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

Editorial

Over the past years, economic policy institutions have stepped up their efforts to enhance economic and financial literacy. Government agencies, banks, non-profit organizations and last but not least central banks have launched initiatives all over the world to introduce new financial and economic education programs or to broaden and deepen already existing products and services. Based on a comprehensive assessment of existing economic and financial literacy initiatives, international organizations like the OECD, the G-8 or the European Commission have identified best practices and have issued related recommendations.

There are several reasons for the growing importance of economic and financial literacy programs. With the interplay of economic forces becoming increasingly complex, individuals need to develop a better and broader understanding of how the economy and financial markets work if they are to be well informed to make important personal decisions. Increasing financial wealth and the trend toward individual retirement planning have made investment skills an important asset for long-term life planning. At the same time, economic policymakers have an interest in having economic agents understand their economic policy measures. For example, for central banks to be able to fulfill their key tasks of ensuring price and financial stability, it is crucial that citizens are well informed about economic and financial issues.

The OeNB has provided economic education products and services for decades, including a multitude of teaching materials, seminars for teachers and journalists alongside its economics publications. In its education efforts, the OeNB has always actively sought out cooperation with other education providers in Austria and, in recent years, has especially fostered cooperation with other euro area central banks. Against this background, this special issue of “Monetary Policy & the Economy” takes stock of economic and financial literacy at the national and international level. The contributions in this issue present and analyze the content and objectives of economic and financial education programs, the level of economic and financial knowledge in Austria, education products and services available in Austria as well as other central banks’ financial and economic literacy programs.

In the first study, *Gnan, Silgoner and Weber* examine *concepts, goals and the measurement of economic and financial education*. As the authors show, economic and financial education covers a very broad range of initiatives and activities. What knowledge areas and skills are targeted and how content is presented depends not just on the target group, but also on the different motives and goals of education providers. Central banks all over the world provide economic and financial education basically for five reasons: (1) to enhance the effectiveness of monetary policy, (2) to ensure the smooth functioning of financial markets, (3) to support sustainable, stability-oriented economic policies, (4) to promote economic and financial literacy as a public good, and (5) to build their reputation and promote their acceptance as competent state institutions useful for citizens.

Ideally, an empirical survey of the level of knowledge among the target group and an identification of important knowledge gaps should precede every education initiative. The results of such a survey help evaluate the effectiveness

and efficiency of education initiatives, and they foster quality control and focused improvement of education initiatives. How adequate education measures are depends on the objective such measures are aimed at. Although this general principle makes obvious sense, it is not always observed. To demonstrate just how difficult it is to measure economic literacy, the authors use the best-known test, the test of economic literacy (TEL). A survey of the small number of recent surveys available for Austria shows that much remains to be done and that there is ample room for improvement of economic education in Austria. As a case in point, more than half the respondents of a survey conducted in 2006 rated their understanding of economic fundamentals in the range between “rather bad” and “very bad.” Not surprisingly, graduates of upper secondary commercial schools (Handelsakademien) displayed the highest level of economic knowledge among secondary school students.

Fessler, Schürz, Wagner and Weber present an empirical survey of the *Financial Capability of Austrian Households*. “Financial capability” as used in this contribution is broader than the term “financial literacy.” While “financial literacy” emphasizes knowledge, understanding and awareness, “financial capability” stresses the relevance of attitudes (toward risks, specific financial operations, etc.), the application of knowledge in practice and decision-making. Based on a survey on financial capability conducted in 2004, four competence areas are examined, starting with *managing money*. 90% of respondents stated that they were always precisely informed about their financial situation. 45% of households kept a record of their finances; 80% stated that they always paid their bills immediately. 15% tended to overdraw their accounts. 43% of Austrians saved on a regular basis; only 15% stated that they would rather take out a loan than save for a long time to make a purchase. Generally, the propensity to manage one’s finances carefully was shown to increase slightly with age whereas there was hardly any correlation with income and education. The second topic was *planning ahead*. The share of households stating that they were putting money aside “for a rainy day” turned out to be roughly 85%. 82% of the households covered by the survey considered individual saving for retirement important. Private retirement provisions were shown to be considered more important among higher income and higher education groups; younger respondents deemed private old-age provision more important than older respondents did. Over half the respondents aged 30 to 60 stated that they had private pension savings. The third competence area covered was *making financial decisions*. The majority of Austrians continue to be risk averse in their savings decisions: only 16% of households own stocks, 11% own mutual fund shares. Just under half of all respondents check out various banks’ offers to find the best product, with the percentage rising among better-educated respondents. The fourth topic treated was *getting financial advice and information*. The most frequently used source of financial information by far is individual advice provided by respondents’ relationship bank (Hausbank) (69%). Advice by family members (31%), information provided by different banks (24%), advice by friends (23%), leaflets provided by banks (20%), information from newspapers (20%) and the Internet (19%) played a much smaller role. The number of information sources used declined with increasing age and rose with income and education level. In finance matters, respondents placed most confidence in the Austrian

consumer affairs organization (Verein für Konsumenteninformation, 47%), banks and insurance companies (40%), the Chamber of Labor (33%) and the OeNB (24%); multiple responses were possible. 56% stated that they preferred to rely on individual advice from their bank's account manager rather than on their own judgment. 59% of respondents said they enjoyed dealing with financial issues, 47% considered their knowledge about financial issues mediocre, 66% wished to have more information about financial issues, and 90% of respondents thought that financial education in Austria should be improved.

