Other countries are strongly exchange rate-oriented and export reform pressure through depreciations. There are further disparities in the euro area: Countries may no longer be able to use exchange rates as an adjustment factor, but social models are still far from harmonized. Common targets must therefore be defined, and, at the same time, countries must be given enough leeway to reach these targets (=Lisbon strategy). According to Zourek, Europe needs a concerted effort which makes use of synergies. After all, he stated, social and economic affairs are like Siamese twins – they cannot prosper without one another.

The second panel, “Europe and the World – U.S.A., Russia, China and the WTO,” which was chaired by Christian Mandl, Head of Department at the Austrian Federal Economic Chamber, started with a speech by *August Astl*, Secretary General at the Austrian Chamber of Agriculture, who stressed that agriculture was contributing greatly to the EU success story. According to Astl, the EU agricultural policy was reform-oriented and was making up a decreasing share of the EU’s overall expenditures, as subsidies had been cut during the past years. By rendering its agricultural policy more market-oriented, the European Union must ensure its international competitiveness, but the quality of food must be guaranteed as well. Recent developments on the energy markets have opened up a new market for agriculture in the area of renewable energies. Especially renewable primary products can make an important contribution to supplying the European Union with energy. Astl voiced concerns about recent developments within the Doha round of WTO negotiations, as cuts in export subsidies, in particular for milk, starch and sugar, but also the opening of the market could entail severe agricultural problems in Europe. There is, however, hope that world prices for agricultural products will increase in the next few years, partly thanks to rising demand for renewable energies.

Eva Belabed, Member of the European Economic and Social Committee and the Chamber of Labor for Oberösterreich, emphasized that 80% of the world’s population did not have any kind of social protection, be it health insurance, unemployment benefits or old-age provisions. The Euro-

pean Union and the United States, being the strongest economies, have a broad responsibility for global developments in this respect. In Belabed’s view, close cooperation between the United States and the European Union must not be confined to eliminating technical barriers. She deems it necessary to include other stakeholders, such as the social partners, in common regulations and to no longer negotiate such issues merely at the expert and government levels. Overall, the economic performance of the United States was overestimated in the last few years, and weaknesses in the areas of social security, the environment, sustainability and energy, differences in the standards of living and in working conditions, and the enormous current account deficit were neglected. According to Belabed, it is not without reason that Scandinavian countries outperform all other countries in worldwide reports on competitiveness; they have proven that economic growth can go hand in hand with social cohesion and sustainability.

Michael Landesmann, Head of the Vienna Institute for International Economic Studies, emphasized that the European Union faces multiple challenges. In particular, it must deal with dynamic innovations in the United States, the catching-up process in Asia, difficulties in Europe’s energy supply related to Russia, and governance structures in the European Union. The catching-up process in Asia is based on strong export growth with an increasing degree of specialization on high-tech products. In many fields of production, the rest of the world hardly plays a role anymore. All in all, Landesmann believes Asia to already have surpassed the European Union in the global trade

of goods. Another future challenge is energy supply. The EU-15's energy intensity is much smaller than energy intensity in the United States. Besides, the European Union is strongly dependent on imports, both for oil and for gas. Long-term energy supply in the European Union can be ensured through a diversification of supplier countries and through coordinated European negotiation and environment strategies. In general, the European Union needs a stronger degree of coordination in its international economic and political relations according to Landesmann.

Paul Rübige, Member of the European Parliament, pointed out that the globalization process, especially within the WTO, did not sufficiently

take into account the interests of small and medium-size enterprises. He called on the European Union to particularly attend to this important segment of the economy. Turning to energy security, Rübige explained that the European Parliament had shifted its emphasis from energy prices to environmental protection and, lately, to ensuring supply. When it comes to environmental policy, the Kyoto aims may benefit the environment; however, they might have a negative effect on industry, which is increasingly moving to countries with laxer environmental policies. Energy policy should focus more strongly on energy efficiency. Overall, Rübige considers the economy to be one of the driving forces behind EU integration.

