OESTERREICHISCHE NATIONALBANK
EUROSYSTEM

MONETARY POLICY & THE ECONOMY

Quarterly Review of Economic Policy

Stability and Security.

Q1/13

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

Publisher and editor	*Oesterreichische Nationalbank* *Otto-Wagner-Platz 3, 1090 Vienna, Austria* *PO Box 61, 1011 Vienna, Austria* *www.oenb.at* *oenb.info@oenb.at* *Phone (+43-1) 40420-6666* *Fax (+43-1) 40420-046698*
Editorial board	*Peter Mooslechner, Ernest Gnan, Franz Nauschnigg, Doris Ritzberger-Grünwald, Martin Summer*
Managing editor	*Claudia Kwapil*
Editing	*Karin Fischer, Ingeborg Schuch*
Translations	*Rena Mühldorf, Ingeborg Schuch*
Layout and typesetting	*Walter Grosser, Birgit Vogt*
Design, printing and production	*Communications and Publications Division*

DVR 0031577

Contents

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

Call for Applications: Visiting Research Program

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

The OeNB offers a stimulating and professional research environment in close proximity to the policymaking process. Visiting researchers are expected to collaborate with the OeNB's research staff on a prespecified topic and to participate actively in the department's internal seminars and other research activities. They are provided with accommodation on demand and have, as a rule, access to the department's data and computer resources and to research assistance. Their research output will be published in one of the department's publication outlets or as an OeNB Working Paper. Research visits should ideally last between 3 and 6 months, but timing is flexible.

Applications (in English) should include

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

Applications for 2013/14 should be e-mailed to *eva.gehringer-wasserbauer@oenb.at* by May 1, 2013.

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

Analyses

Austria Withstands Recession: Return to Positive Growth in Early 2013

Klaus Vondra[1]

Austria's economy expanded by 0.8% in 2012, whereas the euro area slipped into recession again. Growth in Austria was driven both by domestic demand and net exports. While the economic outlook for the euro area remains clouded for 2013 as well, Austrian economic growth is likely to accelerate in the first half of 2013, as forecast by the OeNB. However, the continued weakness of order books and uncertainty surrounding the formation of a government in Italy as well as the latest developments in Cyprus represent potential hurdles for the recovery. HICP inflation decreased in January and February after a period of rising and stagnant inflation rates in the second half of 2012 and is expected to ease further in the course of the year. The economic sluggishness has had repercussions on the labor market – unemployment is on the rise.

Austria's Economy Contracts Only Marginally in Q4 2012 Despite Global Weakness

The first full set of national accounts data for the fourth quarter of 2012 indicates that Austrian GDP shrank by just 0.1% against the third quarter (in real terms, seasonally and working-day adjusted). Thus, output contracted perceptibly less in Austria than in Austria's main European trading partners (Germany: –0.6%; Italy: –0.9%).

Whole-year growth for 2012 amounted to +0.8% in Austria (in real terms, both seasonally and not seasonally adjusted). Growth was fueled not only by net exports, but also by domestic demand. The negative contribution to growth of inventory changes corroborates the general picture of uncertainty among economic agents.

Table 1

Results of the National Accounts

	GDP	Private consumption	Government consumption	Gross fixed capital formation	Exports	Imports	Domestic demand (excluding inventories)	Net exports	Changes in inventories	Statistical discrepancy
	Change on previous period in %						*Contributions to GDP growth in percentage points*			
Q3 11	–0.0	+0.1	+0.1	+1.1	+0.2	+0.5	0.3	–0.1	–0.1	–0.1
Q4 11	+0.2	+0.1	+0.2	+0.7	+0.1	–0.1	0.2	0.1	–0.0	–0.1
Q1 12	+0.4	+0.1	+0.2	+0.2	+0.3	+0.1	0.2	0.1	0.0	0.1
Q2 12	+0.1	+0.1	–0.0	+0.0	+0.7	+0.6	0.0	0.1	–0.1	0.1
Q3 12	+0.1	–0.0	–0.1	+0.1	+0.9	+0.3	–0.0	0.4	–0.2	–0.1
Q4 12	–0.1	–0.1	+0.1	+0.1	–0.3	–0.2	–0.0	–0.1	–0.2	0.2
2009	–3.5	+1.1	+0.9	–6.4	–15.3	–11.8	–0.6	–2.9	–0.6	0.6
2010	+2.2	+1.6	+0.0	+0.7	+8.9	+8.0	1.1	0.8	0.5	–0.1
2011	+2.7	+0.9	–0.4	+6.3	+7.1	+7.0	1.7	0.4	0.5	0.1
2012	+0.8	+0.4	+0.4	+1.8	+1.8	+1.2	0.6	0.4	–0.3	0.0

Source: Austrian Institute of Economic Research (WIFO).

Editorial deadline: March 25, 2013

[1] *Oesterreichische Nationalbank, Economic Analysis Division, klaus.vondra@oenb.at. In collaboration with Gerhard Fenz, Friedrich Fritzer, Walpurga Köhler-Töglhofer and Martin Schneider.*

The OeNB's Economic Indicator Heralds Positive GDP Growth in Austria in Early 2013

The OeNB's Economic Indicator of March 2013 shows that Austria is rebounding from the sluggish performance during the fourth quarter of 2012. Specifically, the OeNB forecasts real GDP to edge up in the first quarter of 2013 (+0.1% against the previous quarter) and to quicken a bit more in the second quarter of 2013 (+0.3%). This represents an upward revision of 0.1 percentage points in the second quarter of 2013 against the forecast in the OeNB December 2012 Economic Outlook for Austria.

The OeNB's Economic Indicator of March 2013 reflects the most recent developments of hard and soft facts. For instance, industrial output as defined by Eurostat[2] rose astonishingly forcefully in December (month on month) but nonetheless fell slightly for the fourth quarter as a whole (table 2). At the same time, the decline in construction output (NACE Section F) intensified in the course of the fourth quarter. Hence, industrial output as a whole (NACE Sections B through F[3]) diminished in the fourth quarter, notwithstanding a small increase in December.

New orders lead industrial production by some two to three months, but are also more volatile. The slowdown of the global economy in the fourth quarter of 2012 has left its marks above all on order books. Industry will come to feel the impact of the contraction of new orders during this period with a time lag. Only a marked improvement in actual orders received in the first quarter of 2013 could offset the dampening effects of the developments in the fourth quarter.

Confidence indicators reflect the most recent economic developments in a timely manner. At the time of writing, corresponding measures were available up to and including February. However, the indicators do not present a uniform picture: After having fallen slightly in January, the Economic Sentiment Indicator (ESI) of the European Commission rose perceptibly in February; it has thus moved closer to its long-term average. With the exception of January, the indicator has been improving slowly but surely, signaling an improvement of sentiment that should

Table 2

Industrial Output and New Orders (seasonally adjusted)

	Dec. 12	Nov. 12	Oct. 12	Q4 12	Q3 12	Q2 12	Q1 12	2012	2011	2010	2009
	Change on previous period in %										
Industrial output NACE B–F	+0.6	–0.5	–0.2	–1.1	+0.9	+2.0	+0.2	+1.9	+5.7	+4.5	–9.5
Construction output	–2.1	–1.2	–0.5	–3.0	+2.4	+3.1	–2.3	+1.8	–0.1	–4.3	–1.9
Industrial output as defined by Eurostat	+3.5	–1.1	–0.3	–0.6	+0.3	+1.6	+1.0	+1.8	+6.9	+6.6	–11.4
New orders NACE B–F	+0.6	–0.5	–0.2	–1.1	+0.9	+2.0	+0.2	+1.9	+5.7	+4.5	–9.5
New construction orders	–2.1	–1.2	–0.5	–3.0	+2.4	+3.1	–2.3	+1.8	–0.1	–4.3	–1.9
New orders as defined by Eurostat	+3.5	–1.1	–0.3	–0.6	+0.3	+1.6	+1.0	+1.8	+6.9	+6.6	–11.4

Source: Eurostat, OeNB calculations.

[2] *Industrial output as defined by Eurostat comprises NACE Sections B through D excluding Group D353, notably manufacturing (Section C).*

[3] *NACE Sections B to F comprises the following production areas: Mining, manufacturing, energy and water supply, and construction.*

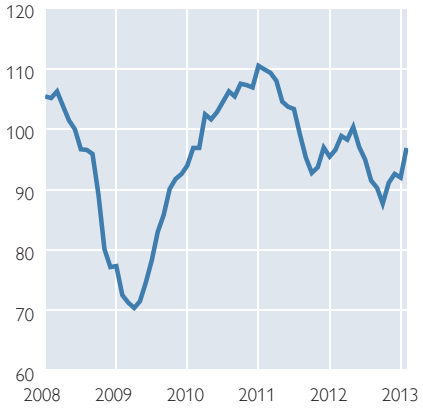
also translate into a recovery of various economic measures like industrial output in the first half of 2013. Bank Austria's Purchasing Managers' Index (BA EMI) dipped in February after having risen somewhat in January, but it remains below the expansion threshold. Unlike the ESI, the Purchasing Managers' Index has been moving sideways since surging in November 2012 and is not showing a clear trend.

Apart from the latter two indicators, the leading indicator of the Austrian Institute of Economic Research (WIFO) and the OECD's Composite Leading Indicator went through a trend shift in the fourth quarter of 2012. Like the ESI, WIFO's leading indicator as well as the Ifo Business Climate Index for Germany, which works well as a proxy leading indicator for Austria, have shown a continuous improvement of the economic situation. This corroborates the assessment that the rebound will strengthen from the beginning of 2013. However, what will happen after the first quarter of 2013 is still subject to a fair amount of uncertainty. Despite the most recent upward trend, all confidence indicators remain below their

Chart 1

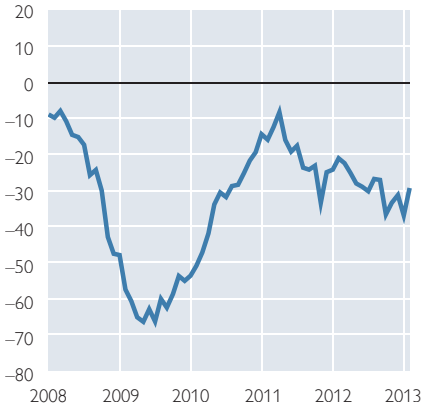
Leading Indicators (February 2013)

Economic Sentiment Indicator



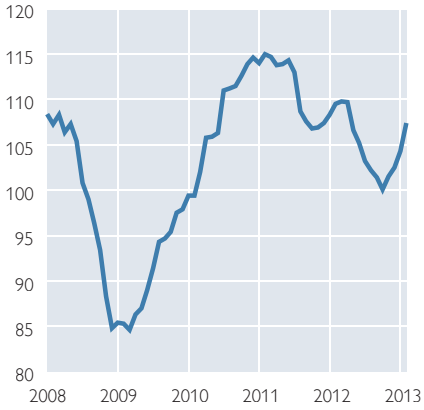
Source: European Commission.

ESI: New Orders from Abroad



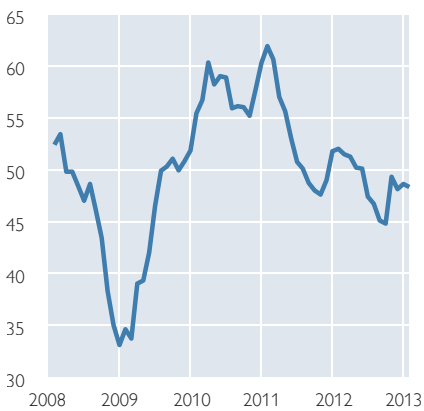
Source: European Commission.

Ifo Business Climate Index



Source: Ifo.

BA Purchasing Managers' Index

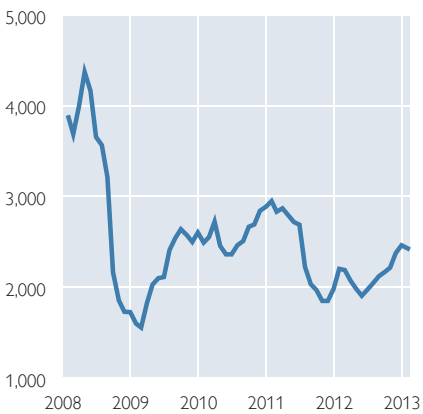


Source: Bank Austria.

BA EMI: New Orders

Source: Bank Austria.

ATX



Source: Wiener Börse.

long-term average. In addition, the confidence surveys show little signs of a pronounced improvement of order books (chart 1).

The result of the Italian parliamentary elections could put a renewed strain on economic developments beyond the first quarter of 2013. Protracted uncertainty about the political developments in Italy, which is after all the euro area's third-largest economy, could engender a reassessment of the reform process in Europe in tandem with a fresh loss of confidence on the part of investors. The results of the elections and the events in the subsequent days already triggered first negative reactions in the financial markets. Chart 2 shows yields on Italian ten-year government bonds resuming their upward movement and a decline in yields on German and Austrian government bonds, apparently a sign of investors' quest to find safe havens.

The intensification of the debt crisis in Italy in the second half of 2011 had a distinctly negative impact on Austria, given the close links between the Austrian and the Italian economies.[4] The yield spread between Austrian and German government bonds widened noticeably temporarily. Such contagion effects may well occur in the future, too.

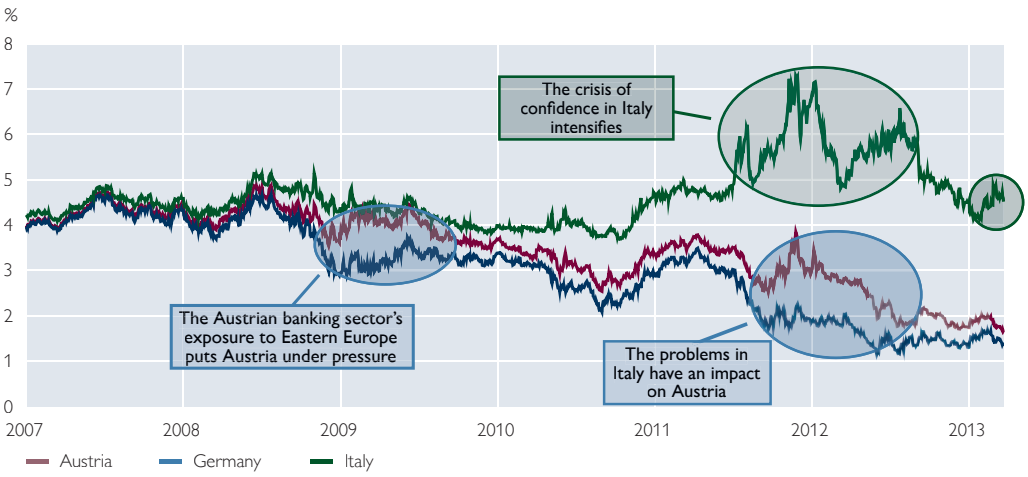
The latest developments in Cyprus – staving off national insolvency with a last-minute solution, putting together an EU-ECB-IMF rescue package, involving private savings above EUR 100,000 – will not have a direct impact on the Austrian economy. As the economy of Cyprus is small (0.2% of euro area GDP in 2012), these measures are not expected to have a direct impact on the euro area either. However, the dramatic negotiations within Cyprus and with the EU and the ECB up to late Sunday night on March 24 could have negative repercussions on sentiment in Europe.

HICP Inflation Accelerates Strongly from Mid-2012 and Begins to Ease in Early 2013

After HICP inflation had subsided in early 2012, it resumed its upward

Chart 2

Yield Spreads on Ten-Year Government Bonds



Source: Thomson Reuters.

[4] *Italy is Austria's second-most important trading partner.*

course to reach nearly 3% in fall 2012. Inflation quickened above all because service prices augmented sharply. Most recently, service sector prices contributed around 1½ percentage points, or nearly half of the total increment, to HICP inflation. The price momentum was driven above all by substantial wage cost increases, robust demand for tourist services and a moderately higher rate of increase of administered service prices.[5] Moreover, seasonal factors (industrial goods excluding energy: clothing and footwear) and weather-related factors (unprocessed food: fruit harvest losses) were implicated in the comparatively strong uptick in inflation in fall 2012. The OeNB expects these developments to be only temporary rather than presaging a revival of inflation. While inflation results were persistently high throughout the fourth quarter of 2012, inflation rates in early 2013 are nevertheless significantly lower than the peak rate of autumn 2011. The moderation of inflation by comparison to fall 2011 reflects more moderate developments above all in the energy sector, but also with regard to processed foods.

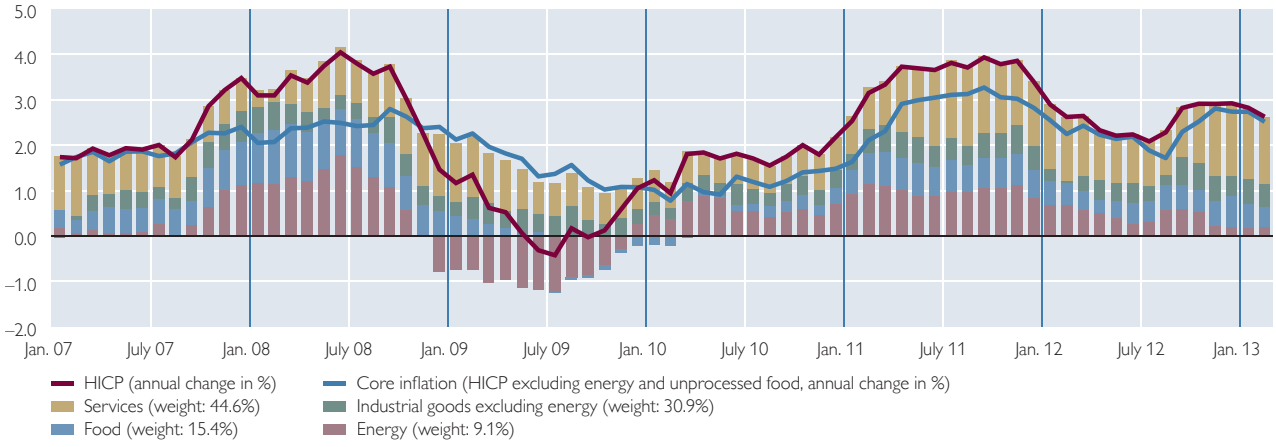
HICP inflation abated from 2.9% from October through December 2012 to 2.8% in January and 2.6% in February 2013. Core inflation (HICP excluding energy and unprocessed food) also decreased in February 2013 and stood at 2.5%. Thus, in February 2013, Austrian HICP inflation remained significantly above the euro area average of 1.8%. The inflation gap between Austria and Germany has widened markedly from August 2012 (+0.1 percentage points) to February 2013 (+0.8 percentage points). The principal reason for the widening of the inflation gap to Austria's main trading partner is the faster rise in the price of services and the underlying more pronounced increase of wages in Austria in 2012. Austrian HICP inflation exceeded the Italian counterpart rate by 0.6 percentage points in February 2013.

At 2.8% in February 2013 (December 2012: +4.1%), the CPI inflation rate of the micro basket – this basket

Chart 3

HICP Inflation and Contributions of Subcomponents

Contributions to growth in percentage points *Last observation: February 2013*



Source: OeNB, Statistics Austria.

[5] *Tuition fees for students who take longer than the standard time to graduate (long-time students) and for students from non-EU countries; medical services; public transportation.*

contains typical daily purchases of food only – was slightly above the HICP inflation rate. The CPI inflation rate of the basket of weekly goods (containing selected foods, services and fuel) was markedly below the HICP inflation rate (February 2013: 1.6%; December 2012: 3.1%). Annual CPI inflation ran to 2.5% in February 2013, down from 2.8% in December 2012.

The OeNB anticipates a further decline in HICP inflation in the course of 2013. Full-year HICP inflation in 2013 is forecast to come to some 2%. This value represents an upward revision from the OeNB December 2012 Economic Outlook. The key reason for the revision is the acceleration of service prices, as described above.

Unemployment (Eurostat Definition) Climbs to Highest Level since 2009

The lackluster economy in 2012 increasingly dampened developments in the labor market. Hence, in the course of 2012 – especially in the second half – the jobless rate mounted significantly. In January 2013, the rate of unemployment as defined by Eurostat attained the highest monthly value (4.9%) since the crisis in 2009 (5.2% in September 2009). Youth unemployment (job seekers up to the age of 25) augmented to 9.9% in the course of 2012; this rate, though, is still far below the euro area average of 24.2%.