In the third contribution, *Schlögl* provides an overview of *Financial and Economic Education Products and Services of Austrian Institutions and Enterprises*, which reviews the financial and economic education initiatives of ten Austrian providers. The study reveals that the different programs are not well coordinated: Many areas are covered by several providers at once, while others are (sometimes completely) neglected. In particular, there is hardly any suitable material for primary schoolchildren, nor are enough educational products available that would be appropriate for the age group of 11- to 15-year-olds. As compulsory schooling in Austria is completed around the age of 15, for those students that do not continue to go to school past the age of 15, lower secondary school provides one last chance to learn important basic literacy skills and financial capabilities. Therefore, improvements in economic and financial education in Austria should focus more intensely on target groups which have been largely neglected up to now. Moreover, different providers' activities should be better coordinated, and the available material should be better organized.

The last contribution, *Selected Central Banks' Economic and Financial Literacy Programs*, authored by *Fluch*, takes us beyond the national level to review central bank initiatives worldwide. Some 30 central banks across the world provide partly quite comprehensive financial education products for different target groups, often in close cooperation with other institutions. Some central banks consider financial education a core competence. The main target groups of the information products are children, young people, students and teachers. In this context, multimedia and e-education packages are gaining ground on print products. Some central banks have invested considerable resources in the establishment of special visitor and education centers as well as money museums. However, central banks' educational Internet resources differ extensively in scope and presentation. Generally, financial knowledge transfer appears to work best through simple media and products that are very strongly focused on individual benefit.

The OeNB's stocktaking shows that there is considerable demand in Austria for economic and financial education initiatives. Above all, appropriate material for some important target groups, such as primary schoolchildren and compulsory school-age children, appears to be quite scant. Addressing the need for suitable education programs to fill the gap will require considerable efforts in the years to come. Improving cooperation and coordination, and organizing and merging the material available on common platforms, would help raise the quality of educational products and services and would make them more accessible to consumers. The OeNB will respond to the strong

demand for economic education from the Austrian public by continuing its economic and financial education activities and by further improving its education products and services. In doing so, the OeNB will aim to complement the already available material optimally and to seek cooperation with other providers in Austria and in the European System of Central Banks.

Klaus Liebscher
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ANALYSES

Robust Economic Activity in the Euro Area

Inflation Remains Moderate

Andreas Breitenfellner,
Johann Elsinger,
Klaus Vondra

Global economic activity continued to look robust at mid-2007. In the U.S.A., however, it is currently uncertain how large the impact of the August 2007 crisis in the real estate sector on the real economy will be. Strong growth in the second quarter of 2007 was primarily characterized by dynamic net exports but also by a very modest rise in private consumption. The U.S. Federal Reserve System first reacted to short-term liquidity constraints by unexpectedly cutting its discount rate. After having identified risks to growth, it later reduced the federal funds rate and again cut the discount rate. Economic recovery is slowing in Japan.

The Bank of Japan is pursuing its supportive monetary policies and has injected additional liquidity into the money markets in the wake of the U.S. mortgage crisis. In Asia, the high pace of growth continues, with the Chinese economy in danger of overheating.

The euro area economy may have peaked. Somewhat weaker growth in the second quarter of 2007 was driven by domestic demand, in particular. Current forecasts indicate GDP growth for 2007 to be close to potential. In addition, the labor market is developing favorably for cyclical and structural reasons. The rate of inflation rose above the 2% mark recently after having been below 2% for one year. Now the base effects and currency effects that had moderated energy price increases despite high crude oil prices are dissipating. Similarly, the feedthrough of the increase in VAT into German consumer prices proved smaller than expected. Nevertheless, the ECB Governing Council's economic and monetary analysis indicates upside risks to price stability in the medium term.

In the first quarter of 2007, the economies of the new EU Member States grew again more dynamically than that of the euro area. This is primarily attributable to robust growth in domestic demand. In the first half of 2007, the region registered a slight increase in inflation rates.

The Austrian economy is currently experiencing a period of expansion. Growth continues to be led by net exports and investment. Although private consumption performed better in the second quarter of 2007, it still lags behind expectations. According to the current OeNB economic indicator, Austrian real GDP will amount to 0.8% and 0.7% in the third and fourth quarters of 2007 respectively. For 2007 as a whole, this would mean growth of 3.4%.

JEL classification: E2, E3, O1

Keywords: global outlook, euro area, central and (south-)eastern Europe, Austria.

1 Continued Global Economic Growth

1.1 U.S.A.: Key Interest Rate Cut Due to Mortgage Market Crisis

Following very sluggish economic momentum, real GDP growth accelerated in the second quarter of 2007 to 3.8% (year on year). This spurt of growth was owing to two factors: a marked increase in net exports and a rise in public expenditure. Private consumption, however, expanded at an extremely modest rate of 1.4%. The downturn in private residential

construction slowed, but nevertheless dampened growth by 0.6 percentage point. While the consumer price index (CPI) – somewhat weaker in August than in July – increased by 2.0% year on year, the core rate (inflation excluding food and energy) rose by 2.1%, i.e. less strongly than in the previous 16 months.