NOTES

Abbreviations

ARTIS	Austrian Real Time Interbank Settlement (the Austrian RTGS system)	IHS	Institut für Höhere Studien und Wissenschaftliche Forschung – Institute for Advanced Studies, Vienna
A-SIT	Secure Information Technology Center – Austria	IIF	Institute of International Finance
ASVG	Allgemeines Sozialversicherungsgesetz – General Social Security Act	IIP	international investment position
A-Trust	A-Trust Gesellschaft für Sicherheitssysteme im elektronischen Datenverkehr GmbH	IMF	International Monetary Fund
ATX	Austrian Traded Index	ISO	International Organization for Standardization
BCBS	Basel Committee on Banking Supervision (BIS)	IWI	Industriewissenschaftliches Institut – Austrian Institute for Industrial Research
BIC	Bank Identifier Code	JVI	Joint Vienna Institute
BIS	Bank for International Settlements	LIBOR	London Interbank Offered Rate
BOP	balance of payments	M3	broad monetary aggregate M3
BSC	Banking Supervision Committee (ESCB)	MFI	monetary financial institution
CACs	collective action clauses	MRO	main refinancing operation
CEBS	Committee of European Banking Supervisors (EU)	MoU	memorandum of understanding
CEE	Central and Eastern Europe	NACE	Statistical Classification of Economic Activities in the European Community
CEECs	Central and Eastern European countries	NCB	national central bank
CESEE	Central, Eastern and Southeastern Europe	OeBS	Oesterreichische Banknoten- und Sicherheitsdruck GmbH – Austrian Banknote and Security Printing Works
CESR	Committee of European Securities Regulators	OECD	Organisation for Economic Co-operation and Development
CIS	Commonwealth of Independent States	OeKB	Oesterreichische Kontrollbank (Austria's main financial and information service provider for the export industry and the capital market)
CPI	consumer price index	OeNB	Oesterreichische Nationalbank (Austria's central bank)
EBA	Euro Banking Association	OPEC	Organization of the Petroleum Exporting Countries
EBRD	European Bank for Reconstruction and Development	ÖBFA	Austrian Federal Financing Agency
EC	European Community	ÖNACE	Austrian Statistical Classification of Economic Activities
ECB	European Central Bank	POS	point of sale
Ecofin	Council of Economic and Finance Ministers (EU)	PRGF	Poverty Reduction and Growth Facility (IMF)
EEA	European Economic Area	RTGS	Real-Time Gross Settlement
EFC	Economic and Financial Committee (EU)	SDR	Special Drawing Right (IMF)
EIB	European Investment Bank	SDRM	Sovereign Debt Restructuring Mechanism (IMF)
EMS	European Monetary System	SEPA	Single Euro Payments Area
EMU	Economic and Monetary Union	SPF	Survey of Professional Forecasters
EONIA	Euro OverNight Index Average	STEP2	Straight-Through Euro Processing system offered by the Euro Banking Association
ERM II	Exchange Rate Mechanism II (EU)	STUZZA	Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr G.m.b.H. – Austrian Research Association for Payment Cooperation
ERP	European Recovery Program	S.W.I.F.T.	Society for Worldwide Interbank Financial Telecommunication
ESA	European System of Accounts	TARGET	Trans-European Automated Real-time Gross settlement Express Transfer
ESAF	Enhanced Structural Adjustment Facility (IMF)	Treaty	refers to the Treaty establishing the European Community
ESCB	European System of Central Banks	UN	United Nations Organization
ESRI	Economic and Social Research Institute	UNCTAD	United Nations Conference on Trade and Development
EU	European Union	VaR	Value at Risk
EURIBOR	Euro Interbank Offered Rate	WBI	Wiener Börse Index
Eurostat	Statistical Office of the European Communities	WEF	World Economic Forum
FATF	Financial Action Task Force on Money Laundering	WIFO	Österreichisches Institut für Wirtschaftsforschung – Austrian Institute of Economic Research
Fed	Federal Reserve System	wiiw	Wiener Institut für internationale Wirtschaftsvergleiche – The Vienna Institute for International Economic Studies
FMA	Financial Market Authority (for Austria)	WKÖ	Wirtschaftskammer Österreich – Austrian Federal Economic Chamber
FOMC	Federal Open Market Committee (U.S.A.)	WTO	World Trade Organization
FSAP	Financial Sector Assessment Program (IMF)		
FWF	Fonds zur Förderung der wirtschaftlichen Forschung – Austrian Science Fund		
GAB	General Arrangements to Borrow		
GATS	General Agreement on Trade in Services		
GDP	gross domestic product		
GNP	gross national product		
GSA	GELDSERVICE AUSTRIA Logistik für Wertgestionierung und Transportkoordination GmbH (Austrian cash services company)		
HICP	Harmonized Index of Consumer Prices		
HIPC	Heavily Indebted Poor Countries		
IBAN	International Bank Account Number		
IBRD	International Bank for Reconstruction and Development		
ICT	information and communication technology		
IDB	Inter-American Development Bank		
IFES	Institut für empirische Sozialforschung GesmbH (Institute for Empirical Social Research, Vienna)		
ifo	ifo Institute for Economic Research, Munich		

Legend

- x = No data can be indicated for technical reasons
- .. = Data not available at the reporting date
- 0 = The numerical value is zero or smaller than half of the unit indicated

Discrepancies may arise from rounding.

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