The rise in unemployment was masked by the steady rise in employment in the course of 2012, which itself came as a surprise, given the difficult economic situation. Another special factor that has had an impact on the pace of employment growth was the opening of the Austrian labor market to job seekers from the countries that joined the EU in 2004 (with the exception of Bulgaria and Romania). While these barriers had been removed already in May 2011, nonresidents accounted for some 60% of the increment in employment in 2012.[6]

Table 3

Labor Market Overview

	Payroll employment		Unemployment		Unemployment rate		Vacancies		Training	
	1,000	*Annual change in %*	*1,000*	*Annual change in %*	*AMS (%)*	*Eurostat (%)*	*1,000*	*Annual change in %*	*1,000*	*Annual change in %*
2010	3,360	+0.6	250.8	–3.7	6.9	4.4	31,009	+14.1	73	+14.2
2011	3,422	+1.8	246.7	–1.6	6.7	4.2	32,310	+4.2	63	–13.6
2012	3,465	+1.3	260.6	+5.7	7.0	4.4	29,422	–8.9	67	+5.3
Q1 12	3,403	+1.6	297.3	+4.4	8.0	4.1	27,586	–11.6	68	–1.5
Q2 12	3,462	+1.3	234.3	+5.6	6.3	4.3	32,219	–11.2	68	+6.3
Q3 12	3,537	+1.2	229.9	+6.5	6.1	4.5	31,689	–5.5	60	+6.6
Q4 12	3,460	+0.9	281.1	+6.3	7.5	4.6	26,195	–7.2	70	+10.7
Sep. 12	3,507	+0.7	229.0	+5.0	6.1	4.5	31,609	–3.4	66	+6.4
Oct. 12	3,486	+1.0	249.9	+6.3	6.7	4.5	28,520	–7.7	73	+11.5
Nov. 12	3,466	+0.9	270.4	+6.7	7.2	4.5	25,454	–5.9	74	+9.0
Dec. 12	3,427	+0.7	323.0	+6.0	8.6	4.7	24,610	–7.9	62	+11.9
Jan. 13	3,404	+0.6	338.4	+6.4	9.0	4.9	22,760	–9.6	72	+9.0
Feb. 13	3,415	+0.7	326.4	+5.3	8.7	x	24,757	–9.9	x	x

Source: Austrian Association of Social Insurance Providers, Austrian Public Employment Service (AMS), Eurostat (Eurostat unemployment rate: seasonally adjusted). Payroll employment data for February: preliminary data of the Austrian Federal Ministry of Labour, Social Affairs and Consumer Protection.

[6] *The calculation refers to the rise in employment from January to December 2012. In December, the share of nonresidents in total employment came to 15%.*

Structural Budget Balances: Calculation, Problems and Benefits

Lukas Reiss[1]

The reform of the Stability and Growth Pact and the incorporation of "debt brake" rules into national legislation have heavily increased the importance of structural balances in economic policymaking in Europe. As defined by the European Commission, structural balances are calculated by subtracting the estimated cyclical component of government revenue and spending as well as certain temporary factors from the headline balance.

Structural balance estimates can be subject to significant measurement errors, which are mainly related to uncertainties about potential output and nonlinear reactions of tax revenue to sharp changes in GDP growth. The definition of temporary factors can also cause substantial problems.

While these problems do not render structural balances useless for the implementation of fiscal policy, they imply that policymakers should not aim to reach the target values for the structural balance exactly a specified each year, but rather on average over much longer time periods (unless exceptionality clauses apply). Achieving the targets on average can be ensured by using appropriately specified control accounts.

JEL classification: E62, H6
Keywords: structural balance, cyclically adjusted balance, fiscal rules, fiscal policy

Changes in government revenue and spending are not only driven by discretionary policy action but also by changes in economic conditions through the impact of automatic stabilizers. When GDP growth is below trend, tax revenue typically grows below trend as well, while social transfers to the unemployed will likely increase. Furthermore, changes in spending or revenue can also be driven by noncyclical transitory factors like one-off transfers to troubled banks or one-off taxes on wealth or specific forms of fiscal "gimmickry." When assessing short-term consolidation needs or long-term fiscal sustainability, one should try to adjust for such factors, i.e. perform the analysis on the basis of the structural balance. The (unobservable) structural balance indicates how large the budget balance would have been if the economy were at mid-cycle and if (certain) transitory noncyclical effects had not materialized.

At the European level, the reform of the Stability and Growth Pact (see for example Holler and Reiss, 2011) and agreement on the fiscal compact (contained in the Treaty on Stability, Coordination and Governance in the Economic and Monetary Union) have heavily increased the importance of structural/cyclically adjusted balances in economic policymaking. Above all, the fiscal compact requires countries to implement rules on structural balances in national legislation (preferably at the constitutional level).

Section 1 of this article describes how cyclically adjusted and structural balances are calculated, essentially outlining the European Commission's method. Section 2 discusses the shortcomings of these concepts, while section 3 focuses on how to handle these problems in policy implementation.

1 Calculation of the Structural Budget Balance

According to the European Commission's method, the structural balance is typically calculated in two steps. First one deducts the cyclical component,

Refereed by:
Geert Langenus,
Nationale Bank
van België

[1] *Oesterreichische Nationalbank, Economic Analysis Division, lukas.reiss@oenb.at.* *The author thanks Walpurga Köhler-Töglhofer and Geert Langenus for valuable suggestions and discussions.*

which is the product of the output gap (section 1.1) and the budgetary semi-elasticity (section 1.2), from the headline budget balance to arrive at the cyclically adjusted budget balance. Then one deducts certain one-off factors (section 1.3) from the cyclically adjusted balance to arrive at the structural balance.

1.1 Calculation of the Output Gap

The output gap is the relative difference of actual GDP from "potential GDP." The latter term can be confusing as it refers to the level of GDP which would prevail if the economy were at the midpoint of the cycle (Larch and Turrini, 2009) rather than indicating GDP at 100% capacity utilization and full employment. Thus, potential GDP should represent a relatively smooth underlying trend in GDP, which is estimated by a combination of structural equations and statistical filtering methods. In the European Commission's "production function approach" (D'Auria et al., 2010) GDP is decomposed into labor (L), capital stock (K) and the residual total factor productivity (TFP):

$$Y = L^{\alpha} K^{1-\alpha} TFP$$

The trend components of these three elements are calculated as follows:

- The capital stock is calculated by accumulating past gross fixed capital formation (investment), which is discounted by an annual depreciation rate (perpetual inventory method). The result is then taken to calculate the contribution of capital to potential output; there is no cyclical adjustment of the capital stock.
- The labor component is decomposed into the product of working-age population, participation rate, employment rate and hours worked per person. The developments of the latter three are divided into a trend and a cyclical component. While the trends of the participation rate and hours worked per person are calculated with an atheoretical HP filter, the trend of the unemployment rate (the nonaccelerating wage rate of unemployment – NAWRU) is computed with a Kalman Filter making use of additional macroeconomic data (wages, terms of trade, …). The product of the working-age population with the trend components of the other elements yields the labor contribution to potential output.
- The TFP component to potential output is calculated by applying a Kalman Filter making use of data on capacity utilization.

Chart 1 shows the European Commission's estimate of potential growth for Austria from its most recent forecast. According to the European Commission, potential growth has significantly slowed since the mid-2000s; this is also due to a smoothing of GDP developments around the strong downturn in 2009. The chart also illustrates that whenever actual growth is above (below) potential growth, the output gap increases (decreases).

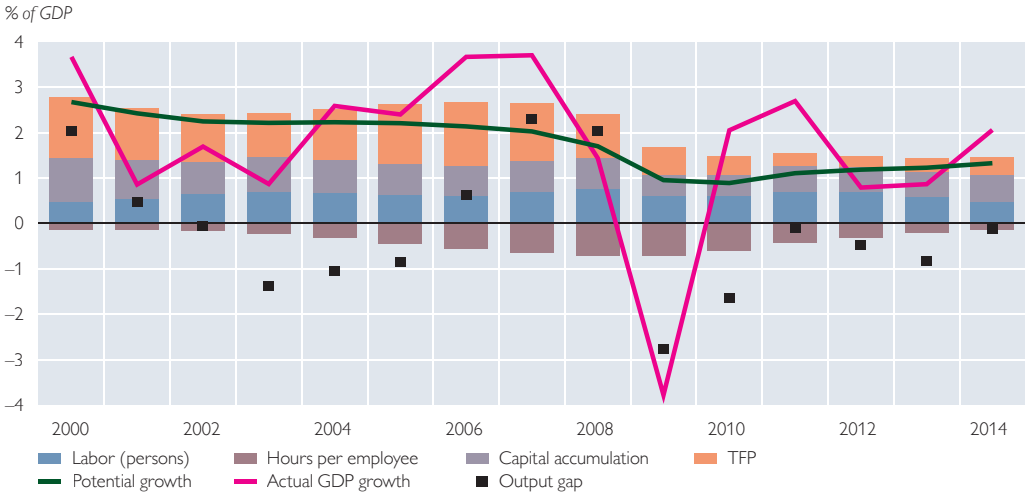
An alternative way to smooth GDP would be to simply use the HP filter on a series of real GDP figures directly. The HP filter minimizes

$$\sum_{t=1}^{T} (y_t - \tau_t)^2 + \lambda \sum_{t=2}^{T-1} [(\tau_{t+1} - \tau_t) - (\tau_t - \tau_{t-1})]^2$$

by choosing an appropriate (unobservable) trend τ_t and where y_t is the logarithm of real GDP and λ is the so-called smoothing parameter. The European Commission calls the result of this filtering "trend GDP" in its publications. While the HP filter is simpler and easier to replicate than the production function approach, it is relatively more prone to revisions.

Chart 1

European Commission Estimate of Potential Growth for Austria



Source: European Commission (autumn forecast 2012).

The cyclical adjustment only applies to fluctuations in real variables, i.e. there is no adjustment for fluctuations in the CPI or any other deflators.

1.2 Defining Cyclical Fiscal Variables and Calculating the Budgetary Semi-Elasticity

The budgetary semi-elasticity indicates by how much the budget balance changes as a ratio to GDP when the output gap increases by 1 percentage point (i.e. when actual GDP increases by 1% for a given potential GDP). The European Commission (Mourre et al., 2013) bases its budgetary semi-elasticity measure on the work of the OECD (Girouard and André, 2005).

The first step in calculating the budgetary semi-elasticity is to identify which components of government revenue and spending react automatically to the cycle ("passive reaction" of fiscal variables). Discretionary (active) policy measures are by definition not cyclical, even if they come as a direct response to the state of the economy, which can be countercyclical (e.g. stimulus packages as a reaction to a negative output gap) or procyclical (e.g. lower investment of municipalities in economically bad times due to balanced-budget restrictions). This distinction between the passive and the active reaction of fiscal policies to changes in cyclical conditions has to be made for two reasons:

1. The structural balance should give some information about the amount and direction of discretionary (i.e. active) fiscal policy.
2. As stated in the introduction, the structural balance should indicate where the headline balance would be if everything were "back to normal." Including unspecified "typical" active responses of fiscal policy to the cycle in the cyclical component of the budget balance would make it impossible to assess consolidation needs from the size of the structural balance.

On the revenue side it is assumed that all current revenue in taxes and social contributions is cyclical (which make up around 90% of revenue in Austria; see table 1), while on the expenditure side only unemployment-related pay-

Table 1

Government Revenue and Expenditure in Austria in 2011

	EUR billion	% of GDP	% of total
Government revenue	**144.4**	**48.0**	**100.0**
Taxes on production and imports	43.1	14.3	29.8
of which: VAT	*22.4*	*7.5*	*15.5*
of which: petroleum tax	*4.2*	*1.4*	*2.9*
of which: employers' contribution to Family Burden Equalization Fund	*5.0*	*1.7*	*3.4*
Current taxes on income, wealth, etc.	39.0	13.0	27.0
of which: personal income tax	*3.1*	*1.0*	*2.2*
of which: wage income tax	*23.0*	*7.7*	*15.9*
of which: corporate income tax	*5.6*	*1.9*	*3.9*
Social contributions	48.7	16.2	33.7
Capital taxes	0.1	0.0	0.0
Non-tax revenue	13.5	4.5	9.4
Government expenditure (EDP)	**152.0**	**50.6**	**100.0**
Social transfers	73.9	24.6	48.6
of which: unemployment (COFOG 10.5)	*3.6*	*1.2*	*2.3*
Other current primary expenditure	59.9	19.9	39.4
Interest payments (EDP)	7.8	2.6	5.2
Capital expenditure	10.4	3.4	6.8

Source: Statistics Austria.

Note: COFOG = classification of the functions of government; EDP = excessive deficit procedure.

Table 2

Calculation of the Budgetary Semi-Elasticity for Austria

	Share in GDP[1]	Macro base	Elasticity of fiscal variable with regard to base[2]	Elasticity of base with regard to output gap[2]	Elasticity of fiscal variable with regard to output gap[3]	Sensitivity of fiscal variable with regard to output gap	**Semi-elasticity of ratio to GDP with regard to output gap**
	A		B	C	D = B x C	E = A x B x C	**F = A x (D – 1)**
Total revenue	0.48	–	–	–	0.87	0.42	**–0.06**
Personal income tax	0.11	Wage bill	2.2	0.6	1.31	0.14	
Corporate income tax	0.02	Profits	1.0	1.7	1.69	0.04	
Social contributions	0.16	Wage bill	1.0	0.6	0.58	0.09	
Indirect taxes	0.15	Consumption	1.0	1.0	1.00	0.15	
Other revenue	0.04	–	–	–	0.00	0.00	
Total expenditure	–0.51	–	–	–	–0.08	0.04	**0.55**
Unemployment-related expenditure	–0.01	Unemployment	1.0	–3.3	–3.30	0.04	
Other expenditure	–0.49	–	–	–	0.00	0.00	
Budget balance	–0.02	–	–	–		0.47	**0.49**

Source: Mourre et al. (2013), Girouard and André (2005).

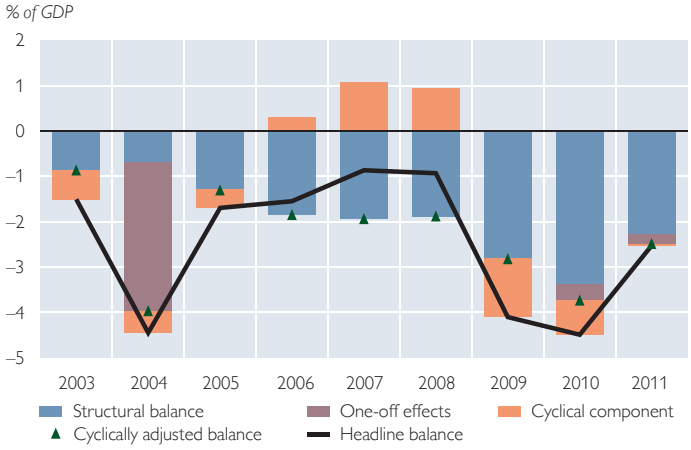
[1] *Values refer to the average from 2002 to 2011 (see Mourre et al., 2013, for details).*
[2] *Taken from Girouard and André (2005).*
[3] *Taken from Mourre et al. (2013).*

Note: The variables in columns C, D and F are called (semi-)elasticities as they could also refer to reactions to changes in actual GDP in % (for a given potential GDP) instead of reactions to changes in the output gap in percentage points.

ments are seen as cyclical. Table 2 shows how the European Commission (Mourre et al., 2013) computes the budgetary semi-elasticity of 0.49 for Austria. Current tax revenue is divided into personal income tax, corporate income tax, indirect taxes and social contributions; all of them are assigned to a

Chart 2

Structural, Cyclically Adjusted and Headline Budget Balance in Austria



Source: European Commission (autumn forecast 2012).

macroeconomic base variable with which the respective fiscal variable should have a high correlation. Then – based on tax codes – elasticities of the fiscal variables are computed with regard to their respective macro bases; in the case of Austria these elasticities all correspond to 1, except for the one of the progressive personal income tax. To arrive at the measure of sensitivity with regard to the output gap, these variables are then combined with estimated elasticities of the macro variables with regard to the output gap and the share of the fiscal variable in GDP. Finally, the budgetary semi-elasticity is computed by transforming these sensivities into the semi-elasticities of the revenue and expenditure ratio with regard to the output gap and adding them up.[2]

1.3 From Cyclically Adjusted to Structural Balances: Adjustment for One-Off Effects

To assess the underlying budgetary position of a country, it is also seen as necessary to adjust for (certain) one-off effects. The updated code of conduct published by the European Commission (2012, page 4) on the Stability and Growth Pact and on stability and convergence programmes gives the following general definition: "One-off and temporary measures are measures having a transitory budgetary effect that does not lead to a sustained change in the intertemporal budgetary position." The European Commission (2006, page 114) provides more detail and also gives a relatively long list of examples.[3] More recently, large capital transfers to banks in the context of government interventions due to the financial crisis have also been (at least partly) recognized as temporary measures. Notable is an asymmetry between deficit-increasing and deficit-decreasing measures, the latter being more likely to be deducted for computing the structural balance (for reasons of prudence). For example, temporary tax cuts are not accounted by the European Commission as temporary measures, while temporary increases are.

1.4 Example: Structural and Cyclical Budget Developments in Austria since 2003

Chart 2 shows how Austria's structural balance has evolved since 2003. Due to consolidation measures in the early

[2] *Note that column F in table 2 refers to the number currently employed by the European Commission (Mourre et al., 2013), while the sensitivity of the budget balance in column E is based on the previous method (European Commission, 2005).*

[3] *Tax amnesties implying a one-off tax payment, sales of nonfinancial assets, exceptional revenues linked to the transfer of pension obligations, changes in revenues or expenditure owing to court or other authorities' rulings, exceptional revenues from state-owned companies, short-term emergency costs associated with major disasters or other exceptional events, securitization operations and temporary legislative changes in the timing of expenditure or revenues (the latter two only when they have a positive impact on the budget balance).*

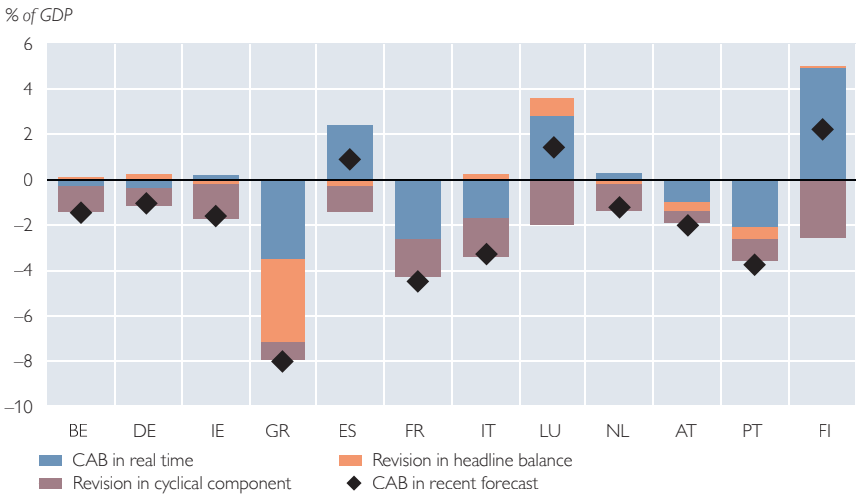
2000s, the structural balance was above –1% of GDP in 2003 and 2004, and the contribution of the cycle was negative due to low growth and in 2004 there was moreover a negative one-off effect.[4] Then the structural balance worsened significantly in 2005 and 2006 mainly due to cuts in income tax rates. At the same time cyclical conditions improved, which led to a decrease of the headline budget deficit to about 1% of GDP in 2007 and 2008. The strong downturn in 2009 was accompanied by a deterioration of the headline deficit by more than 3 percentage points, which according to the European Commission's method was mainly due to cyclical factors (the output gap worsened by almost 5 percentage points; see chart 1), with structural factors (like the cut in the personal income tax and several smaller stimulus measures) playing a secondary role. After a slight structural deterioration in 2010 there was a strong improvement in the headline deficit in 2011, which was partly due to a return of the cyclical component to close to zero and to several consolidation measures.