In addition, the relatively favorable labor market situation is still keeping intact the prospects of a “soft landing.” Nonetheless, despite positive signals from some short-term in-

Cutoff date for data:
September 28, 2007.

dicators, the downside risks to economic growth increased as a result of real estate and financial market turmoil.

Following the long-term uptrend in U.S. real estate prices, which was fueled by – initially – low key interest and mortgage rates as well as by very generous credit conditions, including subprime household lending, growth in U.S. house prices came to a halt. This and, above all, the markedly higher cost of some types of borrowing – exacerbated by the phasing out of temporarily low interest rates for borrowers – led to defaults and forced sales, particularly in the subprime segment, and caused difficulties for some financial institutions.

The homeowner mortgage market, which was primarily hit by this crisis, has a volume of some 75% of GDP. Approximately 15% – up to 25% when more cautiously defined – of these mortgage loans (i.e. 10% to 20% of GDP) can probably be classified as *subprime*.

Financial market participants lost confidence in the U.S. subprime market, pulled out of U.S. structured financial products and moved into international markets. Underlying this, no doubt, is the uncertainty about who has problem assets backed by securitized mortgage loans in their portfolio, and to what extent, as well as about whether these assets represent a solvency problem for the institutions concerned.

As a result, the U.S. Fed repeatedly increased liquidity in the U.S. money market and, on August 17, 2007, lowered the discount rate by 0.5 percentage point to 5.75% between two regular meetings. On September 18, the Federal Open Market Committee (FOMC) cut the key *federal funds rate* by 50 basis points to

4.75% in light of the increased risks to economic growth. In addition to this first key interest rate cut in four years, the FOMC reduced the discount rate by an additional 50 basis points to 5.25%. These measures helped to calm the markets to some extent.

Owing to the expected weakening of private consumption from more restrictive terms of credit and to the decline in residential construction investment, U.S. economic growth is likely to slow in 2007 and to remain restrained in 2008 as well. *Consensus Forecasts* recently predicted growth of 2.0% in 2007 and 2.4% in 2008. The curbing of the expansion should, in turn, contribute to reducing inflationary risks. The risks to this economic outlook are primarily in continued financial market turmoil.

1.2 Japan: Growth Leveled Off

In the second quarter of 2007, real GDP in Japan contracted for the first time in three quarters, dropping by 0.3% on the previous quarter. This decline is attributable to a significant slowdown in export momentum. Growth stimuli came from corporate investment; private consumption was also up. In its six-monthly Outlook for Economic Activity and Prices (Outlook Report) for the fiscal year 2007 beginning in April and for 2008, the Bank of Japan still considers the economy to be on track to modest growth, which is driven by domestic demand. Given favorable competitive conditions, real GDP is likely to expand by 2.1% in both 2007 and 2008. *Consensus Forecasts* sees growth at 2.3% in the calendar year 2007, which would signify an increase for the seventh year in a row. As downside risks, the Bank of Japan cites a sharp slowdown in the U.S.

economy and a detrimental impact of the turmoil in the U.S. mortgage market on the profitability of the Japanese banking system.

The core inflation rate (CPI excluding fresh foods), which is crucial for monetary decisions, stood just below zero on an annual basis in the first half of 2007, partly induced by falling oil product and telecoms prices. The Bank of Japan revised its expectations for Japan's core inflation downward: It now predicts a rise of only 0.1% in the fiscal year 2007 and does not expect a rise to 0.5% until the fiscal year 2008. The Bank of Japan pursued its highly supportive monetary policy in the first half of 2007 and, in the wake of the U.S. mortgage crisis, repeatedly injected additional liquidity into the money market.

1.3 Asia Booms, China in Danger of Overheating

In non-Japan Asia (NJA), the economy continued to grow vigorously in the first half of 2007. Both the domestic economy and the external sector remained, for the most part, pillars of growth. China adopted measures to counter the possible overheating of the economy and to stabilize inflation expectations. With the help of an "appropriately tight" budgetary policy and a less accommodative monetary policy, annual real GDP growth is to be restricted to some 9%. Despite these steps, growth in the second quarter of 2007 accelerated to 11.9% year on year, fueled by momentum in industry and the service sector. The consumer price index's steep rise in July 2007 (+5.6%) exceeded its target of 3% for the fifth month in a row, attracting considerable political attention, as periods of high inflation in the past

have often been associated with political turmoil. The IMF sharply corrected its 2007 growth forecast upward to 11.2%, and the rating agency *Moody's* upgraded its credit rating for China. Stock prices on the strongly booming Chinese stock market plunged repeatedly in spring 2007 but then rallied rapidly, bringing the stock index to an all-time high at end-August 2007. The country's financial markets meanwhile remain vulnerable to any unexpected increase in global risk aversion. In addition, real estate business in Chinese conurbations may be witnessing signs of overheating.

The IMF expects the economic prospects for NJA to remain favorable on the whole, although growth rates are likely to slacken marginally until 2008.

2 Euro Area: Growth Has Peaked

2.1 GDP Growth Down Slightly

In the second quarter of 2007, euro area real GDP grew by 0.3% on the previous quarter and by 2.5% year on year, according to estimates. This signifies a slowdown compared with the very dynamic GDP growth of the previous quarters and represents the euro area's weakest performance since end-2004. Broken down into its GDP components, growth in the second quarter of 2007 differed markedly from that of the first quarter. Recently, the key pillar of economic growth was private consumption, while gross fixed capital formation and government consumption stagnated; net exports, which are now having a positive impact, were partly offset by changes in inventories.

Growth was down in all four major economies of the euro area, especially in Italy but also in Germany

and France. Whereas the decline in German GDP growth as a result of the increase in VAT was in line with the figure predicted by the European Commission, other euro area countries lagged behind expectations. Investment growth appears to have paused, particularly in construction investment, which had previously benefited from the mild winter. The flagging investment cycle is also evident from the euro area's industrial capacity utilization, which may have peaked at 84.8% in the second quarter of 2007 according to a European Commission survey. Export growth is also likely to have peaked. This corresponds to the mature stage of the economic cycle but may also reflect either insufficient competitiveness or exchange rate effects. Consumer demand failed to assume the role of economic engine despite the favorable labor market situation, which may be traced back to modest growth in disposable income, in addition to a rising saving ratio and to rising lending rates.

In July 2007, the euro area's balance of trade registered a surplus of EUR 4.6 billion after also having shown a surplus in the previous months. In the second quarter of 2007, the euro area had a current account deficit of EUR 7 billion according to first estimates. Over the previous 12 months, the current account showed a cumulative surplus of EUR 2.6 billion until June 2007. However, if the trade and current account balances are seen as a ratio of GDP, both are nearly in balance.

The labor market situation continued to improve in light of the sustained economic momentum. Following its previous decline in May 2007, the euro area's seasonally adjusted jobless rate stood at 6.9%,

i.e. a full two percentage points below its peak in mid-2004 and at its lowest level in more than a decade. However, this drop is not only the result of economic activity. The labor market and welfare reforms of the past few years have also reduced structural unemployment, which means that GDP growth is currently considerably more employment-intensive than it was a few years ago. In 2006 alone, two million jobs were created in the euro area as a result. In the second quarter of 2007, employment growth was 0.5%, i.e. higher than in the two previous quarters. The European Commission still has high expectations for employment in industry and the service sector.

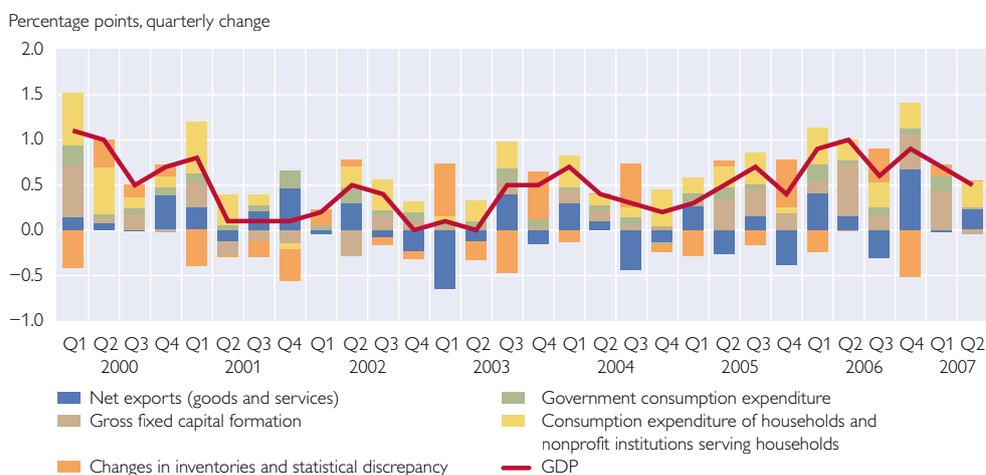
2.2 Upbeat Growth Prospects

Economic indicators suggest somewhat weaker confidence in the economy, thus signaling the possibility that economic activity in the euro area may have peaked. Both the European Commission's *Economic Sentiment Indicator* and *Ifo's Business Climate Index* for Germany deteriorated slightly since June 2007. Despite trending down since early 2007, most industrial sentiment indicators remain well above their long-term averages, thus still signaling growth close to potential. Although the European Commission's consumer confidence indicator, following a long-term up-trend, has been falling since May 2007, it remains at a high level.

For the third quarter of 2007, the European Commission's target range indicator projects slightly downward revised growth of between 0.3% and 0.8%. This target range is likely to widen only marginally in both directions until the first quarter of 2008. In its spring forecast of 2007, the European Commission had revised its