1.5 Example: Subnational Cyclical Components in Austria

The recently implemented rule on the structural balance in the Austrian Stability Pact applies to all levels of government. Therefore it does not suffice to consider estimates of the cyclical component of the general and the federal/central government balance; corresponding estimates also need be performed for states and municipalities. In Austria, this is simplified by the fact that taxes are primarily collected by the federal government (and then shared with states and municipalities) and that the federal government is also responsible for unemployment insurance. Therefore, regional business cycles play only a very limited role for the cyclicality of budget balances. Allocating the fiscal variables in table 2 either to the federal government (in-

Chart 3

Changes in Cyclically Adjusted Balances of 2007



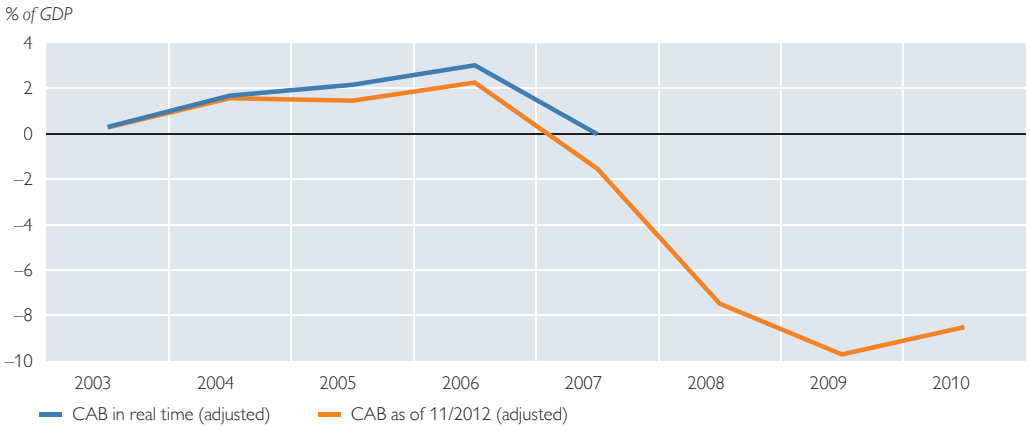
Real time = European Commission spring forecast 2008. Recent = European Commission autumn forecast 2012.

Source: European Commission.

[4] *The figure starts only in 2003 as the European Commission does not report one-off effects for previous years.*

Chart 4

Cyclically Adjusted Budget Balance of Ireland



Real time = European Commission spring forecast t+1 (adjusted for later revisions of headline balance)
11/2012 = European Commission autumn forecast 2012 (adjusted for impact of support to banks)

Source: OeNB, Eurostat, European Commission.

cluding social security funds) or to the states and municipalities produces a rough picture of the composition of the cyclical component under the Austrian Stability Pact: the federal government (including social security funds) accounts for seven-ninths of the cyclical component and the states and municipalities for two-ninths.

2 Problems in Estimating Structural Balances

Charts 3 and 4 indicate two major problems of the concept of cyclically adjusted budget balances:

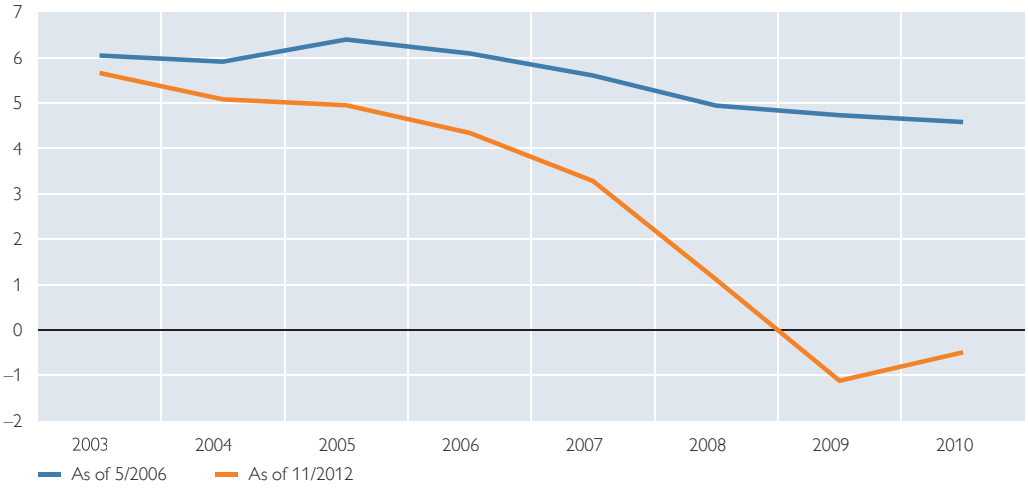
1. Estimates of the cyclically adjusted balance are subject to sizeable revisions, as is evident from the range of measures published for the pre-crisis year 2007 for the original 12 euro area countries (chart 3). While some of the changes are due to revisions of the headline budget balances (yellow bars), the major changes relate to revisions of the cyclical component (red bars). These revisions have been above 1% of GDP in most euro area-12 countries.[5]
2. Cyclically adjusted balances can worsen significantly within relatively short periods of time without the implementation of much fiscal stimulus or consolidation (see chart 4 with figures for Ireland). After having originally estimated Ireland to report a cyclically adjusted balance of roughly 0 in 2007, the European Commission has since revised this figure to –1.5% of GDP and it even assumes this figure to have deteriorated to –10% of GDP until 2009. This is somehow counterintuitive as there were some tax increases in this time span and as primary expenditure growth was much lower than before 2007.

[5] *Hughes Hallett et al. (2012) analyze revisions in output gap and CAB estimates for OECD countries since the mid-1990s. They do not directly show revisions in cyclical components, but these components can be (roughly) estimated by multiplying the revisions in the output gap with the respective budgetary sensitivity. Assuming a budgetary sensitivity of 0.44 (the OECD average in Girouard and André, 2005), this would yield a mean RMSE (root mean squared error) of somewhat more than ½% of GDP when comparing the estimate from t+1 to later ex post data.*

Chart 5

Estimates of Potential GDP in Ireland

Annual change in %



Source: European Commission.

Table 3

Potential Output Estimates of European Commission and OECD

	Output gap				Average potential growth				NAWRU / NAIRU			
	2007		2011		2000–2007		2007–2014		2007		2014	
	EC	OECD	EC	OECD	EC	OECD	EC	OECD	EC	OECD	EC	OECD
BE	2.4	2.8	–0.2	–0.1	1.9	1.8	1.1	1.4	7.7	8.0	7.5	7.9
DE	2.1	2.4	0.3	–0.5	1.3	1.3	1.3	1.5	8.6	8.0	5.1	6.7
IE	3.6	8.5	–2.8	–7.6	5.4	5.3	–0.1	1.7	5.8	7.6	15.2	10.6
GR	3.4	7.4	–10.0	–9.0	3.8	3.0	–1.4	–0.1	10.2	9.9	16.2	12.3
ES	2.1	2.7	–4.2	–6.1	3.5	3.4	–0.0	1.4	11.9	12.6	25.7	16.5
FR	2.9	3.2	–1.6	–2.0	1.8	1.7	1.1	1.4	8.8	8.5	10.3	9.0
IT	3.1	3.3	–1.8	–2.8	1.1	1.2	–0.1	0.4	7.3	7.4	10.5	7.6
NL	2.3	3.3	–1.8	–1.0	2.0	1.9	1.0	1.2	3.5	3.8	5.0	3.8
AT	2.3	3.7	–0.1	–1.3	2.2	2.1	1.2	1.8	4.3	4.3	4.2	4.3
PT	0.9	1.4	–2.6	–3.5	1.5	1.6	–0.3	0.4	9.1	8.1	15.1	11.0
FI	5.1	6.7	–1.5	–0.4	3.0	2.6	0.8	1.2	7.0	8.2	7.4	8.4

Source: European Commission, OECD (autumn forecasts 2012).

2.1 Uncertainty about and Volatility of Potential Output

Typically the largest problem in estimating structural balances is the estimation of the output gap, which is an unobservable variable. These uncertainties can lead to substantial ex post revisions of output gaps and implausibly large swings in potential growth rates. Both problems are exemplified by chart 5 for Ireland: The European Commission's estimates and projections of potential growth were revised downward substantially from May 2006 to November 2012. Lower potential growth in past years implies relatively higher output gaps and therefore ex post downward revisions of structural balances (chart 3). Furthermore, downward revisions of potential growth

forecasts mean that (for a given legislation on revenue) lower real expenditure growth is necessary to keep the structural balance constant. Taking the recent estimate of the European Commission for Ireland at face value (and again assuming no structural changes on the revenue side), from 2000 to 2007 an average real expenditure growth of 5.4% per year would have been sufficient to prevent the structural balance from deteriorating, while measures to keep real expenditure constant would lead to a slight worsening over 2007 to 2014 (table 3). While it cannot be neglected that potential growth can and does change over time (due to innovations, structural reforms, demographic changes, …), variations in potential growth rates of such a magnitude make it difficult to interpret the levels of, and the changes in, structural balances.

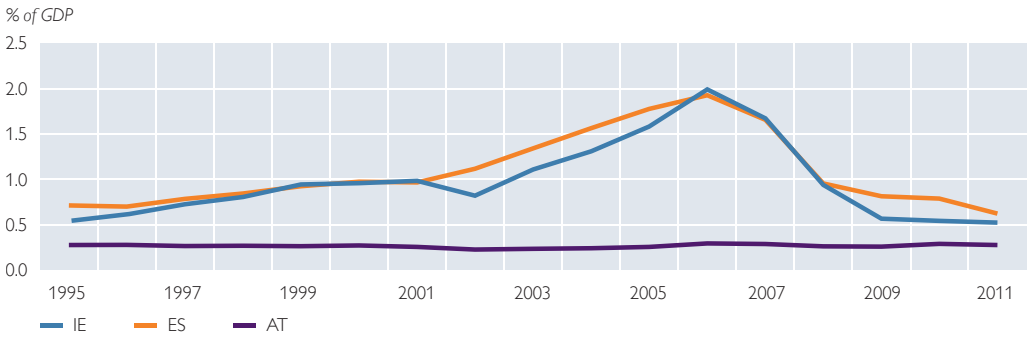
The uncertainty about potential output is also indicated by table 3, which gives an overview of the European Commission's and the OECD's recent estimates of output gaps for 2007 and 2011 and average potential pre- and post-crisis growth rates in the 11 largest euro area economies. It shows that potential growth is estimated to have declined substantially over time in several countries, especially in Ireland, Greece, Spain and Portugal. Furthermore, the estimates of the European Commission and the OECD differ remarkably. For example, while projecting similar unemployment rates for Spain in 2014, the estimates for the nonaccelerating inflation rate of unemployment differ by almost 10 percentage points for that year.[6]

2.2 Nonlinear Reactions of Tax Revenue to Sharp Changes in GDP Growth

The previous assumption of no structural changes on the revenue side (i.e. of "standard" reactions of tax revenue components to changes in GDP) is not as innocent as it may sound. While the revenue elasticities used by the European Commission (Mourre et al., 2013) would imply that tax ratios are roughly constant over the business cycle without any policy measures, the experience of the last years has shown that de-

Chart 6

Revenue from Taxes on Transactions in Property and Financial Assets[1]



Source: Eurostat.

[1] Stamp taxes (D.214B) and taxes on financial and capital transactions (D.214C)

[6] *Another issue in this context is raised by Kempkes (2012), who shows that there is a negative real-time bias in the estimation of output gaps (and therefore cyclical components) by international institutions, implying a systematic overestimation of structural balances in real time.*

pending on several factors (which will be explained below) tax revenue can vary much more or much less than GDP. For example, while from 2007 to 2009 the tax ratio plummeted in countries like Ireland and Spain, it actually rose in Austria despite a sizeable cut in personal income tax rates (with some minor tax increases and decreases roughly cancelling each other out).

One of the main reasons for this development was the asset price bubble in Ireland and Spain. Chart 5 shows the revenue from taxes on property and financial transactions in Ireland, Spain and Austria (in all three countries this revenue is coming primarily from property transactions). These are indirect taxes and therefore the GDP ratio should – given the elasticity of 1 used by the European Commission – remain constant over the cycle (unless there are changes in tax rates and/or bases). However, this was obviously not the case: While tax revenues remained stable at roughly ¼% of GDP in Austria, they increased in Ireland and Spain from 1% of GDP in 2001 to 2% of GDP in 2006, only to decrease to less than 1% of GDP in 2008. Due to the elasticity of 1 both these changes were identified as structural. The effect of the build-up and burst of the property bubbles in these two countries becomes also visible when looking at other taxes related to immovable property (like VAT and capital gains taxes). For example, in Ireland taxes on capital gains made up 1.6% of GDP in 2007 and 0.3% of GDP in 2009 (amidst a decrease in nominal GDP of around 15%).

Two less severe examples for nonlinear reactions of tax revenue to sharp cyclical changes could be observed in Austria in 2009, when GDP decreased by 3.5% in real terms. That year revenue from corporate income tax (which made up 2.2% of GDP in 2008) decreased by 34%, while according to the elasticities employed by the European Commission it should have only decreased by roughly 6%.[7] At the same time, compensation of employees and therefore wage-related taxes and social contributions developed much better than what would have been predicted by the semi-elasticity of the European Commission. However, these two nonlinear effects roughly cancelled out in 2009.

2.3 Some Crudeness in Assessing the Cyclicality of Tax Revenue

At least in theory, structural balances play an important role for fiscal governance in Europe. Therefore, a harmonized treatment of different countries can be argued to be very important. However, this can come at the cost of accuracy. Three examples will be provided in the following, namely the elasticity of personal income tax, the problem of noncyclical tax revenue and the elasticities used for indirect taxes.

Girouard and André (2005) themselves point out that the elasticity of the (typically) progressive personal income tax might be overestimated as they assume in their calculation of the tax elasticity that all fluctuations in the wage bill are in wages per person (and that there are none in employment). For example, when assuming that half of the fluctuations in the Austrian wage bill are driven by fluctuations in employment in persons, the budgetary semi-elasticity would be overestimated by roughly 0.04.

[7] *There were no major changes in the rate or base of corporate income tax in 2009; the only stimulus measure affecting corporate income tax was a temporary acceleration of depreciation which was projected by the government to dampen revenue only from 2010 on.*

Chart 7

Revenue from VAT

Source: Eurostat.

Furthermore, not all current tax revenue can be considered as cyclical. This is particularly the case with taxes on public pensions. Pension payments by the government are assumed to be noncyclical (section 1.2) in the OECD/European Commission method and therefore taxes on these pensions should be noncyclical too.[8] However, this revenue is included in the calculation of the budgetary semi-elasticity. In 2011, income tax on pensions made up roughly 1.8% of GDP and social contributions on pensions 0.8% of GDP (according to the statistics on wage income tax). Summing up, this implies that the inclusion of taxes on pensions leads to an overestimation of the budgetary semi-elasticity by roughly 0.03.

As indirect taxes are typically not progressive and as there were problems with the estimation of the elasticity of consumption with regard to the output gap, the elasticity of indirect taxes to the output gap is set to 1 for all EU/OECD countries in European Commission (Mourre et al., 2013) and Girouard and André (2005). This is somewhat problematic as the relative volatility of indirect taxes (compared to GDP) differs significantly across EU countries, reflecting among other things the different composition of indirect taxes. Another example apart from indirect taxes on property transactions (section 2.2) is that in France, Sweden and Austria a significant share of indirect taxes is based on wages (Austria in 2011: 2.6% of GDP or 18% of indirect taxes), which should be less cyclical than taxes on consumption according to the OECD calculations (as the elasticity of the wage bill to the output gap is typically below 1; see table 2 for Austria). Furthermore, there seem to be substantial differences in the relative volatility of the VAT base (compared to GDP) across EU countries, when looking at how VAT revenue reacted to the downturn in 2009 (chart 7).

In alternative approaches to cyclical adjustment, Bouthevillain et al. (2001) and Morris and Schuknecht (2007) try to account for some of these problems in sections 2.2 and 2.3. In the European System of Central Banks' method of cyclical adjustment (described in Bouthevillain et al., 2001), different macro bases (similar to the ones in table 2) are decomposed into trend and cycle using an HP filter. The resulting cyclical parts are multiplied with tax elasticities and shares of tax categories in GDP (similar to columns A and B in

[8] *Taxes and social contributions on public wages are another example for taxes which are by definition noncyclical. However, not adjusting for them is less problematic as public wages are a part of GDP. It is already implicit in the calculation of the budgetary semi-elasticity that a change in the output gap (wage bill) by 1 percentage point implies a change in private GDP (private wages) by more than 1%.*

table 2) to compute the cyclical component of the budget balance.[9] This method accounts for situations where relative growth of tax bases (compared to GDP) is different from what is implied by the elasticities used by the OECD and the European Commission (column C in table 2). This can make a significant difference in estimated cyclical components as implicit tax rates on wages and consumption are typically much higher than on profits and net exports. Morris and Schuknecht (2007) use a similar method to look at the role of asset prices (in addition to the traditional tax bases in table 2). They calculate the cyclical contribution of asset prices to the budget balance by combining "asset price gaps" (computed by an HP filter) with estimated semi-elasticities of the budget balance to asset prices.[10] However, this alternative approach suffers from two significant problems: While wage-related taxes (i.e. income taxes and social contributions on wages, payroll taxes) typically move roughly in line with the tax base (Morris et al., 2009), the relationship of corporate taxes and "consumption taxes" (VAT, excise duties, insurance taxes) to national account aggregates like (gross or net) operating surplus or private consumption is much looser; for example, the shortfall in corporate taxes in Austria in 2009 (section 2.2) could not be explained by movements in the net operating surplus. Furthermore, cyclical components calculated by the HP filter trend to be more prone to revisions than the ones based on production functions.

2.4 Adjustment for Cyclicality in Other Expenditure Items Is Theoretically Possible, But Effect Should Be Rather Small

Even when accepting that discretionary fiscal policy action is not to be included in the cyclical component, it might seem restrictive to include only unemployment-related payments when calculating the cyclical component of expenditure. For example, one might argue that other social payments and/or interest expenditure also show cyclical patterns.

More people might retire in economically bad times, leading to an above-average increase in pension payments. However, unless these (early) retirees resume employment when the economy recovers, the increase in pension spending is persistent. Another cyclical factor in pension payments is that in some countries public pensions are indexed to wage developments (in Austria they are indexed to the CPI), which makes them mildly procyclical (with some time lag). Adjusting for this factor (which is done neither by European Commission, nor by Girouard and André, 2005) would actually decrease the estimated budgetary semi-elasticity. Parts of social transfers other than pensions and unemployment benefits might be argued to be cyclical due to means-testing. However, one then has to filter out how cyclical the number of recipients really is; noncyclical factors like poverty due to needs for long-term care can play a large role there (as for example in Austria).

[9] *Grossmann and Prammer (2005) apply this method to Austria.*

[10] *Morris et al. (2009) suggest using residential investment as an alternative tax base for taxes on property transactions and as an additional base for VAT.*

Net interest expenditure[11] can be argued to be cyclical for the following two reasons: When the output gap is negative, borrowing requirements will be higher, which should increase interest payments. At the same time, interest rates are typically lower in economically bad times. In practice it might be a reasonable approximation for many countries to assume that these two factors roughly cancel each other out (see also Bornhorst et al., 2011). Note, however, that this does not fully apply for euro area countries as the risk-free rate should reflect the economic state of the euro area as a whole while output gaps may differ substantially across the euro area.

2.5 Delimiting One-Off Effects is Trickier than One Might Think

Bornhorst et al. (2011, page 30) state in their guideline for calculating structural fiscal balances that, "While seemingly straightforward, there are no universally accepted criteria for identifying one-off or temporary fiscal measures." When quantifying temporary measures, one often faces a trade-off between the following three potential aims:

- getting a meaningful level of the structural balance,
- getting meaningful changes in the structural balances, and
- being on the prudent side in the analysis of structural balances.

Almost any possible treatment of transitory factors is bound to fail on at least one of these targets. For example, the current practice of the European Commission (section 1.3) seems to focus on getting a prudent estimate of the level of the structural balance. Therefore, it deducts temporary tax increases from the structural balance, but does not account for temporary tax cuts (section 1.3 and European Commission, 2006). So in cases of temporary tax increases the change in the structural balance (especially if one wants to assess discretionary policy action) and the level of (past) structural balances would be distorted (the latter might be relevant when having a control account; see section 3.3). On the other hand, however, when not deducting temporary tax increases from the structural balance, one may underestimate the need for consolidation measures when looking at the structural balance.