Chart 1

Contributions of Real GDP Components to Euro Area Growth



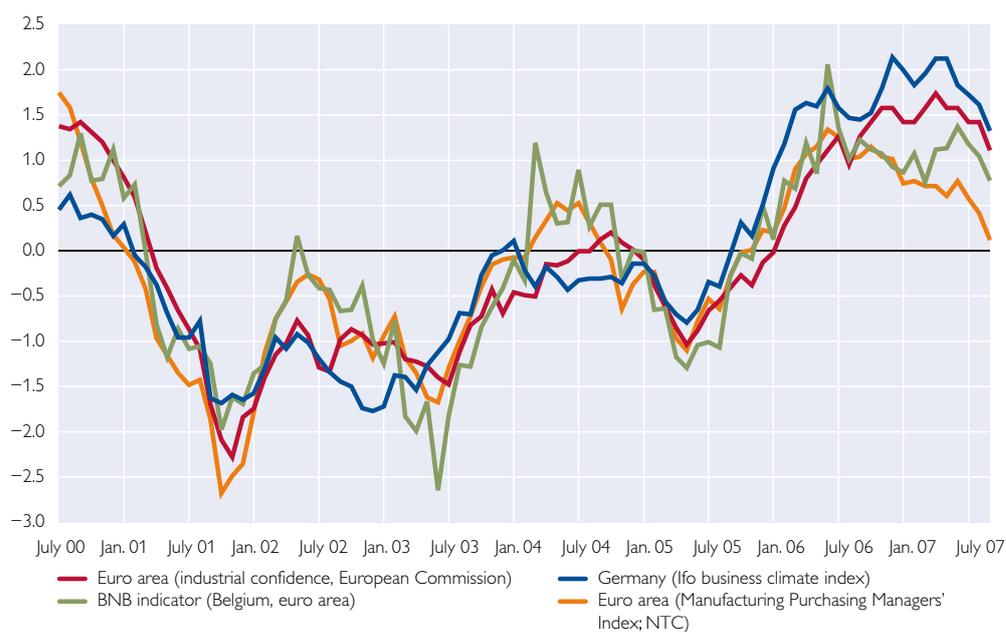
Source: Eurostat.

growth expectations for the full year 2007 up by 0.5 percentage point. However, the interim forecasts were revised marginally downward again to 2.5% recently. Eurosystem experts share this underlying optimism. Ac-

ording to their projections of September 2007, GDP growth in 2007 will range between 2.2% and 2.8%. In 2008, growth is expected to range between 1.8% and 2.8%. From the current perspective the euro area real

Chart 2

Business Climate Indicators



Source: European Commission, Ifo, NTC, BNB, OeNB.

Note: Deviation from the mean value of the indicator relative to the standard deviation.

economy appears to have been affected only marginally by the financial market turmoil.

2.3 Inflationary Pressure as Expected

In August 2007 the inflation rate measured by the Harmonised Index of Consumer Prices (HICP) decreased to 1.7%; for September, though, it is estimated to come to 2.1%. The fact that inflation was below the 2% mark for a year is attributable above all to energy prices, which benefited from a more favorable base effect, which is now coming to an end, however, as well as from the appreciation of the euro. In Germany, the impact of the VAT tax reform was not fully passed on to consumers, presumably because of strong competition and good corporate profits. In Germany itself, inflation rose at an above-average rate in the wake of the VAT reform and accelerated to 2.5% in September 2007 because of price increases for oil products as well as food, beverages and tobacco. By contrast, the HICP was lower than or in line with the euro area average in France and Italy in August. In August 2007, euro area inflation rose for the subcomponent food and stayed high for services. In August, core inflation (all-items index excluding energy and unprocessed foods) augmented to 2.0%, the highest level since end-2004.

After soaring by nearly 40% since the start of the year, at end-September 2007 the price of crude oil (Brent) reached an all-time high of over USD 80 per barrel. In August 2007, oil prices had fallen in the wake of the financial market turmoil. In the same month, energy prices in the euro area even made a negative contribution to inflation. This is because the price of oil denominated in euro had still been

higher in the previous year and so had a favorable base effect, which will, however, become less significant from September 2007.

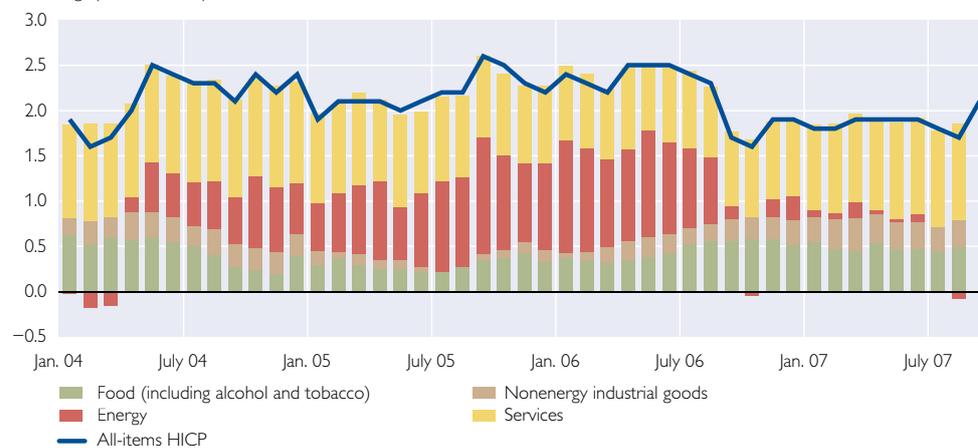
Inflation rose slightly for processed foods, meaning that the global uptrend in food prices (referred to as “agflation”) is apparently feeding through to the euro area HICP now. However, significant global demand for food, beverages and tobacco, including the production of crude oil substitutes, has for months been reflected in consumer price inflation in, for instance, the U.S.A. and the U.K.

From early 2007 to July, import prices rose by 1.7%. Energy price effects, and possibly also a price increase in emerging Asian markets – the dissipation of the inflation-dampening effects of globalization, are at the heart of this rise. In August 2007, producer price growth in industry excluding construction continued to decline. Here, too, the development in energy prices, which have been exhibiting negative growth since April, play a key role. In addition, this trend is attributable to growth in intermediate goods prices, in which the past few months’ development in commodity prices is reflected, albeit with a lag.

To date, the risks to the forecast diagnosed by the European Commission have not become reality either in the form of an increase in producer prices or in unexpectedly high wage settlements. Wages have so far risen modestly. After stagnating in the fourth quarter of 2006, unit labor costs in the euro area rose by 0.8% in the first quarter of 2007. The compensation of employees in the euro area rose more quickly in the second quarter than in the previous quarter. The favorable labor market situation

HICP Components: Contributions to Inflation

Percentage points, monthly data



Source: Eurostat.

is likely to make higher wage settlements possible. Productivity growth went down slightly again in the second quarter. Since 2002, accelerating productivity growth has contributed considerably to falling unit labor costs in the euro area. Overall, however, hardly any significant second-round effects of the increase in oil prices on wages are identifiable.

According to projections published by experts at the European Central Bank (ECB) in September 2007, the HICP inflation rate will range between 1.9% and 2.1% in 2007 and between 1.5% and 2.5% in 2008. While they forecast that contributions to inflation from energy and raw materials, indirect taxes and profit margins will decline gradually, rising unit labor costs will have an inflation-boosting effect in line with forecasts. According to the Governing Council of the ECB, the risks to the inflation outlook currently are on the upside.

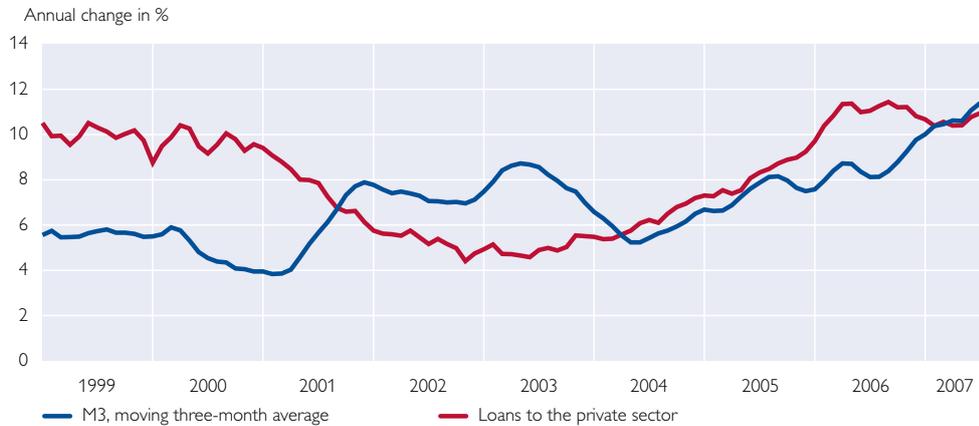
2.4 Monetary and Lending Growth at Record Levels

The three-month average of annual M3 growth came to 11.4% from June through August 2007, the highest level since 1999. In particular, an increase in short-term deposit growth underlies this trend. This may be for two reasons: first, the flight of investors into liquid funds given the recent financial market turmoil; second, increased interest rates for maturities up to two years that make investing in short-term assets more advantageous. In addition, sustained high risk aversion on the part of nonfinancial corporations and households is contributing to robust growth in monetary demand.

In August, lending growth expanded to 8.8%. Whereas lending to nonfinancial corporations accelerated, annual household lending growth continued to slow. Sustained high demand for credit reflects currently buoyant economic growth and fundamentally favorable financing conditions. Prior to the spillover of the U.S. mortgage market crisis, ad-

Chart 4

Euro Area: Development of M3 and Loans



Source: ECB.

ditional factors were banks' more relaxed lending practice and the increased confidence of market participants. Steep growth in merger and acquisition activities within the euro area may also have contributed to the rapid expansion in corporate borrowing.

2.5 Further Hike in ECB Key Interest Rate

On June 6, 2007, the Governing Council of the ECB decided to raise the minimum bid rate on main refinancing operations by 25 basis points to 4.0%. This means that it has increased its key interest rate by a total of 200 basis points since December 2005. The latest hike was justified on two counts: the favorable economic climate and potential risks to price stability.

At its meeting of August 2, 2007, the Governing Council of the ECB announced that it would follow economic and monetary developments with strong vigilance. This is an expression of implied upside risks to price stability over the medium term, which were identified in the ECB Governing Council's economic and

monetary analysis. At the same time, the Council underlined that it would never precommit to monetary policy decisions that had to be taken.

The Governing Council of the ECB essentially expressed the same approach at its meeting of September 6. The Governing Council confirmed that the medium-term outlook for price stability remained subject to upside risks and that the monetary policy stance remained on the accommodative side, but considered it appropriate to gather additional information before drawing further conclusions for monetary policy, given increased uncertainty as a result of financial market volatility.