Problems might also arise in the context of transactions with state-owned companies which are statistically classified outside general government, especially when pension funds are transferred from them to the government or when they are dependent on transfers from government. Examples for the latter include "lost" capital injections to nationalized banks or subsidies, investment grants and debt assumptions for public railway companies. These can contribute to significant variations in the headline deficit which cannot be interpreted as consolidation (or expansion). In most cases these measures are self-reversing in the sense that higher expenditure in one year leads to lower expenditure in other years. Removing these transfers completely would distort the (average) level of the structural budget balance and adjusting for only the self-reversing effect may not be practically possible.

Joumard et al. (2008) analyze one-off factors in the OECD and find that they are to a large extent recorded under what they call net capital trans-

[11] *In 2011 Finland was the only euro area-12 country where interest payments were lower than interest receipts (i.e. net interest expenditure being negative).*

fers[12], which are typically relatively small in size compared to overall expenditure or revenue. They suggest applying an HP filter to these items to account for one-off factors. This would not distort the (average) level of the structural balance; however, it might still distort the change in the structural balance in case of extremely high capital transfers in single years (as in Ireland in 2010).

Even when accounting for all possible one-off factors, one cannot simply assume that the yielded structural (primary) balance will remain unchanged under a no-policy-change assumption (i.e. without further discretionary action of governments). Factors like bracket creep, devaluation of nominally fixed transfers (or taxes), changes in potential growth or strong upward trends in entitlement spending (pensions, health, long-term care) can have a significant impact on structural deficits even in the short run.

3 Implications for the Implementation of Rules on Structural Balances

The methodological limitations mentioned in the previous section are especially severe for countries in a deep economic crisis. When estimates of the size of potential growth and the output gap differ as much as they currently do for countries like Spain or Greece (table 3), then a strong reliance on structural balances is hardly justifiable. This explains why the current EFSF/IMF programs also rely on nominal targets and the estimated effect of single consolidation measures.

Table 4

Potential Growth 1999–2013

	Annual growth			10-year average[1]	
	Mean	Min	Max	Min	Max
BE	1.6	0.9	2.4	1.1	2.2
DE	1.3	0.7	1.6	1.2	1.6
IE	3.6	–1.1	9.2	0.6	7.8
GR	1.8	–2.8	4.9	–1.4	3.8
ES	2.2	–1.3	3.8	0.2	3.4
FR	1.5	0.9	2.0	1.1	1.9
IT	0.7	–0.9	1.8	0.0	1.5
NL	1.8	0.6	3.4	1.0	3.0
AT	1.9	0.9	2.7	1.2	2.5
PT	1.0	–1.3	3.3	0.0	2.6
FI	2.3	0.6	4.1	0.8	3.4

Source: European Commission (autumn forecast 2012).

[1] *Constructed as in SGP expenditure rule (t–5 to t+4).*

3.1 Uncertainty about Potential Growth is Problematic for Fiscal Policymaking also in the Absence of Structural Balance Rules

However, uncertainties about potential output and fluctuations in potential growth are significantly smaller in many other European countries which do/did not face protracted recessions (tables 3 and 4). Furthermore, macroeconomic policies are generally marked by uncertainties and the most problematic uncertainty in computing structural balances, namely that about potential growth and the output gap, is not only relevant when handling structural balances.[13] In order to avoid defaults on public debt as well as highly procyclical policies, fiscal policymakers need to have the following things in mind:

They need to have at least a very crude idea about whether the economy is operating below or above the long-

[12] *Capital transfers (paid minus received) + net acquisition of nonproduced nonfinancial assets + changes in inventories + net acquisition of valuables.*

[13] *For example, Orphanides (2003) argues against using the Taylor rule for monetary policy due to real-time uncertainties about the output gap.*

term trend (i.e. how large the output gap could be). Above all, this is also necessary for avoiding procyclical fiscal policies (i.e. fiscal expansions when the output gap is high) and for assessing whether there are consolidation needs or not (e.g. a headline deficit of 3% implies lower consolidation needs when the output gap is low than when it is high).

Furthermore, when planning expenditure, the government needs to have some idea of the trend/potential growth rate of the economy; otherwise it does not know whether a certain growth of primary expenditure is contractionary or expansionary (i.e. real expenditure growth of 1.5% might be roughly neutral in Austria but rather contractionary in Slovakia).

3.2 Structural Balances Are a Useful Anchor for Fiscal Policy …

Due to the high degree of financial integration in the euro area, there can be substantial negative spillovers when some member states face severe fiscal problems. This might increase the probability of bailouts of countries in distress, which in turn would raise distributional and moral hazard issues. Therefore there has been a strong emphasis on numerical fiscal rules in the euro area. The headline balance, the debt ratio and the structural balance are all used in the SGP (Holler and Reiss, 2011) and structural balance rules need to be implemented in national legislation under the fiscal compact.

Both the headline balance and the debt ratio are observable variables and therefore less prone to revisions than the structural balance. However, while it cannot be neglected that the structural balance can also be procyclical (i.e. overestimated in good times, underestimated in bad times) to some extent, both the headline balance and the debt ratio are prone to much stronger cyclical patterns. Given its relatively lower procyclicality, the structural balance is more useful than the headline balance for assessing whether there are consolidation needs at all and (if so) how large they are.

This tradeoff between procyclicality and vulnerability to revisions may explain the coexistence of different numerical rules: Commitment to the *target values for the structural balance*[14] should in most cases automatically imply commitment to the *minimum requirement* of a headline deficit of no more than 3% (unless the output gap is highly negative).[15] At the same time, in case of breaches of the 3% rule on the headline deficit there is much less room for interpretation[16] and penalties are potentially much higher than when the target value for the structural balance is missed.

3.3 … But Should Not Be Taken Too Literally in Real Time

Due to the measurement problems described in section 2, fiscal policymakers should explicitly account for these uncertainties in implementing numerical fiscal rules to avoid procyclical policies; this could be done by complementing a target value for the structural balance with an expenditure rule and a control account. These uncer-

[14] *These are at least –1% of GDP for euro area countries in both the SGP and the fiscal compact.*

[15] *Due to cyclical adjustment (Holler and Reiss, 2011), the debt rule of the SGP would typically also be fulfilled in case of a structural balance of –1% or better.*

[16] *Excessive deficit procedures are almost always launched when the headline deficit is above 3% of GDP in one country.*

tainties can also be argued to call for setting targets cautiously (i.e. rather high) as in the SGP and the fiscal compact.

The reformed preventive arm of the SGP contains an expenditure rule: Real growth in primary expenditure (accounting, among other things, for discretionary measures on the revenue side) shall not exceed a certain benchmark, which is determined by the size of consolidation needs and a 10-year rolling average of potential growth. Budgeting discretionary expenditure and planning discretionary measures on entitlement spending and taxes could be done based on the mechanics of this rule. This would ensure much smoother expenditure developments than directly targeting a certain measured structural balance "at any cost"[17], as the 10-year rolling average of potential growth is much less volatile than potential growth in single years (table 4) and measurement errors on the revenue side can be substantial (sections 2.2 and 2.3).

If such a policy were pursued, point targets on the structural balance would be missed most of the time. However, deviations should not be systematic when estimates of potential growth and of the effect of revenue measures are plausible.[18] To ensure that deviations are not systematic, it is helpful to keep a control account (like for example in Austria or Germany) where ex post deviations from the target can be recorded (except in years where exceptionality clauses would apply). If deviations cancel each other out on average, then there is no problem for fiscal sustainability; if they are systematically negative, structural balance targets will have to be set higher in economically good times to make up for past slippages.

4 Conclusions

Structural balance estimates can be subject to significant measurement errors, which are mainly related to uncertainties about potential output and nonlinear reactions of tax revenue to sharp changes in GDP growth. The definition of temporary factors can also cause substantial problems. These problems make this concept difficult to apply in countries which are facing a deep economic crisis (and where the growth outlook is marked by extreme uncertainty).

However, fiscal policies are generally marked by uncertainties about potential growth as long as policymakers want to avoid both procyclicality and defaults. So for other countries these problems simply imply that deviations from structural balance targets are hard to avoid but that they are also not problematic as long as they are not too large and not systematically negative. This can be ensured by appropriately specified control accounts.

[17] *Targeting a certain value "at any cost" implies that there are last-minute tax increases or cuts in discretionary expenditure when revenue or entitlement spending deviate from plan (even if deviations were due to measurement errors).*

[18] *A strong downward (upward) trend in potential growth can lead to a systematic underachievement (overachievement) of structural balance targets for some time. However, the effect should not be too large when using a rolling average of past and future potential growth rates as in the expenditure rule of the SGP.*

References

D'Auria, F., C. Denis, K. Havik, K. Mc Morrow, C. Planas, R. Raciborski, W. Roger and A. Rossi. 2010. The production function methodology for calculating potential growth rates and output gaps. European Commission: European Economy – Economic Papers 420.

Bornhorst, F., G. Dobrescu, A. Fedelino, J. Gottschalk, and T. Nakata. 2011. When and How to Adjust Beyond the Business Cycle? A Guide to Structural Fiscal Balances. IMF Technical Notes and Manuals 11/02.

Bouthevillain, C., P. Cour-Thimann, G. van den Dool, P. Hernández de Cos, G. Langenus, M. Mohr, S. Momigliano and M. Tujula. 2001. Cyclically Adjusted Budget Balances: An Alternative Approach. ECB Working Paper 77.

European Commission. 2005. New and updated budgetary sensitivities for the EU budgetary surveillance.

European Commission. 2006. Public Finances in EMU.

European Commission. 2012. Code of conduct. Specifications on the implementation of the Stability and Growth Pact and guidelines on the format and content of Stability and Convergence Programmes.

Girouard, N. and C. André. 2005. Measuring Cyclically adjusted Budget Balances for OECD Countries. OECD Economics Department Working Papers 434.

Grossmann, B. and D. Prammer. 2005. A Disaggregated Approach to Analyzing Public Finances in Austria. In: Monetary Policy & the Economy Q4/05. 61–75.

Holler, J. and L. Reiss. 2011. What to Expect from the Latest Reform of the Stability and Growth Pact. In: Monetary Policy & the Economy Q4/11. 85–98.

Hughes Hallett, A., R. Kattai and J. Lewis. 2012. How Reliable Are Cyclically Adjusted Budget Balances In Real Time? In: Contemporary Economic Policy, Western Economic Association International 30(1). 75–92.

Joumard, I., M. Minegishi, C. André, C. Nicq and R. Price. 2008. Accounting for One-off Operations when Assessing Underlying Fiscal Positions. OECD Economics Department Working Papers 642.

Kempkes, G. 2012. Cyclical adjustment in fiscal rules: Some evidence on real-time bias for EU-15 countries. Deutsche Bundesbank Discussion Papers 15/2012.

Larch, M. and A. Turrini. 2009. The cyclically-adjusted budget balance in EU fiscal policy making: A love at first sight turned into a mature relationship. European Commission: European Economy – Economic Papers 374.

Morris, R., C. Rodrigues Braz, F. de Castro, S. Jonk, J. Kremer, S. Linehan, M. R. Marino, C. Schalck and O. Tkacevs. 2009. Explaining government revenue windfalls and shortfalls: an analysis for selected EU countries. ECB Working Paper 1114.

Morris, R. and L. Schuknecht. 2007. Structural balances and revenue windfalls – the role of asset prices revisited. ECB Working Paper 737.

Mourre, G., G.-M. Isbasoin, D. Paternoster and M. Salto. 2013. The cyclically-adjusted budget balance used in the EU fiscal framework: an update. European Commission: European Economy – Economic Papers 478.

Orphanides, A. 2003. Historical monetary policy analysis and the Taylor rule. In: Journal of Monetary Economics 50(5). 983–1022.

Effective Retirement Age in Austria – A Review of Changes since 2000

Alfred Stiglbauer[1]

Increases in life expectancy, lower birthrates and the aging of the baby-boom generation call for measures to increase the effective retirement age. In Austria, the employment rate of older workers rose from 28.8% to 41.4% between 2000 and 2011, which would imply substantial progress in keeping older workers in employment. Yet social security statistics indicate that the average pension entry age has barely risen in the past decade and that it remains stuck considerably below the statutory age. How can these differing developments be reconciled? By discussing various concepts of the effective retirement age, this article finds that the discrepancy can be largely explained by adjusting the conventional statistical measures in several ways. After accounting for such effects it becomes clear that the average retirement age has indeed risen.

JEL classification: J11, J26
Keywords: retirement, effective retirement age, public pensions

The need for longer working lives driven by demographic changes is universally acknowledged: Increased life expectancy and lower fertility rates call for measures to increase the effective retirement age to make public pension systems sustainable. At least since the early 2000s, this need has been addressed by EU initiatives (such as the Lisbon strategy and its successor, the EU 2020 strategy) and reports of international organizations like the OECD advocating pension reforms as well as by actual reforms in EU Member States.

To identify fiscal bottlenecks and areas in need of policy change, policymakers can rely on regular demographic and economic projections, such as the long-term economic and budgetary projections for the EU Member States ("Aging Report") by the European Commission and the Economic Policy Committee. The Aging Report is compiled approximately every three years; the most recent (fourth) edition of the report was released towards the end of last year (European Commission, 2012). In Austria, the Pension Reform Commission (Kommission zur langfristigen Pensionssicherung) has recently published a report which analyzes the evolution of the pension age in detail and suggests adjusting the social security statistics to be able to monitor future developments adequately ("Monitoring Report," Pension Reform Commission, 2012).

When it comes to measuring the success of all the efforts undertaken to make pension systems more sustainable, the employment rate of older workers, derived from Eurostat's Labour Force Survey (LFS), is a widely recognized indicator. It is usually defined as the population share of people that are employed in the age class from 55 to 64 years. In terms of this indicator, Austria (while continuing to lag the Nordic countries) has made substantial progress during the last decade. Between 2000 and 2011 the employment rate of older workers increased from 28.8% to 41.5%, with most of the increase occurring between 2004 and 2010. Measured by another indicator which is derived from the same data, the "average exit age from the labor force" in

[1] *Oesterreichische Nationalbank, Economic Analysis Division, alfred.stiglbauer@oenb.at.* *The author would like to thank the referee whose suggestions helped to improve this article considerably and Roman Freitag (Federal Ministry of Labour, Social Affairs and Consumer Protection, BMASK) who provided valuable background information concerning the Monitoring Report of the Austrian Pension Reform Commission.*

Refereed by:
Ulrich Schuh,
Eco Austria

Austria increased from von 59.2 to 61 (i.e. by 1.8) years between 2001 and 2007.[2]

Yet this positive impression is not confirmed by the Austrian social security statistics, which show that the average pension entry age has increased only by 0.6 years since 2000 (average of men and women) and that it has been virtually stagnant since 2005. According to this source, the average pension entry age was 59.2 for men and 57.3 for women in 2011 and thus substantially below the statutory pension age (above all for men).

The discrepancy between these two sets of data is puzzling. Have the efforts to curb early retirement changed retirement behavior or have they essentially increased recourse to the remaining pathways to early retirement? After all international organizations have regularly criticized the increased number of invalidity pensions and the early retirement scheme for workers with long employment histories ("Hacklerregelung"). It also matters from an economic and social policy perspective how the effective retirement age has actually evolved. This article therefore tries to clarify the statistical puzzle outlined above by discussing the different concepts (employment rates, exit ages from the labor force, and the pension entry age).

The focus of analysis is limited to average figures for women, men and all workers. The article discusses neither the evolution of the statistical distribution of the retirement age (because, in my view, this is not necessary to answer the question posed above[3]) nor worker heterogeneity in longevity and retirement behavior.[4] Finally, I do not provide an overview of all the pension reforms implemented in the last decade. This would go beyond the scope of this article, which focuses on simple statistical questions regarding the factual progress in the retirement age.

The article is structured as follows: Section 1 makes the demographic case for longer working lives and presents some results from the 2012 Aging Report. Section 2 explains how employment rates for prime-age and for older workers have evolved in the last decade and discusses other measures of old-age employment that indicate the retirement age directly. This overview confirms that the average pension entry age as evident from the Austrian social security statistics shows considerably less progress in increasing old-age employment than the old-age employment rate.

Section 3 discusses reasons why these measures give a different impression of the evolution over time. As regards the LFS data, the results could be affected by sampling errors. Several statistical adjustments suggest that the average retirement age has indeed increased over the last decade. It will be shown that the number of pensioners who work after retirement has risen over time. Moreover, drawing on results from the Monitoring Report by the Austrian Pension Reform Commission, the increase in the average pension entry age derived from the social security statistics becomes larger when the

[2] *Those are the latest data that have been published by Eurostat. See box 1.*

[3] *See Pension Reform Commission (2012) on such statistics.*

[4] *Klotz (2011) presents evidence on socio-economic differences in mortality. The Economist (2012) provides a short discussion of possible consequences of these differences for pension systems. The Monitoring Report of the Pension Reform Commission provides some evidence on the heterogeneity in the retirement age between different worker groups (i.e. blue-collar, white-collar workers and the self-employed).*

statistics are restricted to domestic beneficiaries of Austrian pensions, when a more refined way to calculate the exact pension entry age is used and when the changing age structure of older workers is accounted for. Section 4 summarizes and concludes.

1 The Demographic Case for Longer Working Lives

Holding factors such as immigration and economic growth constant, demographic developments call for changes in pay-as-you-go (PAYG) pension systems. The focus is on PAYG pension systems because of the evident connection between demographics and sustainability, and because PAYG pensions are the dominant source of retirement income in Austria.[5] Regarding the issue at hand, there are three demographic trends that are important: increasing life expectancy, decreasing birthrates and the aging of the so-called baby-boom generation, which will be discussed in greater detail below presenting data from the past and assumptions regarding future developments as they are used in the EU Aging Report.

1.1 Higher Life Expectancy

Panel (a) of table 1 demonstrates that the average life expectancy has been rising in Austria: Demographers project life expectancy at birth to have increased by almost 16 years for men between 1951 and 2011. Given a corresponding increase of 12 years for women and their higher life expectancy on average, the gender gap in life expectancy is thus projected to have narrowed somewhat. The projections for the conditional life expectancy at the age of 60 are also on the rise: Since 1951 these indicators have increased by almost 7 years for men and by more than 8 years for women. Panel (b) of the table indicates that the projections in the Aging Report are based on a further, though slower, increase of life expectancy in the coming decades.

1.2 Decreasing Fertility

In combination with the secular decline of birthrates, the welcome increase in longevity poses a challenge for economic and social policy. Austria recorded a fertility rate of 2.0 in 1951, which rose to almost 2.8 in the decade to 1961, shortly before the height of the domestic baby boom. Following a continuous decline from the mid-1960s onward, the number of births eventually dropped to 1.3 in 2001. In recent years the fertility rate has been increasing again slowly, reaching 1.4 in 2011 (source: Statistics Austria). The projections of the Aging Report use the underlying assumption of a further small and steady increase in fertility up to 1.5 in 2050.

Table 1

Life Expectancy in Austria at Birth and at 60/65

	Men		Women	
	at birth	at 60	at birth	at 60
(a) Statistics Austria life tables				
1951	62.4	14.9	70.5	17.3
1965	66.6	14.9	73.9	18.7
1980	69.0	16.3	76.0	20.3
1995	73.3	18.5	79.4	22.9
2011	78.1	21.7	82.7	25.6
Increase 1951-2011	15.7	6.8	12.2	8.3
	at birth	at 65	at birth	at 65
(b) 2012 Aging Report projections				
2020	79.2	18.6	84.4	21.9
2030	80.7	19.6	85.6	22.9
2040	82.2	20.6	86.9	23.8
2050	83.5	21.5	88.0	24.7

Source: Statistics Austria, European Commission (2012).

[5] *For demographic risks of funded systems the reader is referred to Knell (2011).*

1.3 The Aging "Baby-Boom" Cohorts

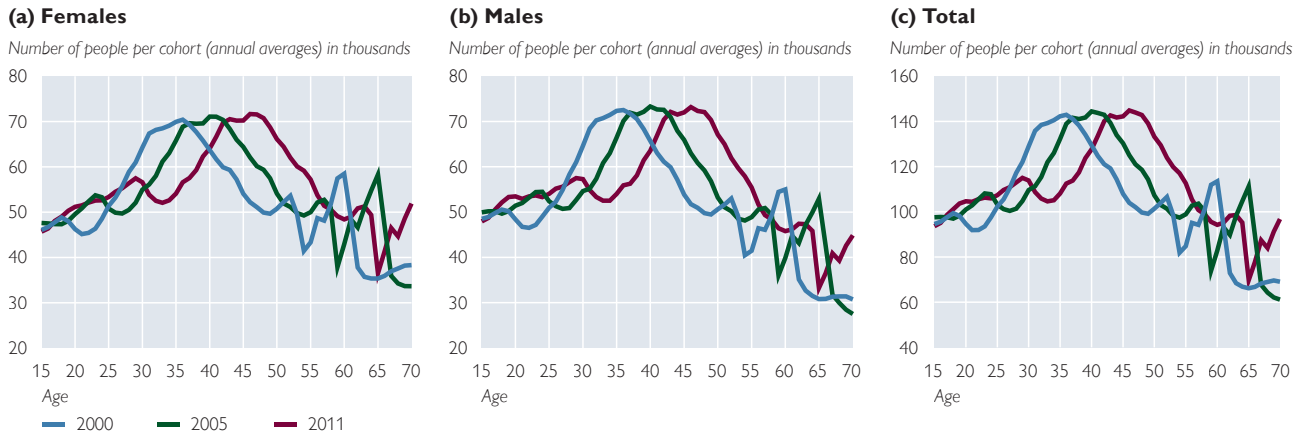
Increasing life expectancy and the lower number of births would pose fewer problems if these developments were happening gradually. However, the demographic challenge is aggravated by the "hump" of the baby-boom generation. In Austria this group comprises roughly the birth cohorts from the mid-1950s to the early 1970s. Within this group, numbers peaked in 1963, with almost 135,000 children born in that year. While still of working age today, this group is rapidly approaching the usual retirement age. When the baby-boomers retire, there will be a considerable shift in the share of the working-age population relative to the total population: Currently, this ratio is relatively stable at about 67%. Between 2020 and 2035 – which is roughly the period during which the baby-boomers will retire – it is projected to fall from 66% to less than 60%, decreasing more slowly thereafter (European Commission, 2012).

Chart 1 illustrates that there is considerable volatility in the demographic data as regards cohort size in the period under consideration in panels (a) for females, (b) for males and (c) for the total population. This variation potentially plays a role when interpreting data on the retirement age in Austria. The "hump" of the baby boom is clearly visible in the chart. In 2000 (indicated by the blue lines), the largest cohorts were in their mid-thirties. Over time, this hump is moving to the right (see the green lines for 2005). Current population data – the latest numbers available are for 2011 (red lines) – show the peak to have shifted towards the mid- to late-forties.

On the right-hand side of the charts, the graphs for 2000 show another noteworthy feature: There is a smaller spike with a peak at around 60. This spike is due to the low fertility rates of the 1930s (the Great Depression in Austria), sharply increasing birthrates in the economic upswing (and euphoria) after the "Anschluss" and the rapidly falling birth rates in the course of world war II resulting in a marked gap to the left of the hump. In 2005, the cohort corresponding to this gap was around the age of 59 years: In that year, there were almost 40,000 fewer people at the age

Chart 1

Age Structure of the Austrian Population 2000, 2005 and 2011



Source: Statistics Austria.

of 59 than in 2000. By 2011, this cohort had moved to the age of 65.

1.4 Conditions for a Sustainable Pension System

Given the increase in life expectancy, an increase of the effective retirement age is an obvious remedy given population aging – especially in light of the fact that the effective retirement age is clearly below statutory age in Austria. Moreover, the statutory age has remained constant at 65 for men since at least five decades (OECD, 2012). Of course, this is only one adjustment parameter in a PAYG pension system. Alternatively, adjustment could be accomplished by changing the social security contribution rate and the pension level. In principle, a funding gap in the PAYG system could also be balanced by (increasing) subsidies from the public budget.

Knell (2011) shows that such a system is able to cope with demographic changes by incorporating automatic adjustments via a "life expectancy factor" (which triggers changes in the (statutory) retirement age) and a "sustainability factor" that regulates the contribution rate and the pension level. The Aging Report projections are based on the assumption that the participation rate of older workers will rise from 43.1% in 2010 to 54.2% in 2035. This coincides with an increase of the average retirement age (the "average effective exit age," which is discussed in section 2) from 60.7 in 2010 to 62.4 years in 2035. The Monitoring Report by the Pension Reform Commission (2012) suggests that the average pension entry age should increase even more strongly, i.e. by 2.5 years between 2011 and 2035.

There are still other margins of adjustment. First, smaller cohort sizes at younger ages could be compensated by immigration. In 2011, net immigration to Austria amounted to more than 35,000 persons; more than 21,000 of these were between 20 and 29 years old. Compared to previous years, this was a high number, which was due to favorable macroeconomic conditions and the opening of the Austrian labor market for the majority of the new EU Member States that joined the Union in 2004 (the so-called EU-8 countries). The aging projections assume that immigration will increase in the coming decade and will stay at the level of approximately 35,000 workers per year between 2020 and 2035. Second, real GDP growth is also a crucial determinant of a public pension system. In the Aging Report, potential real GDP is expected to slow down in the coming two decades: from 1.7% in 2015 to 1.3% in 2035. Obviously, this is related to the slowdown in the growth of the working-age population. The assumption is equivalent to an average growth of real GDP per worker at around 1.5% p.a. in the same period.[6]

1.5 Aging Report Expenditure Projections

The ultimate aim of the Aging Report is to project "age-related expenditure" in all EU Member States in the coming decades. Given projections of demographic developments as well as of employment, macroeconomic conditions and so on, the report makes budgetary projections of expenditures for pensions, health care, long-term care, education, and unemployment benefits.

[6] *One could also try increasing the earnings of active workers relative to pensions by raising the average working time, e.g. by efforts aimed at increasing the number of full-time jobs relative to part-time jobs (Schneider, 2012). The Aging Report assumes constant hours per worker in the entire projection period.*

For most countries and for the euro area aggregate, the projected increases are rather moderate. For example, according to the latest edition of the report the GDP share of total annual age-related expenditures will increase by 4.4 percentage points in Austria and by 4.1% in the euro area between 2010 and 2060. Almost half of the increase is due to increasing expenditures for pensions (+2.0 percentage points in the same period, both for Austria and the euro area). Hence, the results can also be read in the reverse direction: For example, given demographic and macroeconomic assumptions the report indicates the necessary growth path of total employment and employment at older age so that the increase in age-related expenditures can be kept within narrow limits.

2 Effective Retirement Age and Older Workers' Employment Rates in the Last Decade

The European Union's growth strategy, Europe 2020 (Auböck et al., 2011), contains five quantitative targets, the first of which refers to the total employment rate: In 2020, 75% of the 20-64 year-olds[7] should be employed at the EU level. According to the latest available statistics (2011), the employment-population ratio in the EU currently stands at 68.6%, down from 70.3% in 2008 due to the ongoing economic crisis in the euro area. At the beginning of the millennium, this ratio was 66.6%. Austria's current employment rate is substantially higher: In 2011 it was 75.2% while in 2000 it was 71.4%. (However, the time series from the underlying Labour Force Survey (LFS) exhibit a structural break because of a methodological change between 2003 and 2004.)

Employment rates are highly heterogeneous, both with respect to gender and age groups. The younger population of working age in the EU (usually defined as those between 15 and 24 years) has a lower propensity to work for at least two reasons: First, a substantial share of the respective population is still in (secondary or tertiary) education. Second, something that is relevant in a number of EU Member States, youth unemployment was and is particularly high. In Austria, the share of younger workers in employment is substantially higher than in the EU (EU-27 or EUR-17); increases in this rate have been limited over time, though.

2.1 Employment Rates in Prime Age and for Older Workers

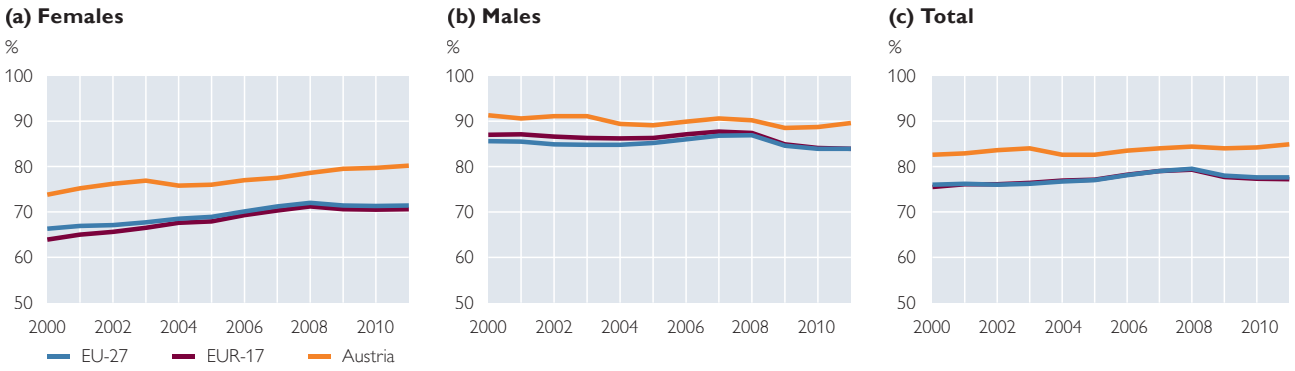
Chart 2 displays employment rates for prime-age workers, i.e. those between 25 and 54 years. In Austria, around nine in ten men of prime age are employed – practically unchanged over time apart from a small decline in 2009 due to the Great Recession. Female employment rates in prime age have steadily increased since 2000 and currently stand at 80%. This reflects the higher attachment of younger generations of women to the labor force. It is female employment which is responsible for the small overall increase in employment in this age group. Prime-age employment rates are higher than EU (or euro area) averages, especially for women.[8]

[7] *The previous EU growth strategy, the Lisbon agenda, also contained an employment rate target, but for the 15–64 olds (70% in 2010). The reason for excluding the age class 15–19 years in the new target is probably related to the fact that higher youth employment may contradict another Europe 2020 target, namely that of increasing the population share of those with tertiary education.*

[8] *At the same time, the share of women working part-time in Austria (44.0%) is higher than in the EU (32.1% in the EU-27 and 35.5% in EUR-17, respectively; Eurostat figures for 2011).*

Chart 2

Employment-Population Ratios (25–54 years)



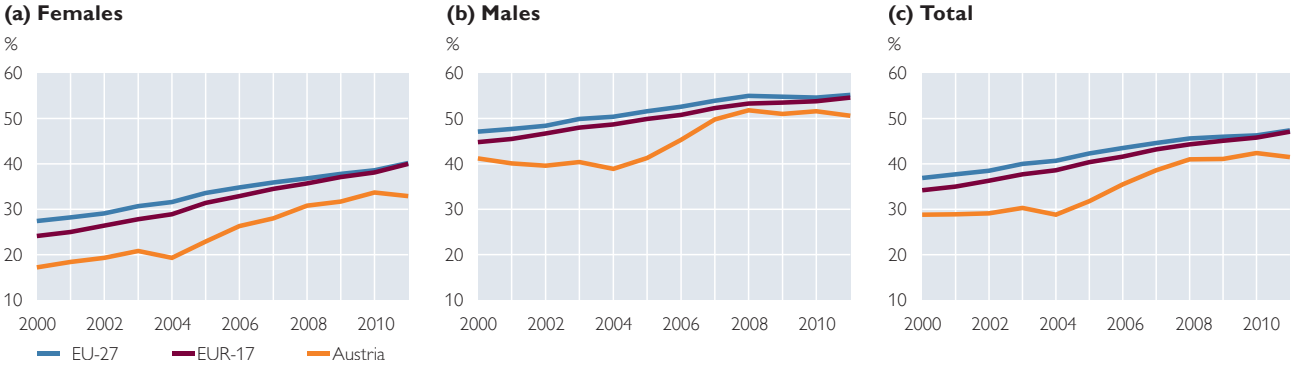
Source: Eurostat.

When it comes to the oldest age group, to workers between 55 and 64 years, employment rates are substantially lower than the prime-age rates in many countries. With 41.5%, the likelihood to be employed in this age group in Austria is clearly below the European average as chart 3(c) shows. Austria is outperformed by Denmark, Finland, Germany and the United Kingdom, for example (with correspondent employment rates of 55% or above). The highest employment rate in this age group within the EU is that of Sweden (72.3% in 2011).

However, the rate of employment of older workers has been rising steadily. Since 2000 the employment rate for older workers has increased by 12.7 percentage points whereby most of the increase occurred after 2004.[9] With respect to gender, female employment rates in this age bracket tend to be lower, reflecting the lower employment rates in prime age but also the lower statutory retirement age for women

Chart 3

Employment-Population Ratios (55–64 years)



Source: Eurostat.

[9] *Thus it seems unlikely that the structural break of 2003/2004 in the Austrian LFS markedly distorts the total increase between 2000 and 2011.*

in some countries.[10] In Austria, the statutory age for women is 60 while it is 65 years for men.[11]

One could ask why the focus is on the employment rate rather than on the activity (participation) rate (i.e. the population share of the employed and the unemployed). The employment rate is the indicator of choice for two reasons: First, in economic terms (for the evolution of GDP and for the evolution of budgetary expenditures) it is employment rather than labor force participation that matters. Moreover, the low older workers' employment rate in Austria is not due to an increase in unemployment in this age group – quite the contrary: the unemployment rate of older workers exceeds the aggregate rate but has *decreased*[12] in the last decade. Hence, low employment rates for older workers do not result in higher old-age unemployment but in exit from the labor force. For this reason the distinction between employment and activity rates does not matter much in the context of this article.

2.2 A Closer Look at Employment Rates for Older Workers

Chart 4 illustrates the employment rates of older workers calculated for staggered age classes of five years for the period from 2004 to 2011.[13] The chart includes the age categories directly below and above the usual age bracket of older workers, i.e. people aged 50-54 and 65-69 years. The solid lines are conventional employment rates as used in the usual Eurostat statistics shown above. (The dashed lines are discussed below.)

Panel (a) displays the employment rates of men and women aged between 50 and 54 years, i.e. well below the pensionable age. Male employment rates are between 80% and 90% with an increasing trend, disrupted by the Great Recession. Female rates in this age group are some 15 percentage points lower but show a clearly increasing trend, which narrows the gender employment gap towards the end of the time horizon considerably. (The gap amounts to 10 percentage points in 2011.) Panel (b) shows employment rates by gender for the age group 55 to 59 years. Male employment rates are lower than in prime age but considerably higher than those of women. The reason for this discrepancy is probably that women in this age group continue to qualify for different routes into early retirement while men have only a few options left in this respect because the distance to the statutory age is too large.

There is a dramatic change after the age of 60, as shown in panel (c). (Note the change in the scale of the y-axis.) Male employment rates drop substan-

[10] *In 2010, the following EU Member States had a lower pensionable age for women than for men: Austria, the Czech Republic, Hungary, Poland, the Slovak Republic, Slovenia and the United Kingdom. Between 1999 and 2010, the statutory pension age for female workers was increased to match that of males in Germany and Belgium (OECD, 2011).*

[11] *In 1992 a law was enacted under which women's statutory retirement age will rise gradually from 60 to 65 between 2024 and 2033.*

[12] *From 2000 to 2011 the aggregate unemployment rate (derived from administrative data) increased from 5.8% to 7.0%. In the same time, the unemployment rate of workers aged from 55 to 64 went down from 10.8% to 8.3%. When workers in training measures organized by the public employment service (Arbeitsmarktservice, AMS) are counted as unemployed, the decrease is somewhat smaller. (Source: social security records and AMS. Eurostat does not publish internationally comparable data for old-age unemployment.)*

[13] *The employment rates have been computed with LFS micro data which are available for researchers from 2004 onward.*

Chart 4

Employment-Population Ratios of Older Workers in Austria (50–69 years)

Source: Statistics Austria, author's calculations.

tially, clearly below the female employment rate in panel (b). Early retirement is clearly more widespread among men than among women. Moreover, a considerable (and increasing) share of women is working beyond the statutory retirement age. Finally, panel (d) displays the employment behavior after the statutory pension age of men, i.e. after 65. Employment rates exhibit a further drop but the graph demonstrates that a nonnegligible number of workers work beyond the pensionable age. The population share of these workers is increasing for both men and women: In 2011 these measures amounted to 11.5% (men) and 7.7% (women).

2.3 Alternative Direct Indicators of the "Average Retirement Age"

What about other indicators? While not equally prominent (at least from the perspective of international comparisons), other statistics indicate the "average retirement age" directly. (Box 1 gives a short description of different retirement age measures discussed subsequently.) Such indicators are intuitive because they can easily be compared to the statutory pension age. However, the measures in use differ both with respect to their level and their trends. I use the term "retirement age" in a neutral way subject to the caveat that "retirement" is a rather vague concept

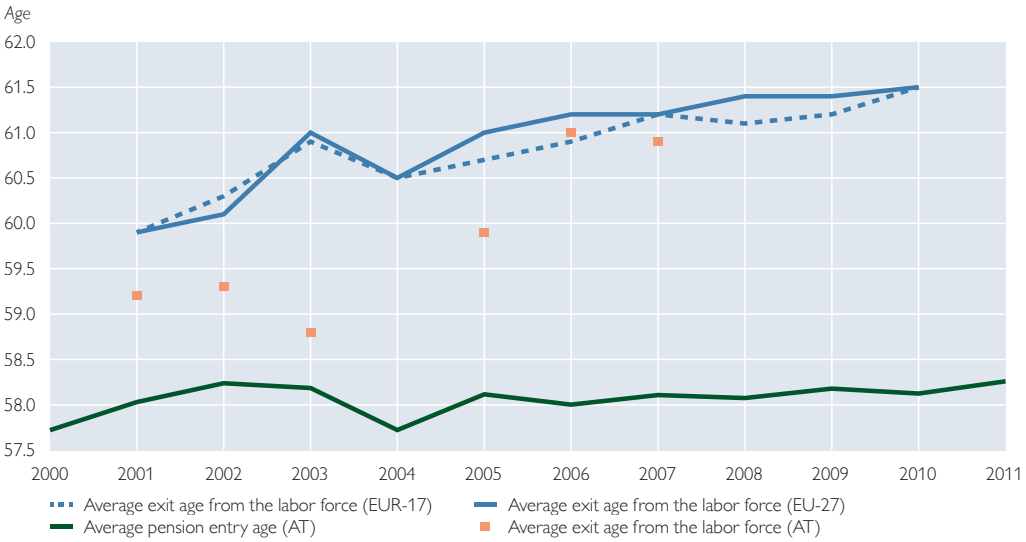
in the absence of a standard statistical definition.

Chart 5 displays the "average exit age from the labor force," a statistic compiled by Eurostat on the basis of the European Labour Survey (which also forms the basis for the employment rates shown above). The blue lines indicate that there is not much of a difference between the euro area and the EU-27. In 2010, the average exit age was 61.5 years – an increase of 1.6 years in 9 years (both in the EU and in the euro area). For Austria, indicated by the orange square markers, only numbers up to 2007 are available (with a gap in 2004). These indicate an increase by 1.8 years between 2001 and 2007. During this time span, the older workers' employment rate rose by 6.9 percentage points.

These results raise the question how the two measures are related: Is the increase in the average exit age plausible, given the change in the employment rate? Simple calculations based on the employment rates suggest that the average retirement age has increased by some 1.6 years and stands currently around 60 years.[14] Thus both the level and the increase of the Eurostat exit-age indicator over time seem to be too high. The implausibility of the numbers is probably related to methodological problems with this indicator (box 1).

Chart 5

A Comparison of Pension Entry Age and Exit Age from the Labor Force



Source: Austrian Association of Social Insurance Providers, Eurostat.

[14] *For a better grasp of how the retirement age and the older workers' employment rate are related, consider the following example: Assume that employment rates of men/women reaching the age interval 55 to 64 years are 85%/75% (chart 4(b)). Assume that cohort sizes and the population shares of men and women are equal. Assume furthermore that men and women all retire at 60 and 57 years, respectively (which implies an average retirement age of 58.6 years). The older workers' employment rate for men would be 42.5%, that of women 15% (29.6% on average). How do these numbers change if both men and women retire one year later (at 61/58 years)? The average retirement age is then 59.6 years. Men's employment rate would be 51% and that of women 22.5% (averaging 37.6%). Hence, given the employment shares of men and women, an increase in the retirement age by one year implies an increase of the employment rate by 8 percentage points. The empirical increase in the overall older workers' employment rate by 12.7 percentage points would thus be equivalent to an increase in the retirement age by 1.6 years.*

By a related measure (not shown in chart 5) which is also derived from the Eurostat LFS, the OECD computes "effective retirement ages" for men and women. According to this indicator, the effective retirement for men was 58.9 years and 57.5 years for women in 2009 (OECD, 2011a or b). In 2011, the numbers were 60.4 and 58.4 years for men and women, respectively.