The markets had largely anticipated the key interest rate increase of June, having already factored it into the three-month interbank rates prior to the ECB Governing Council's decision. Since August 2007, the differences between the three-month Euribor and interest on September and December Euribor futures contracts have been negative, which may be seen as a sign of flagging expectations of further increases in key interest rates. However, owing to the

current tensions in the money market, exceptional factors which limit this indicator's meaningfulness regarding expectations about the future level of key interest rates should be included in considerations.

Since the start of the financial market turmoil, the yield curve has flattened, with long-term interest rates having fallen most pronouncedly. While short-term money market rates edged up temporarily in the wake of the turmoil, short-term government bond rates fell at the same time, signaling temporarily higher credit risk premia in interbank trading.

2.6 ECB Stabilizes Money Markets and Financial Markets

At the start of the U.S. mortgage market crisis, the Governing Council of the ECB announced at its meeting of August 2, 2007, that it would follow market events with close attention. When the financial market turmoil subsequently led to strains in the euro area interbank market, the ECB injected the necessary liquidity into the money market. At the same time, the ECB President Jean-Claude Trichet appealed to market participants to keep calm. He said that the current period of nervousness and volatility in many markets should be interpreted as a reappreciation of risks.

On August 22 and September 6, 2007, the Governing Council decided to carry out supplementary longer-term refinancing transactions with a maturity of three months – a purely technical measure designed to facilitate the functioning of the euro money market. This injection of liquidity did not affect the routine longer-term refinancing transactions that are carried out on a monthly

basis. Conditions in European financial markets have since eased to some extent. While quick tenders brought back the overnight rate close to the minimum bidding rate, the trend in longer-term money market rates indicated somewhat greater uncertainty in the money markets, as well as increased risk premia.

In the wake of these developments, both euro area and U.S. stock markets suffered severe setbacks, which, however, could be partly recouped in September. The *DJ EURO STOXX 50* and the *S&P 500* have fallen by 6% and 2%, respectively, since then. Implied volatilities of options on both stock indices rose substantially, and yields on long-term government bonds declined markedly, to recover marginally since then. Both euro area and the U.S. earnings, which are calculated on the basis of broad stock indices, remain close to their historical average since 1990.

These developments highlight investors' heightened uncertainty. According to market reports, the U.S. mortgage crisis, concerns about potential negative repercussions on the U.S. economy and the reduced availability of credit for corporate takeovers are depressing stock markets.

Foreign exchange markets are also currently suffering from the financial market turmoil. Although the U.S. dollar firmed against the euro at the start of the crisis, it has recently moved firmly in the opposite direction. At the end of September, the EUR/USD exchange rate surpassed the symbolic mark of 1.40. The Japanese yen, too, was subject to extreme price movements, which may be attributed to the liquidation of *carry trades* (speculation on the interest rate movements of foreign exchange loans). In nominal effective

terms, i.e. trade-weighted by the 24 main trading partner countries (narrow group of euro area trading partners), the euro was only marginally higher than the comparable 2006 level.

3 GDP Growth in Central and Eastern Europe

3.1 Robust Economic Activity in the First Half of 2007

In the first quarter of 2007, average real GDP growth in the new EU Member States Bulgaria, Poland, Romania, the Slovak Republic, Slovenia, the Czech Republic and Hungary stood at 6.2% year on year. Growth is likely to be only marginally weaker in the second quarter. Following average GDP growth of 6% in 2006 as a whole, this means that economic momentum gathered pace in early 2007. GDP growth was particularly robust in the Slovak Republic and in Slovenia. In addition, Poland's GDP grew at a more than average rate. Only in Hungary, where consolidation measures to reduce an especially high budget deficit (2006: 9.2% of GDP) substantially dampened growth, was growth well below average. The first quarter of 2007 saw considerable acceleration in Croatian GDP growth.

In the first quarter of 2007, GDP growth in most Central, Eastern and Southeastern European countries (CESEEs) was fueled by dynamic domestic demand, although both private consumption and investment activity also provided significant stimuli. Only in Hungary and in the Slovak Republic did net exports constitute the largest component of growth. In the other CESEEs, the contribution of net exports to growth was insignificant, and even strongly negative in Bulgaria and Romania.

In all the countries currently under review (except for Hungary), private consumption made a significant contribution to growth, and in fact the largest contribution in Poland and Romania. Several factors favored this particularly healthy development in household spending. In addition to rapid lending growth, above all labor market indicators improved in these countries. Over the past 12 months, dynamic GDP growth led to rising employment rates and falling jobless numbers. In some countries, such as Poland and the Slovak Republic, the initial signs of an incipient labor shortage in certain sectors (primarily, construction and industry) are already evident. In conjunction with

Table 1

GDP Growth in Selected Central, Eastern and Southeastern European Economies

Annual change in real GDP growth in %

	2005	2006	Q2 06	Q3 06	Q4 06	Q1 07
Bulgaria	6.2	6.1	6.4	6.7	5.7	6.2
Poland	3.5	5.8	5.5	5.8	6.4	6.9
Romania	4.1	7.6	7.8	8.3	7.7	6.0
Slovak Republic	6.0	8.3	6.7	9.8	9.6	9.0
Slovenia	4.0	5.2	4.7	5.6	5.5	7.2
Czech Republic	6.5	6.4	6.5	6.3	6.1	6.1
Hungary	4.2	3.9	3.7	3.9	3.3	2.7
Croatia	4.3	4.8	3.6	4.7	4.8	7.0

Source: Eurostat, national statistical offices.

this, the first quarter of 2007 witnessed an increase in real wages, which exceeded the long-term average by a wide margin in most cases (particularly in Romania and Bulgaria, but also in Poland).