The green line in chart 5 displays yet another indicator, which is based on social security records. Each year, the Austrian Association of Social Insurance Providers (2012) publishes average pension entry ages and tabulations by detailed ages. According to these data, the average pension entry age has barely risen between 2000 and 2011: From 57.7 to 58.3 years, with a visible increase only until 2002 and stagnation afterwards. (Note also the drop in 2004, which was caused by an increase in the number of invalidity pensions in that year. See below in section 2.4.) By gender, the average pension entry age increased from 58.5 to 59.2 for men and from 56.8 to 57.3 years for women.[15] These changes are considerably smaller than what can be expected from the changes in the employment rates.

Box 1

"Average Retirement Age": Different Measures

There is no internationally harmonized statistical definition of "retirement." However, there are internationally comparable definitions of employment and labor force participation. These form the basis for indirect measures of the average retirement age. The direct measures for retirement age are based on statistics on the entry age into Austria's public PAYG pension scheme.

(1) Indirect measures of the retirement age

The indirect measures for the average are based on the definitions of active participation of a worker in the labor market in the quarterly Eurostat Labour Force Survey (LFS). As is well known, a person that has worked for at least one hour in the reference week of the household survey is counted as employed. If not employed but actively seeking work, he or she is counted as unemployed. Otherwise, the person is counted as inactive (out of the labor force). The LFS comprises the whole resident population. As the LFS is a survey, it has to be borne in mind that all statistics that are derived from it are subject to sampling errors.

The method to compute the ***Eurostat indicator "average exit age from the labor force"*** *is described in the metadata section of the associated indicator on Eurostat's website. The exit age a for a particular year t is based on activity rates of detailed age cohorts (step size: one year) between $a = 50, 51, \ldots, 70$ in that year. Provided that the activity rates are monotonically declining between 50 and 70, conditional probabilities to stay in the labor force between year $t–1$ and t at a certain age can be computed by comparing the employment rate at age a in t with that of age $a–1$ in $t–1$. These probabilities (and the reverse probabilities, i.e. the probability to exit the labor force between $t–1$ and t at a certain age) can be used to compute the unconditional probabilities to exit at a certain age a between $t–1$ and t. The average exit age $\bar{a}$ finally is computed as the average of all ages weighted by the exit probabilities for each age a. Eurostat admits that the indicator is of "medium" quality, because (1) the monotonicity of activity rates between 50 and 70 might not be fulfilled and (2) because the sample size for the age group above 65 years of age is very small. Values judged implausible are not published. Apparently, this is the case for Austria in 2008–2010.*

[15] *According to longer time series (Austrian Association of Social Insurance Providers, 2012) the average pension age is stagnant or has been falling slightly since 1980. In this year the numbers were 59.2 and 58.3 years for men and women. In 1970, on the other hand, workers retired considerably later, on average at 61.9 years (men) and 60.4 years (women).*

According to the description provided in OECD (2011b), the ***OECD*** *appears to use a similar method for its indicator called* ***"effective age of retirement,"*** *with two major differences: (1) Activity rates are monitored from the age of 40 onwards. (2) The step size for cohorts is five years (40–44, 45–49, ...), and their evolution is compared over a period of five years (i.e. the retirement age computed for 2011 is based on a comparison of activity rates for each of these age groups at 2006 levels). This approach presumably avoids the problems of the Eurostat method because the evolution of the activity rates of the five-year cohorts is smoother and because the sample size for each cohort is larger.*

One could question whether these indirect measures of the retirement age as derived from the LFS yield additional information over the old-age employment rates that are more widely regarded, because the employment rate for older workers and the effective exit age calculated by Eurostat are probably highly correlated. But given that the indirect measures of the retirement age focus on activity rather than on employment, that they consider a wider age interval than the employment rates for older workers and that this measure is probably immune to fluctuating cohort sizes (section 3) they may provide valuable complementary information.

(2) Direct measures of the retirement age

As mentioned, the ***average entry age into "own"*** [1] ***pensions,*** *broken down by pension type (invalidity pensions and old-age pensions) and gender, is available from the statistical yearbook of the* ***Austrian Association of Social Insurance Providers*** *(2012). To be entitled to a pension a person must have an adequate insurance record (a minimum number years with earnings exceeding the threshold for minor jobs ("Geringfügigkeitsgrenze"; approximately EUR 387 per month in 2013).*

This measure is conceptionally different from the exit ages from the labor market described above. First, a person may be counted as employed in the LFS while receiving a pension (which is possible if the earnings do not exceed the threshold for minor jobs.) Second, the data do not cover the total population. Most importantly, pension entry ages of permanent civil servants ("Beamte") are not included. The data also do not include workers who receive only an occupational pension and no state pension ("Direktpensionen").

[1] *This term ("Eigenpensionen") is used to distinguish these pensions from pensions for widows, widowers and orphans.*

2.4 Invalidity Pensions and Early Retirement over Time

Table 2 shows how the average pension age differs between men and women and between invalidity pensions and old-age pensions. Columns (1) to (3) illustrate how the average pension entry age has evolved for "own pensions" for all workers and broken down by gender. Columns (4) and (5) indicate the entry age for invalidity pensions for men and women, and columns (6) and (7) do the same for old-age pensions, covering both early retirement (before 65/60 years) and regular retirement (at 65/60 or later). Both invalidity pensions and old-age pensions show an increase of the average entry age of around two years for men and around one year for women. Old-age pensions currently have an entry age of 62.7 years for men and 59.4 years for women. Remarkably, the pension age for men peaked at 63.4 years in 2005 and fell thereafter. The average ages of the entry into invalidity pensions are considerably lower (53.7 for men and 50.1 for women).

The aggregate numbers for all pensions are weighted averages of the entry ages into invalidity pensions and old-age pensions. The evolution of the total average pension age is thus shaped by the relative shares of invalidity

Table 2

Average Pension Entry Age in Austria 2000–2011

	All 'own' pensions			Invalidity pensions		Old-age pensions	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Total	Men	Women	Men	Women	Men	Women
2000	57.7	58.5	56.8	51.8	49.2	60.5	58.3
2001	58.0	58.7	57.3	53.4	50.4	62.2	59.4
2002	58.2	59.1	57.4	53.7	51.3	62.8	59.3
2003	58.2	59.0	57.3	54.3	51.3	62.7	59.0
2004	57.7	58.5	56.9	54.5	51.0	62.8	59.2
2005	58.1	59.0	57.1	53.9	51.0	63.4	59.5
2006	58.0	59.0	56.9	53.9	50.7	63.2	59.3
2007	58.1	59.0	57.2	53.9	50.6	62.8	59.5
2008	58.1	58.9	57.1	53.7	50.3	62.7	59.5
2009	58.2	59.1	57.1	53.6	50.2	62.5	59.3
2010	58.1	59.1	57.1	53.5	50.1	62.6	59.3
2011	58.3	59.2	57.3	53.7	50.1	62.7	59.4
Difference 2011–2000	0.6	0.7	0.5	1.9	0.9	2.2	1.1

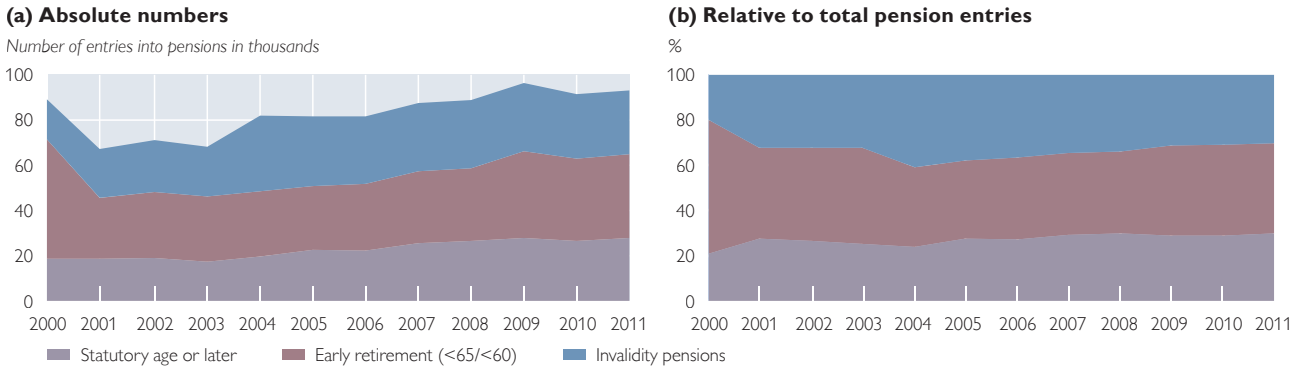
Source: Austrian Association of Social Insurance Providers (2012), author's calculations.

pensions and old-age pensions. Is the stagnation of the average pension entry age a consequence of a growing number of invalidity pensions, which have been called an alternative pathway into early retirement (e. g. OECD 2009 and 2011a)? Panel (a) of chart 6 shows the evolution of the number of pension entries, broken down by invalidity pensions, early retirement (below 65/60 years) and at the regular pension age or later. Panel (b) shows the relative shares of the three broad kinds to retire.

The chart indicates that the share of pension entries at the statutory age has increased slightly over time. The most remarkable feature is the high number of entries into early retirement in 2000, which is due to a combination of the spike in the age distribution at 60 in that year (chart 1) and the announcement of the government at that time to increase the eligibility age

Chart 6

Inflows into Invalidity Pensions, Early Retirement and Retirement at Statutory Age 2000–2011



Source: Austrian Association of Social Insurance Providers.

for early retirement on account of longer employment histories ("Vorzeitige Alterspension bei langer Versicherungsdauer") from 60 to 61.5 in the next year. The number and the share of invalidity pensions have increased indeed, but they did so only until 2004. Their share of all pension entries has been declining since then, but disability pensions still constituted almost 30% of all entries into retirement in 2011.

3 Contradicting Evidence on the Evolution of Retirement?

For the reasons outlined in section 1, measures to increase the effective retirement age are required and so are reliable indicators to measure progress in that direction. As illustrated, the available indicators do not show a homogenous picture of what happened in the last decade: Has there been real progress or has the retirement behavior remained virtually unchanged? Should we believe the evidence based on the Labour Force Survey (indicating a steady increase in the employment of older workers) or should we conclude that, based on the social security data, the retirement age has barely risen?

I want to discuss whether the indicators mentioned are really contradictory or whether the evidence can be reconciled taking the properties of the various concepts into account: First, the increase of the LFS employment rate over time may be distorted by sampling errors. Second, the discrepancy may result from the incomplete coverage of the social security statistics (above all, permanent civil servants are missing in the social security data on pension entry age). Third, the difference could be attributable to a growing number of pensioners who work in retirement. Fourth, drawing mainly on results of the Monitoring Report by the Pension Reform Commission (2012), the average pension entry age might be biased by other structural effects (the distinction between domestic and foreign beneficiaries of pensions, imprecisions in capturing the exact age at pension entry as well as demographic effects).

3.1 Sampling Error in the LFS

Like all survey results, the LFS results are subject to sampling errors. This means that level of the employment rate and the changes over time have to be interpreted with caution. How large could this error be? According to Statistics Austria, the 95% confidence interval for the *overall* employment rate is ±0.5 percentage points. As the sample of older workers in the survey is much smaller, the confidence interval becomes larger. Based on the LFS documentation by Statistics Austria and own computations the width of the confidence interval for 2011 is ±1.6 percentage points: The true employment rate of workers of that year lies in the interval of 39.9% and 43.1% with a probability of 95%. These considerations suggest that the published increase in the older workers' employment rate by 12.7 percentage points is not merely a statistical artifact but that this number may be either somewhat too high or too low.

3.2 Do Civil Servants Make a Difference?

The tabulations of pension entry ages in the social security statistics do not cover all workers. Most importantly, they do not include permanent civil servants ("Beamte"),[16] who numbered

[16] *Contract civil servants ("Vertragsbedienstete") are included in the statistics.*

239,000 in 2012, thus accounting for 6.9% out of a total of 3,465,000 jobs.[17] To my knowledge, there are no comprehensive and publicly available statistics on the average pension age of permanent civil servants.

In principle the pension entry age of civil servants could have risen faster than the entry age of the workers covered in the pension entry age statistics. Civil servants used to have a uniform statutory retirement age of 60 (i.e. for both men and women), but there have been reforms in this area, too. In 2000 the statutory retirement age for civil servants was raised from 60 to 61.5, and ultimately it will be raised to 65 years, with a phase-in period for workers born between 1955 and 1975 (Korecky, 2012).

The topic of the evolution of the retirement age in the public sector would warrant a separate investigation. According to evidence presented by OECD (2005), the average retirement age for both female and male federal[18] civil servants was in the range of the social security statistics (57 years for women and 58 years for men in 2003). Given the rather long time until the statutory retirement age will reach 65 years and given anecdotal evidence that civil servants use possibilities to retire early (chiefly the early retirement scheme for workers with long employment histories; "Hacklerregelung") at least as heavily as workers in the private sector, it seems implausible that civil servants had above-average increases in their retirement ages in the past decade.

3.3 More Pensioners at Work?

As mentioned in box 1, the employment definition in the European Labour Force Survey hinges on a rather weak criterion: Anybody who worked at least one hour for pay in the reference week of the survey counts as employed. Employment and activity rates decline if only those with a minimum of 12 hours of work are counted as employed.[19] The difference is relatively small for prime-age workers, but higher for older workers. Further, this definition matters more for women than for men (Mayrhuber, 2012).

It is perfectly possible to be retired (in the sense of receiving a pension) and employed a few hours per week at the same time (and thus being counted as employed by the LFS). As mentioned in box 1, pensioners may continue to hold a job if their earnings do not exceed the certain threshold for minor jobs ("Geringfügigkeitsgrenze"). Indeed the number of persons receiving a pension and having a minor job has increased over time: From 26,362 in 2000 to 45,055 in 2011 (Federal Chamber of Labour, 2012). This increase of almost 20,000 workers is equal to some 1.7% of the population aged 55 to 64 years in 2011.

Let us turn back to chart 4 to look at the results from adjusted employment rates (computed from LFS micro data) to judge whether a restriction to workers with 12 hours per week or more makes a difference. In all four panels, the dashed lines show adjusted employment rates for women and men in the respective age category that can

[17] *Source: Employment statistics of the Austrian Association of Insurance Providers. Employment is measured in terms of jobs rather than in terms of people. The self-employed are not covered by these statistics.*

[18] *Civil servants in the Länder were not included. With the exception of Carinthia, the Länder have adopted the legal changes in the retirement age described above which were originally enacted only for federal civil servants.*

[19] *This more stringent employment definition is sometimes called "Lebensunterhaltskonzept" ("subsistence concept") in Austria in order to distinguish it from the definition used in the Labour Force Survey.*

be compared with the unadjusted rates (indicated by solid lines). Until the age of 60 the employment rates of males do not change but there is a clearly visible difference for women. This difference even increases if we look at the age class of 60 to 64, i.e. the age class in which the employment rates of both men and women exhibit a considerable drop. Finally, in the highest age category, it makes still a visible difference whether workers with fewer than 12 hours are counted or not.

To answer the question posed above, it is not this difference *per se* that is relevant but whether the difference between the employment rates according to both concepts becomes wider over time. This seems to be the case in the age group of 60–64 years, especially for female workers. At the same time, the effect on the overall indicator (the employment rate for people aged 50–64) is rather small. Using the more stringent employment definition the increase in the older workers' employment rate would be 11.1 instead of 12.7 percentage points. To sum up, the increase in the share of older workers who work only a few hours (and who probably receive a pension at the same time) provides only some explanation for the apparent contradiction between increasing older workers' employment rates and stagnant pension entry ages.

3.4 Cohort-Size Effects

Chart 1 demonstrates that cohort sizes have not been quite stable at all in the past and will not be so in the foreseeable future. For example, as mentioned above, the spike in the population distribution of 2000 around the age of 60 years was moving through the 55–64 age group from the mid-1990s until the mid-2000s. Such phenomena may affect the measures of old-age employment under consideration even if the behavior of workers as regards the patterns of early retirement does not change.

Consider first the case of the employment rate. If, say, a single large cohort (i.e. a large cohort preceded and followed by smaller cohorts) enters the age interval of 55–64 years it will drive *up* the employment rate until it exceeds the average exit age even if the members of the cohort have the same conditional probabilities to stay in or exit from the labor force over the relevant age range as the preceding cohorts.[20] After that, the employment rate will be driven downwards (a large cohort that still adds to the total population of the age interval but contributes relatively few workers). One could compute employment rates that are adjusted for such cohort effects by taking simple averages of the employment rate at each year of age. But the relevant micro data from the LFS have only been available since 2004.

What about the average pension entry age? If a single large cohort enters the relevant older age interval, it will increase first the number of new pensioners at early ages (including disability pensions), thus driving *down* the average pension entry age first and driving it up once it passes the average entry age. Viewed from the perspective whether cohort-size effects (effects of larger cohorts) ameliorate or deteriorate the measures of old-age employment under consideration, the timing is different: Older workers' employment rates first go up and then down, while the average pension age first goes down and then goes up. Finally, the average exit age measure that is derived from LFS data (box 1) is probably

[20] *Compare the method for computing the average exit age from the labor force in box 1.*

immune to fluctuations in cohort size because it is solely based on comparisons of cohorts with themselves over time.

3.5 Age-Structure Adjustment of Pension Entry Numbers

In fact – see chart 1 – cohort sizes changed quite often in the period considered, with both larger and smaller cohorts moving through the ages between 55 and 64 years. Hence, the overall effect of these movements on measures of older workers' retirement is not clear. Türk (2010) compares pension entry ages broken down by broad age classes between 1999 and 2009 and argues that the evolution and change of the average pension entry age published in social security statistics may not be reliable because of changing relative magnitudes of and differing evolutions across size classes. The author suggests that the average pension entry age has increased more strongly, at least for pensioners affected by the pension reforms in recent years.

The Monitoring Report by the Pension Reform Commission (2012) considers several measures to improve the statistics for the average pension entry age (see also section 3.7). One way to do so is to account for cohort-size effects by calculating fictitious pension entry numbers for each year by assuming a constant "standard population" over time.[21] These fictitious numbers are then used to calculate a demographically adjusted pension entry age.

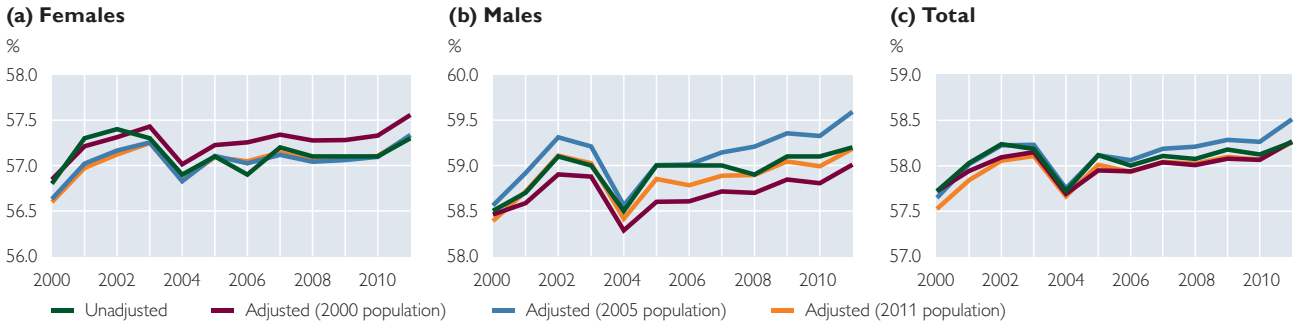
The Monitoring Report considers only the time span between 2005 and 2011. For this reason I calculate equivalently corrected pension entry numbers of my own using average population numbers per year provided by Statistics Austria. Chart 7(a) presents the results for females: The correction matters somewhat for the level of the series. As regards the change over time, all adjusted series yield the same result: The pension entry age of women increased by 0.7 years between 2000 and 2011. This is somewhat higher than in the unadjusted statistics (+0.5 years). For males, see panel (b), the outcome is different: The resulting change of the average pension age depends on the choice of the base year: If 2000 is used the change amounts only to +0.5 years (the unadjusted statistics suggest +0.7 years). However, if 2005 is used as the base year (as it is also done in the Monitoring Report) the change is +1.0 years. Finally, when adopting the population structure of 2011 the change is in-between (+0.8 years). In the aggregate, panel (c), the respective increases of the pension age over time for the different base years are +0.5 (2000), +0.8 (2005) and +0.7 (2011) compared to +0.5 years in the unadjusted data.

Why do the results for men depend so strongly on the base year? Very likely, this is due to the idiosyncratic age structures of the population in 2000 and 2005 (chart 1): In 2000, the population size around the unadjusted

[21] *This simple adjustment method is used quite frequently by demographers and epidemiologists. It is called "direct age adjustment" (Wolfenden, 1923, cited in Ahmad et al., 2001). The adjustment is carried out as follows. The unadjusted average pension entry age in a particular year* t *is* $\bar{a}_t = \frac{1}{\sum_a E_{at}} \sum_a a E_{at}$ *where* a *is the entry age of pensioners and* E_{at} *is the number of pension entries at each age in* t *and the summation is over the entire age interval (in one-year steps). For the age-adjusted average pension age* $(\tilde{a}_t)$ E_{at} *is replaced by* $\tilde{E}_{at} = E_{at} * \frac{POP_{as}}{POP_{at}}$. POP_{at} *is the number of people aged* a *years in* t *and* s *refers to the standard population.*

Chart 7

Average Pension Entry Age: Adjustment for Age Structure – Different Standard Populations



Source: Austrian Association of Social Insurance Providers, Statistics Austria, author's calculations.

mean (59 years) is rather high, but the population numbers fall dramatically between 61 and 65. In 2005, the opposite is the case: Low numbers at 60 but high numbers at the age of 65. Both 2000 and 2005 are probably not ideally suited as base years: Because of the specific volatility in their age structure they either lead to an underestimation of the increase in the pension age (2000) or to an overestimation (2005). 2011 appears to be a more suitable choice because the population numbers among the older population exhibit a much smoother development.[22] Bearing this in mind one can sum up: After the adjustment for cohort size, the increase in the pension entry age over time becomes somewhat bigger both for women and men.

3.6 Cohort Analysis

The average pension entry age as published in social security statistics is based on a cross-section of the workforce and necessarily depicts the behavior of several cohorts which may be – in the context of this article – affected by pension reforms in different ways. The results are likely to be biased and conclusions about changes in retirement behavior need to be made with caution (Hofmann and Krickl, 2012). The crude adjustment for the population structure discussed above may be regarded only as a partial remedy.

A superior way to study the evolution of the pension age over time is to adopt cohort analysis, i.e. to study the behavior of different cohorts separately. In order to reach valid conclusions the cohorts must have already passed through the entire (relevant) age spectrum. This means, in order to study changes in retirement, practically all members of the cohort should already have retired. This statistical requirement is also the main drawback of the method: Changes in retirement behavior can only be recognized with a considerable time lag.

Such a cohort analysis is contained in the Monitoring Report. It describes the evolution of the average cohort-

[22] *It would be possible to use fictitious population structures where large swings in age cohorts are eliminated, e.g. by using average population numbers in the period under consideration. In fact, the results of such an exercise are very similar to those when using 2011 as the standard population. Another population structure that suggests itself would be to start with a certain cohort size at younger ages and let it decrease by empirical mortality rates over the age distribution. Epidemiologists use "ideal" age distributions quite heavily when making comparisons across countries (Ahmad et al., 2001).*

entry age for workers born between 1915 and 1941. This means that the youngest cohort reached the age of 70 in 2011. The findings confirm that the cohort-entry age has been on a long-term slow decline almost until recently: For males, the cohort-entry age was 60.8 for workers born in 1915 and 58.8 years for those born in 1940. For female workers, the entry age of the oldest (1915) cohort was 59.7 years and that of the cohort of 1940 was 57.0 years. Only for the youngest cohort (1941) did the entry age increase somewhat: to 59.2 years and 57.2 years for men and women, respectively. This increase is probably due to the increase in the eligibility age for early retirement on account of longer employment histories that became effective in 2001 (chart 6). Although valuable in principle, the cohort analysis presents only evidence on retirement behavior from more than a decade ago.[23]

3.7 Other Structural Adjustments in the Monitoring Report

The Monitoring Report[24] applies several methods to adjust the average pension entry age for the period between 2005 and 2011. For example, the average pension entry age is recalculated using the exact age of entrants into pensions (by comparing the month of birth and the month of pension entry) rather than the raw data which are, in effect, based on a simple comparison of the year of birth and the year of pension entry. After this correction, the increase in the pension age between 2005 and 2011 becomes somewhat bigger (by +0.2 years).

More important is a restriction to domestic pension beneficiaries. This correction shifts the level of the pension entry age substantially downwards (beneficiaries of pensions living abroad tend to have a higher retirement age), but the change over time becomes substantially larger. After accounting for both effects, the increase in the average pension age is +0.8 years (instead of +0.2 years in the raw data).[25] This correction is also relevant for the discrepancy between the employment rates and the average pension entry age in the unadjusted data because the LFS data refer to the *resident* population in Austria. Finally, the report applies a demographic adjustment which is accomplished by holding the age structure of 2005 constant over the entire period (see above). This leads to an additional increase of the pension age by 0.2 years.

The results, taken all these corrections together, are shown in chart 8 (blue lines) and are compared with the unadjusted pension entry age (shown as green lines again) and my own results for the age adjustment (orange lines with the population structure of 2011 like in chart 7). The effective pension entry age is shifted downwards after adjusting the raw data. As regards the change between 2005 and 2011, the

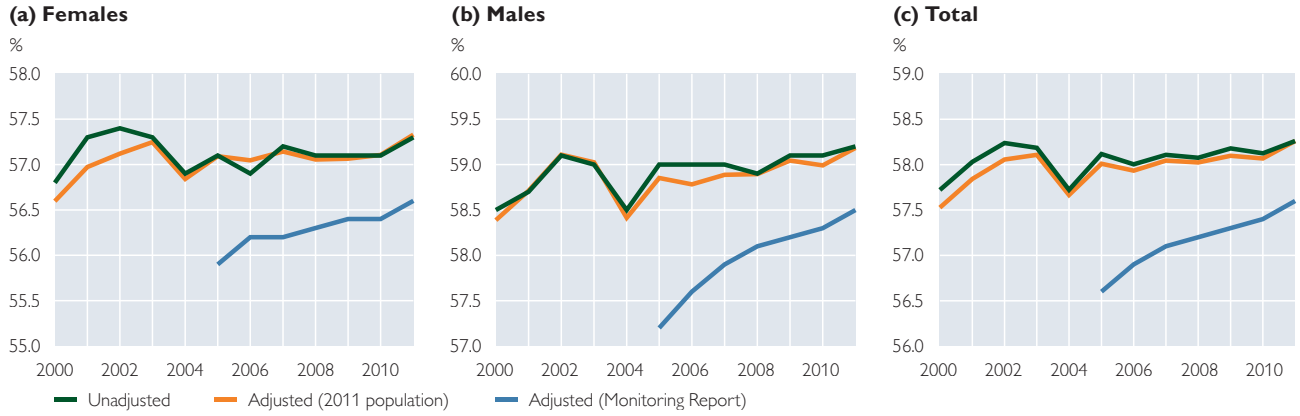
[23] *Such an analysis could provide evidence from the more recent past: Hofmann and Krickl (2012) study the retirement behavior up to cohorts born in 1946 (i.e. workers that were 65 in 2011). Because of workers working beyond 65 it is impossible to compute an average entry age. But it is possible to study the evolution of the share of workers going into early retirement closer to the present (until 2006). The authors find that the share of workers retiring at the statutory age has increased markedly over the most recent decade.*

[24] *The report also presents evidence on the period between the exit of the labor force and pension entry. This "waiting period" sometimes amounts to several years, especially when there is a period of unemployment between employment and retirement. However, this analysis is presented only for a single year (2011). Most adjustments and analyses in the report are based on internal data of the Austrian Ministry of Labour, Social Affairs and Consumer Protection.*

[25] *Source: Tables 29 and 32 in Pension Reform Commission (2012).*

Chart 8

Average Pension Entry Age: Adjusted and Unadjusted Numbers



Source: Austrian Association of Social Insurance Providers, Statistics Austria, author's calculations, Pension Reform Commission (2012).

adjustments matter less for women (+0.7 years, compared to +0.2 years in the raw data), but quite strongly for men (+1.3 years compared to +0.2 years). In the aggregate, the adjusted numbers indicate an increase of the pension entry age by 1.0 years in this period (+0.2 years in the raw data).

4 Summary and Conclusions

Increases in life expectancy, lower birthrates and the aging of the baby-boom generation call for measures to increase the effective retirement age. This need has been addressed by initiatives like the EU-2020 strategy and by the regular EU Aging Reports. As measured by the European Labour Force Survey (LFS), the employment rate of older workers increased from 28.8% to 41.4% between 2000 and 2011. Indicators of the effective exit age from the labor force that are derived from the same data source suggest analogous improvements. This means that Austria has made progress in keeping older workers in the workforce – although old-age employment is still below the European average.

Or has it? In fact, based on social security statistics, the average pension entry age has increased by just 0.6 years from 2000 to 2011, stagnating around 58 and 59 years for female and male workers, respectively – which is considerably below statutory pension ages. Moreover, the small increase in the pension entry age seems implausible, given the increase of the employment rate.

How can these differing developments be reconciled? By discussing the different concepts and data sources this article shows that, first, the LFS-based results might be distorted by sampling errors that are inherent in survey data. (However, the errors could go in either direction.) Second, there is a small effect due to an increasing number of pensioners working a few hours beyond retirement which exaggerates the increase in the older workers' employment rate computed from the LFS.

Third, using a more precise method to identify the exact pension age, the increase in the average pension entry age in the social security statistics over time becomes a bit larger. Fourth, after accounting for the volatile age structure of the older population in the period considered here, the increase in the pension entry age becomes some-

what stronger. Finally, restricting the pensioners to domestic beneficiaries results in a larger increase of the pension age over time. When all these effects are taken together, the pension entry age increases considerably stronger than in the conventional statistics. Thus, both the Labour Force Survey data and the (corrected) social security statistics now tell a less contradictory story: they suggest that there has indeed been (some) progress in raising the effective retirement age in Austria since 2000.

References

Ahmad, O. B., C. Boschi-Pinot, A. D. Lopez, C. J. L. Murray, R. Lozano and M. Inoue. 2001. Age standardization of rates: A New WHO Standard. GPE Discussion Paper Series 31. World Health Organization.

Auböck, M., C. Burger and E. Mangler. 2011. Europa 2020 – A New Framework for New Growth. In: Monetary Policy & the Economy Q4/11. 74–84.

Austrian Association of Social Insurance Providers. 2012 (and older editions). Statistisches Handbuch der österreichischen Sozialversicherung 2012. Vienna. October.

European Commission. 2012. The 2012 Aging Report. Economic and budgetary projections for the 27 EU Member States (2010–2060).

Federal Chamber of Labour. 2012 (and older editions). Wirtschafts- und sozialstatistisches Taschenbuch. Vienna.

Hofmann, J. and T. Krickl. 2012. Rentenzugang 2011: Regelaltersrente auf dem Vormarsch. Aktuelle Entwicklungen im Kohortenvergleich. RVaktuell 9/2012. Deutsche Rentenversicherung. 239–249.

Klotz, J. 2011. Frühzeitige Sterblichkeit nach dem Beruf. Soziale Sicherheit 3/2011. 118–125.

Knell, M. 2011. Pay-As-You-Go – A Relict from the Past or a Promise for the Future? Winning contribution of the Hannes Androsch Prize 2011 for "The Design of a Social Security System Which Can Withstand the Dual Threat of Demographic Developments and Financial Market Risk."

Korecky, P. 2012. Beamtenpension 2012 – kleines Pensionsgesetz. Gewerkschaft Öffentlicher Dienst. Vienna.

Mayrhuber, C. 2012. Langfristige Bevölkerungs- und Erwerbsquotenprognosen für Österreich im Vergleich. WIFO Monatsberichte 10. 797–807.

OECD. 2005. Austria: Ageing and Employment Policies. Paris.

OECD. 2009. Economic Surveys: Austria. Paris.

OECD. 2011a. Economic Surveys: Austria. Paris.

OECD. 2011b. Pensions at a Glance. Paris.

OECD. 2012. Pensions Outlook. Paris.

Pension Reform Commission. 2012. Bericht 2012 über das Monitoring des effektiven Pensionsantrittsalters 2011. Büro der Kommission zur langfristigen Pensionssicherung. October 29.

Schneider, H. 2012. Die Beseitigung von Arbeitszeithürden als Beitrag zur Lösung des Fachkräftemangels. In: IZA Standpunkte 50. Bonn.

The Economist. 2012. The rich are different. Longevity and the pension age. December 22.

Türk, E. 2010. Keine Veränderungen beim Pensionszugangsverhalten trotz tiefgreifender Pensionsreformen? In: Wirtschaft und Gesellschaft 36(2). 247–256.

Event Wrap-Ups

The Future of Sovereign Borrowing

Key Findings of a Conference Jointly Organized by SUERF, OeNB and BWG on March 8, 2013, in Vienna

Ernest Gnan,
Johannes Holler[1]

In March 2013 around 130 participants from academia, banking and finance, governments and central banking gathered at the premises of the OeNB in Vienna for a conference jointly organized by the European Money and Finance Forum SUERF, the OeNB and the Österreichische Bankwissenschaftliche Gesellschaft to discuss "The Future of Sovereign Borrowing in Europe." The financial, economic and sovereign debt crisis has fundamentally changed the rules of the game in sovereign debt markets, particularly in the euro area, but also beyond its borders. Sovereign bonds are no longer widely perceived as "risk-free" assets. Even the sovereign bonds of safe-haven countries have come under close scrutiny or lost some of their prime ratings. Yet crisis countries have seen dramatic downgrades of their sovereign debt ratings so that they face soaring risk spreads and unsustainably high financing costs (or even a loss of access to bond market financing), pushing them towards shorter financing or forcing them to rely on financial support from other countries and the international community, or massive intervention by central banks. Against this backdrop, the conference focused on three aspects: first, how issuers and lenders have reacted to the changed environment (session 1); second, implications of the current and likely future state of public finances and debt markets for financial stability, monetary policy and central banks (session 2); and third, ways to improve risk management and foster prudence in future sovereign borrowing (session 3).

JEL classification: E62, H6
Keywords: structural balance, cyclically adjusted balance, fiscal rules, fiscal policy

Framing the Discussion on the Future of Sovereign Borrowing

In opening the conference, OeNB Governor **Ewald Nowotny** emphasized the importance of the topic, given that the ability to borrow centrally affects governments' ability to conduct countercyclical policies, with direct operational and strategic ramifications for monetary policy, particularly in a monetary union. Dysfunctional sovereign debt markets hamper the monetary policy transmission mechanism and may seriously threaten financial and banking system stability. While the virtually zero sovereign risk premiums among euro area countries in the years up to the crisis did not properly reflect true risks, the very large spreads over the past two years were exaggerated, too – and both conditions are signs of market failure. The Eurosystem's decisive measures to break the vicious circle between sovereign bond market runs, financial system instability, dysfunctional monetary policy transmission and deep real economic impacts, together with the reform measures taken by EU governments, managed to calm the situation. While central bank independence is crucial for credibility, crisis management at the same time requires close coordination between the various legs of economic policies. Accordingly, the Eurosystem's readiness to undertake Outright Monetary Transactions (OMT) in secondary sovereign bond markets is firmly linked to economic reform programs agreed by recipient countries and approved by political authorities. At the same time, many open issues are yet to be evaluated, such as lessons from the debt crisis for debt management, the future perception of risk associated with sovereign bonds and, related to that, the optimal treatment of sovereign debt in banking supervision and regulation. Clearly, the fact

[1] *Oesterreichische Nationalbank, Economic Analysis Division, ernest.gnan@oenb.at and johannes.holler@oenb.at.*

that some economics textbooks bemoan the loss of a risk-free asset should not prompt us to ever again succumb to such an illusion.

SUERF President **Urs Birchler,** University of Zurich, thanked the co-organizers for the invitation and smooth joint preparation of the conference as well as for hosting SUERF's Secretariat and providing its General Secretary.

Questioning the Conventional Wisdom on Debt Sustainability

The Keynote Address on "The Future of Sovereign Borrowing," chaired by **Ernest Gnan,** SUERF Secretary General, was given by **Alessandro Missale,** Debt and Development Finance branch (UNCTAD) and University of Milan. He addressed three issues. First, he questioned the conventional wisdom on sovereign debt sustainability, based on the view that sovereign debt is sustainable as long as creditors are prepared to buy and hold it. Creditors are not concerned with debt levels as such but with debtors' perceived ability to pay. This is confirmed by financial markets' assessment of Japanese, U.S. or U.K. government debt as opposed to their assessment of Italian or Spanish government debt. Debt sustainability cannot be adequately captured by a single debt ratio as it depends on a mix of expectations about future fiscal surpluses, economic growth, interest rates and their interactions. This introduces an important self-fulfilling element: market panics can lead to self-fulfilling debt runs. Hence, sustainability is ultimately a matter of market sentiment. Using an indicator of "fiscal proximity" (which captures the similarity among countries in terms of deficit and debt ratios), Favero and Missale (2012)[2] show that the impact of fiscal fundamentals on Italian and Spanish bond yields reflects the significant volatility of global market sentiment over time. When global market participants consider risks to be low, fundamentals have no effect on yield spreads; yet in periods of high risk aversion, market overreaction may itself become a source of instability.

Second, Missale argued that, in order to prevent debt runs, debt management should aim to match fiscal surpluses with maturing debt, and that debt with longer maturities reduces default risk and risk premiums. Therefore, debt maturities are important fiscal fundamentals and should be taken into account as such in sustainability analysis. Swap contracts may conceal the "true" maturity and should therefore be subject to greater transparency. The reinforced EU fiscal rules had failed to trigger positive market reactions, indicating low credibility. Fiscal austerity may become self-defeating but is unavoidable in crisis; to reduce its negative growth impact, fiscal consolidation should be pursued softly. Fiscal surpluses benefit sustainability more through expectations than through direct debt reduction effects. Growing out of debt is a very long process.

Third, Missale argued in favor of central banks acting as lender of last resort for governments in order to provide insurance to markets. EMU is special in that the Eurosystem is more clearly separated from national fiscal authorities than the central bank of a single nation state. The ECB's OMT program reduces the likelihood of a panic equilibrium, but the conditionality attached to it reduces its effectiveness as a deterrent against market runs, and its use comes with a stigma.

[2] *Favero et al. (2012). Sovereign spreads in the eurozone: which prospects for a Eurobond? In: Economic Policy 27(79). 231–273.*

Reacting to the Changed Environment

Session 1, chaired by **Ernest Gnan** and entitled *"Sovereign Borrowing – Adjusting to the New Environment,"* brought together the three perspectives of investors, issuers and policymakers. **Christopher Marks,** BNP Paribas, provided the market perspective with his presentation entitled "From the Sacred to the Profane." Markets are well aware that the crisis has initiated a structural change in financial markets. Despite low yields and even negative real interest rates, funds continue to flow into global bond markets. The increase in stock prices over the past couple of months (the "Great Rotation") does not reflect an outflow of funds from bond markets. In a very long-term perspective spanning three centuries, going back to 1700, nominal long-term bond yields moreover appear to be at normal levels. Currently, the European Union is undergoing a major reform process, which is very fast and far-reaching by historical standards. Given their complexity, the sum of these developments is difficult to price for financial markets, which is also why these developments have not been fully priced in as yet. Marks argued that European politicians had a poor understanding of bond markets, with the exception of ECB President Draghi and Italy's former Prime Minister Mario Monti, who are very much aware of the fact that small pieces of information can make a big difference. Draghi's announcement in July 2012 made the rules of the game very clear, namely that it is pointless to bet against the euro because the euro is here to stay. This has paved the way for stabilizing the markets, and is also the reason why recent political uncertainties in Italy have had very minor effects on Italian bond yields. Government investors clearly group euro area countries by liquidity and credit risk, which currently yields four groups: core, subcore, peripherals, and distressed peripherals. When investing in euro area bonds, they consider commingled European sovereign risk, reflecting rescue mechanisms (ESM, EFSF, SMP, OMT), the limits of these mechanisms (conditionality), individual countries' political risk and contingent liabilities due to ailing banking systems or large industrial firms, and market liquidity and functioning more generally. Bond market developments have led to strongly diverging developments in the duration of euro area countries' bond issuance: While the core countries (Netherlands, Belgium, Germany) used their prevailing low yields to also issue long-term debt, Italy and Spain were forced to shorten durations dramatically. The financial transactions tax will sharply increase borrowing costs for European sovereign issuers (one debt management agency estimated that this tax would raise annual borrowing costs by 20 basis points). Some hedge funds consider banning trading euro area government bonds with European counterparties. Tighter provisioning rules may increase the cost of holding sovereign bonds for financial institutions. The broader definition of high quality liquid assets in the new Basel framework reduces the relative advantage of holding government bonds. Multi-asset funds increasingly take the place of old-style pure sovereign bond funds. Current public finance problems will take a whole generation to solve. Central banks will in one way or another (have to) play a role in this and will have to manage their independence very prudently.

Hans Blommestein, OECD and Tilburg University, offered key insights from the OECD's "Sovereign Borrowing Outlook 2013" published a few days

prior to the conference. Euro area government gross borrowing was not very large over recent years by international comparison. The sovereign debt crisis has emphasized rollover risk and brought a return of home bias. Many sovereign debt management agencies try to reduce rollover risk, but not at all costs. Highly indebted countries in Europe and elsewhere should indeed lengthen the maturity of their sovereign debt. That said, they should not switch opportunistically between markets and maturities for short-term motifs. Between 2007 and 2012, many European countries have actually increased the average term to maturity of outstanding debt, and in the case of Italy and Spain, the average term to maturity has dropped only slightly. Moreover, central government marketable debt as a fraction of GDP, while having increased substantially since 2007, is not high in the euro area countries compared to G7 countries. Nonresident holdings of Spanish and Italian sovereign bond holdings have gone down markedly over the past two years. ECB President Draghi's announcement of the OMT program brought Spanish and Italian yields down considerably across the entire yield curve, particularly at the short end. Finally, the crisis has also highlighted the difficulties associated with measuring sovereign risk – market rates such as bond spreads or CDS spreads have turned out to be very unreliable predictors of fundamental difficulties. Market mispricing is linked to various sources: disagreement and uncertainty on how to define and measure sovereign risk, dysfunctional debt markets, and animal spirits. Therefore, market discipline does not work consistently but spasmodically. As a result, the criteria for estimating the "supply of safe sovereign assets" have been relaxed in the latest edition of the Sovereign Borrowing Outlook: Now assets are considered "safe" if a sovereign is rated AAA or AA by one of the major rating agencies. Despite this conceptual change, the share of safe sovereign assets has declined markedly between 2007 and 2012. The decline was stronger for EU countries than for the OECD as a whole.

Juha Kilponen, Bank of Finland, gave a presentation on the "European Debt Crisis and European Crisis Resolution Policies." He started out by recalling that the Werner Report of 1970 for the creation of a monetary union had, for good reason, envisaged a parallel creation of fiscal and monetary union, with full centralization at the Community level also of fiscal policy, including decision-making on budget size, fiscal balances, methods of financing and utilization of funds. By contrast, in the Delors Report of 1989 monetary union was designed to discipline other areas of economic decision-making. The outcome was a monetary union without a centralized fiscal policy. The current crisis was the result of several developments, including unified interest rates causing exuberance and credit bubbles, lax fiscal policies in several countries, strong private capital flows from core to peripheral countries (reflecting underpriced risks and the global savings and liquidity glut), a lack of incentives for deep economic reform, and the failure of both market and political disciplinary mechanisms. The crisis triggered a number of policy reforms, extending to fiscal policy, financial regulation and supervision, as well as monetary policy. An empirical estimate shows that the results of these policy measures on bond yields were significant for SMP and OMT programs, mixed for the EFSF and ESM, and negligible for the reforms of EU economic governance. Recent developments

are encouraging: Ireland and Portugal are returning to capital markets, and investor sentiment towards Spain has also improved markedly over recent months, the EFSF and ESM have established themselves as supranational issuers able to refinance themselves at low rates, and the ECB's OMT announcement has successfully removed redenomination risk. In the post-crisis new market environment, increased market sensitivity should be good for fiscal discipline. By contrast, fiscal rules lack credibility given that they are constantly subject to renegotiation, and fiscal decision-making remains largely decentralized. The increasing home bias implies market fragmentation detrimental for the smooth functioning of the single monetary policy, possible crowding out of private investment and increasing real economic divergence. The environment for sovereign borrowing remains challenging. Monetary policy currently bears too large a share of the burden to cope with the crisis.

Reviewing the Role of Sovereign Debt for Monetary and Financial Stability

Session 2, chaired by OeNB chief economist **Peter Mooslechner,** addressed the interlinkages between *"Sovereign Debt, Monetary and Financial Stability."* The session's first contribution, "The Role of Sovereign Debt in Monetary Policy Implementation – An International Comparative Perspective" by **Ulrich Bindseil,** European Central Bank, discussed the importance of sovereign debt for central banks' outright holdings and repo operations. Central banks hold sovereign debt outright for several reasons. In normal times, sovereign debt holdings aim to secure low credit risk for the central bank and a slim aggregate balance sheet for the state sector. In crisis times, sovereign debt is additionally held to influence asset prices, sovereign yields and long-term rates at large. Besides actively selecting the composition and size of outright holdings, central banks can steer the influence of sovereign bonds in monetary policy implementation by choosing the eligible collateral framework for repo operations. A broad collateral framework has the advantage of supporting high liquidity of the financial system while a narrow approach reduces risk-taking by central banks and prevents moral hazard in the sense of an undue reliance of commercial banks on central bank credit. The different treatment and use of sovereign debt in monetary policy implementation by the major central banks may reflect two different doctrines. Considering outright holdings, the Bank of England, the U.S. Fed and the Bank of Japan seem to follow a "consolidated state sector doctrine," which views the central bank and government balance sheet in tandem; thus they do not see a major problem in buying large amounts of sovereign debt. By contrast, the ECB may be seen to follow a "central bank independence doctrine," which sees the balances sheets of currently 17 euro area member states and the Eurosystem as distinct, and views central bank purchases of government debt as a potential risk to price stability; thus, the Eurosystem buys relatively small amounts of sovereign debt, even in the event of crisis, with these purchases being strictly limited to secondary market transactions and, in the case of the OMT program, subject to strict conditionality.

Martin Hellwig, Max Planck Institute for Research on Collective Goods, started his contribution "On the Treatment of Sovereign Borrowing in Banking Supervision and Regulation" with a review of the developments and

origins of the sovereign debt crisis, where he focused on the lack of credible commitments by EU institutions and EU governments towards sustainable, stability-oriented policies, with a special reference to the violated SGP targets and no-bail out clause. Banking supervision and regulation played a key role in the evolution of the sovereign debt and financial crisis through the zero-risk treatment of sovereign bonds. The risk-free treatment of sovereign assets induced banks such as DEXIA and HRE to blow up their balance sheets, which implied extensive vulnerability to sovereign risk. While Basel II principles had already demanded sovereign debt to be backed by capital as well, the room for discretion left to national regulators by the EU Capital Requirements Directive supported the zero-risk treatment of sovereign debt. Treating sovereign debt as risk free also implied that the existing exposure rules for single assets where not applied to sovereigns, an issue that has been explicitly addressed by the Basel III principles but experiences strong opposition. The existing link between banks and sovereigns makes the current problems hard to solve for central banks, forcing them to fund governments to secure financial stability. Therefore, in addition to the two doctrines identified by Bindseil, Hellwig sees a potential third doctrine which includes not only the consolidated state sector but also the banking sector. The insufficient loss-absorption capacity of banks and the missing account for correlated risks call for an adjustment of the capital requirements framework. According to Hellwig, the paramount precondition for reversing capital outflows from peripheral countries would be to regulate large sovereign asset exposure. Furthermore, a banking union should by all means include a banking resolution authority.

Eric Leeper, Indiana University, who was prevented from attending the conference in person due to weather-induced flight cancellations, transmitted a video of his presentation entitled "Thinking about Fiscal Sustainability," which focused on the definition and implications of fiscal limits, the point at which countries' surpluses can no longer adjust to stabilize government debt. At the fiscal limit, countries that lack control over the debt-denomination currency – which is also the case for euro area member states – have no other option than to default. Sample calculations for the probability distribution of the fiscal limit for Greece showed that higher productivity, stable growth in transfers and credibility of consolidation efforts lower the probability of reaching the fiscal limit at a given debt ratio. Regarding the current situation in the United States, this time *is* different. In the past, society was willing to accept shared sacrifices, e.g. to reduce a very high public debt burden. With political polarization being at all-time highs, the costs connected to the aging of the society imply increases of the future debt burden. Therefore the fiscal limit of the United States, which is ultimately always a political decision, might be lower than in the past. At the fiscal limit, countries controlling the currency of their issued debt have the additional policy option of devaluing real debt by means of inflation. At the fiscal limit, monetary policy has to prevent the debt service from exploding by keeping real interest rates low. It therefore loses its ability to prevent "fiscal inflation." The tradition of assigning inflation control and short-run stabilization to monetary policy rests on the assumption that fiscal policy fulfils the task of ensuring solvency at all times. These assignments are currently questioned by the fact

that political outcomes might no longer support fiscal policies that can keep the economy sufficiently far from its fiscal limits. Recent research has already picked up this idea and shown that reversing the assignments can generate welfare nearly equivalent to consensus assignment.

Improving Risk Management and Prudence of Sovereign Borrowing

Session 3 chaired by **Martha Oberndorfer,** Federal Financing Agency of Austria, focused on potential steps *"Towards More Prudent Sovereign Borrowing."* By reviewing the strategies of Italian debt management over the last three decades in her presentation "Risk Management of Debt Portfolios," **Maria Cannata Bonfrate,** Italian Treasury, identified various forms of risk associated with the extensive reliance on certain debt management instruments and argued for a medium- to long-term perspective which protects against the temptation to make use of short-term market developments. Past experience, such as the excessive reliance on T-bills which contributed to the explosion of Italian sovereign debt in the 1980s or the increased reliance on long dated floaters implying high levels of interest rate risk which materialized after the monetary crisis in 1992, highlight the potential of debt management strategies to cause severe problems. As a reaction to these problems the Italian Treasury constantly increased the average life and the duration of the debt portfolio over time to allow for a temporary shortening of maturities in difficult times (e.g. second half 2011 and 2012). Yet sovereign debt issuance strategies face trade-offs. A strategy that minimizes rollover risk by smooth redemption profiles is challenged by markets' preference for concentration in coupon cycles and common expiring dates for nominal debt and inflation linkers. Despite the fact that the debt manager can make use of buy-backs and exchange operations (e.g. EUR 5 billion in 2011) debt redemption pikes cannot always be prevented. For 2013 the Italian Treasury has scheduled a further lengthening of the average life and duration of Italian debt. Moreover, following the successful launch of inflation-linked bonds in 2012, a new 30-year government bond indexed to Italian inflation ("BTP Italia") will be issued when market conditions appear to be favorable. The usual hedge of currency risk via currency swaps will be continued.

The presentation entitled "GDP-Indexed Bonds: A Tool to Reduce Macro Risk?" by **Guido Sandleris,** Universidad Torcuato di Tella (Buenos Aires), focused on the benefits and design of GDP-indexed debt contracts. Besides collective action clauses and seniority clauses, debt indexation can be seen as a possibility to reduce the cost of sovereign debt renegotiations. Real-indexed debt contracts further make debt crises less likely, allow for better risk-sharing and counteract procyclical fiscal policy. In the past only a few countries have issued indexed debt, either in the form of GDP indexation (Costa Rica, Bosnia-Herzegovina, Bulgaria, Argentina and Greece), commodity price indexation (United States, France, Mexico, Nigeria and Venezuela) or fiscal revenue indexation (Spain). Index variables that are under the control of the issuer, such as government revenues or expenditures which would provide the best insurance, may give rise to moral hazard problems. Variables that are harder to manipulate but still correlated with revenues or expenditures are therefore preferable (GDP or commodity price indexation). A simulation of debt servicing costs for

Argentina showed that, with reliance on GDP-indexed bonds, debt servicing costs would have been much lower than actually observed before the crisis, but substantially higher following the crisis, from 2001 onwards. So if GDP-indexed bonds are conceptually so appealing, why do we not see widespread use of the instrument? Possible answers include large fixed costs of market set-up, incentives to misrepresent data, unattractiveness during good times and alternative hedging options that already exist, such as simple variable interest rate bonds.

Representing UNCTAD, which launched an initiative to promote responsible sovereign lending and borrowing practices in 2009, **Juan Pablo Bohoslavsky** presented the current status of the "UNCTAD Principles of Sovereign Lending and Borrowing." These principles, which emerged from contributions of a group of experts in law and economics and which are still open for discussion, highlight that both the borrower and the lender have responsibilities and duties. Lenders should be obliged to provide all necessary information to allow for a proper evaluation of the risks and benefits of the financial products they offer. Lenders also have to evaluate the capacity of borrowers to repay a given credit and have to comply with UN sanctions imposed against a governmental regime. In case of debt restructurings all lenders must behave in good faith and with cooperative spirit to reach a consensual rearrangement of obligations. In the context of project financing, sovereign borrowers should also conduct ex ante investigations into the financial, operational, civil, social, cultural and environmental implications of the project and its funding. Borrowers have to act in the interest of their citizens and honor binding obligations. Further principles include transparency, disclosure and publication of debt obligations and liabilities as well as adequate management and monitoring of debt portfolios. Governments further have a responsibility to perform a cost-benefit analysis for their investments financed by liabilities. If restructuring is unavoidable, it should be undertaken promptly, efficiently and fairly.

Conclusions

In sum, the conference on "The Future of Sovereign Borrowing in Europe" established that European sovereign debt markets have indeed undergone, and are still undergoing, substantial and lasting changes as a result of the crisis, with important consequences for governments' fiscal scope and debt management, for monetary policy and for financial stability.

There is no uniform definition of fiscal sustainability, which in turn has implications for adequate crisis management measures. Some economists emphasize the possible self-fulfilling nature of market forces impacting on debt sustainability and consequently call for massive intervention in the event of sovereign debt runs, in particular by central banks. Others emphasize that governments share a substantial part of the blame for the sovereign debt crisis, having neglected principles of good fiscal governance and provoked banking system vulnerability through prudential rules that encouraged large exposures to individual sovereign borrowers. Hence, they call for a stricter enforcement of fiscal rules and for non-preferential treatment of government debt in bank regulation.

That sovereign debt is not a risk-free asset was in principle already reflected in the Basel II framework; however, the room for discretion left to national supervision and regulation by

the EU Capital Requirements Directive prevented an enforced treatment of sovereign debt as a risky asset. The application of risk weights and of a leverage ratio for sovereign assets were identified as necessary conditions for breaking the adverse feedback loop between banks and sovereigns.

Central banks' interventions in sovereign debt markets may reflect different doctrines (possibly related to the difference between single states with a currency of their own and the euro area, where a "consolidated view" of central bank and government balance sheets is difficult or impossible) or different aims of these interventions (influencing risk-free long rates versus correcting for excessive risk premiums in some bond market segments). In terms of effectiveness to counter the crisis, the SMP and OMT programs were generally seen as most successful, while the reformed EU fiscal rules framework was not found to have gained credibility so far.

Given the problems to secure political majorities for painful but necessary fiscal adjustments, including substantial reductions of debt ratios even over the medium to long term, the consensus division of tasks between fiscal policy and monetary policy is currently challenged. Central banks may come to feel substantial pressures in coming years to facilitate debt reduction in one or the other way.

There was general agreement that markets have generally failed to fulfil their signaling and disciplinary function by ignoring sovereign risk in the run-up to the crisis, while subsequently over-reacting with panic during the crisis. It is not enough, however, to criticize markets' herd behavior. Instead, on the one hand, issuers should learn to take possible nonlinear behavior of markets as a given and stay safely clear of the limits to fiscal sustainability. Prudent fiscal behavior should go beyond a narrow view of current (headline) fiscal balances and debt levels, but must take due account of contingent liabilities from the financial system and the economy at large. On the other hand, markets in their investment behavior and risk evaluation should take into account nonlinear behavior of electorates in democratic societies as an integral and normal part of democratic decision-making processes, both at the level of single countries and the European Union or euro area.

The crisis induced changes in issuing techniques and funding strategies. Several European sovereign debt managers engaged in short-term debt issuance, for cost advantages or due to problems of access to longer maturities. This stands against the notion that longer-term financing would render public finances more robust against sovereign bond runs. Hedging strategies such as linking interest to real economic variables such as GDP growth have so far rarely been employed, not least because it may be difficult to newly introduce such new instruments to the markets, or because of the higher financing costs in good times.

Notes

List of Studies
Published in Monetary Policy & the Economy

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

Issue Q1/12

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

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

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

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

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

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

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

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

Issue Q2/12

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

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

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

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

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

Issue Q3/12

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

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

Issue Q4/12

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

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

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

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

Financial Markets and Real Economic Activity
Burkhard Raunig

Issue Q1/13

Austria Withstands Recession: Return to Positive Growth in Early 2013
Klaus Vondra

Structural Budget Balances: Calculation, Problems and Benefits
Lukas Reiss

Effective Retirement Age in Austria – A Review of Changes since 2000
Alfred Stiglbauer

The Future of Sovereign Borrowing
Key Findings of a Conference Jointly Organized by SUERF,
OeNB and BWG on March 8, 2013, in Vienna
Ernest Gnan, Johannes Holler

Periodical Publications

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

Geschäftsbericht (Nachhaltigkeitsbericht) — German
Annual Report (Sustainability Report) — English

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

Konjunktur aktuell — German

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

Monetary Policy & the Economy — English

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

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

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

Financial Stability Report — English

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

Focus on European Economic Integration — English

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

Statistiken – Daten & Analysen — German, English summaries

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

Research Update — English

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

Proceedings of OeNB Workshops — German, English

These proceedings contain papers presented at OeNB workshops at which national and international experts discuss monetary and economic policy issues.

Working Papers — English

This online series provides a platform for the publication of studies by OeNB economists or external authors on particular monetary policy topics.

Conference Proceedings of the OeNB's Economics Conference English

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

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

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

Publications on Banking Supervision German, English

www.oenb.at/en/presse_pub/period_pub/finanzmarkt/barev/barev.jsp

Addresses

	Postal address	Telephone/Fax/E-mail
Head Office		
Otto-Wagner-Platz 3 1090 Vienna, Austria Internet: *www.oenb.at*	PO Box 61 1011 Vienna, Austria	Tel: (+43-1) 404 20-6666 Fax: (+43-1) 404 20-042399 E-mail: *oenb.info@oenb.at*
Branch Offices		
Northern Austria Branch Office Coulinstraße 28 **4020 Linz, Austria**	PO Box 346 4021 Linz, Austria	Tel: (+43-732) 65 26 11-0 Fax: (+43-732) 65 26 11-046399 E-mail: *regionnord@oenb.at*
Southern Austria Branch Office Brockmanngasse 84 **8010 Graz, Austria**	PO Box 8 8018 Graz, Austria	Tel: (+43-316) 81 81 81-0 Fax: (+43-316) 81 81 81-046799 E-mail: *regionsued@oenb.at*
Western Austria Branch Office Adamgasse 2 **6020 Innsbruck, Austria**	Adamgasse 2 6020 Innsbruck, Austria	Tel: (+43-512) 908 100-0 Fax: (+43-512) 908 100-046599 E-mail: *regionwest@oenb.at*
Representative Offices		
New York Representative Office Oesterreichische Nationalbank 450 Park Avenue, Suite 1202 **10022 New York, U.S.A.**		Tel: (+1-212) 888-2334 Fax: (+1-212) 888-2515
Brussels Representative Office Oesterreichische Nationalbank Permanent Representation of Austria to the EU Avenue de Cortenbergh 30 **1040 Brussels, Belgium**		Tel: (+32-2) 285 48-41, 42, 43 Fax: (+32-2) 285 48-48