Investment became more important as an engine for growth. In Slovenia and Bulgaria, it represented the key component of growth. In Poland, investment also registered extraordinarily buoyant growth (+28%). A critical factor may have been the mild winter, which triggered unusually high levels of construction investment. Another factor was, of course, the positive impact of the prevailing industrial boom, which is evident from high (and still growing) levels of capacity utilization and industrial production. Foreign direct investment (FDI) stimulated investment activity primarily in the two newest EU Member States, Bulgaria and Romania. However, Hungary and the Czech Republic no longer fit the picture of increased investment momentum in the region. As in the previous quarters, investment expenditure shrank in Hungary. This decline was entirely attributable to a substantial decline in construction investment. By contrast, investment in plant and equipment recovered, notching up positive growth in early 2007 for the first time in three quarters. In the Czech Republic, gross fixed capital formation advanced far more slowly than in the fourth quarter of 2006. This development was, however, more than offset by a particularly robust buildup in inventories, which contributed 3.5% to growth.

The contribution of net exports to GDP growth developed in divergent ways across the region. Whereas net exports made the largest contri-

bution to growth in the Slovak Republic and in Hungary, in Bulgaria and Romania their contribution to GDP growth was strongly negative. In the Slovak Republic, high production capacity levels in export-related industries have been created in recent years (frequently financed via inward FDI), giving a vigorous boost to exports. In Hungary, a competitive industrial sector contrasts with falling domestic demand. The contribution of net exports to growth has therefore soared in recent quarters. In Bulgaria and Romania, extremely dynamic domestic demand generated high import growth. In both countries, furthermore, export activity lost momentum, which – in Romania – was primarily a result of the strong currency. In Bulgaria, several sector-related temporary factors may have taken their toll, although import/export data should be interpreted carefully and will probably have to be revised owing to the change in the way the country's statistics are now recorded in the wake of the country's accession to the EU.

Economic growth in Croatia, an EU accession candidate, was driven by buoyant domestic demand. The contributions of investment and, above all, private consumption to growth increased significantly. The latter is ascribable to robust wage growth and higher total household lending. In the first quarter of 2007, the contribution of net exports to growth was slightly negative. Both import and export growth weakened to some extent.

3.2 Somewhat Higher Inflation

In the first half of 2007, a trend in rising inflation was evident in CESEE; in the summer, though, inflation could be reined in again.

Table 2

Price Developments in Selected Central, Eastern and Southeastern European Economies

Annual change of the HICP in %

	2005	2006	Feb. 07	Mar. 07	Apr. 07	May 07	June 07	July 07
Bulgaria	6.0	7.4	4.6	4.4	4.4	4.5	5.3	6.8
Poland	2.2	1.3	1.9	2.4	2.2	2.3	2.6	2.5
Romania	9.1	6.6	3.9	3.7	3.8	3.9	3.9	4.1
Slovak Republic	2.8	4.3	2.0	2.1	2.0	1.5	1.5	1.2
Slovenia	2.5	2.5	2.3	2.6	2.9	3.1	3.8	4.0
Czech Republic	1.6	2.1	1.7	2.1	2.7	2.4	2.6	2.5
Hungary	3.5	4.0	9.0	9.0	8.7	8.4	8.5	8.3
Croatia ¹	3.4	3.2	1.2	1.8	2.3	2.2	1.9	2.1

Source: Eurostat, national statistical offices.

¹ CPI.

The Slovak Republic succeeded in continuing the disinflation process. Services and (processed and unprocessed) foods accounted for the largest share of inflation measured in the region, with the latter being responsible for a good portion of the HICP rise in the Czech Republic, in Poland, Slovenia and, in recent months, in Bulgaria as well. Energy, the key price driver in 2006, did not have a significant impact on price developments at the start of 2007. The drop in inflation in the Slovak Republic was attributable to two factors. First, unprocessed foods made a smaller contribution to inflation. Second, deflation again became stronger in the segment of nonenergy industrial goods. Furthermore, the appreciation of the Slovak koruna also had an inflation-dampening effect. Among the CESEE countries currently under review, Hungary remains the country with the highest rate of inflation. However, inflation – which had surged after administered prices and taxes were raised within the framework of the aforementioned budget restructuring measures – may have peaked in early 2007. Since April 2007, contributions to inflation have been

stable or in decline in most categories.

In July 2007, core inflation (all-items index adjusted for energy and unprocessed foods) ranged between 1.7% in the Slovak Republic and 7.3% in Hungary. In the first six months of 2007, a modest rise in this indicator was evident in most CESEE countries, perhaps signaling increasing inflationary risks in future. Such risks are given, above all, by already high (and rising) levels of capacity utilization, rising employment, falling unemployment and, in this connection, increasingly dynamic wage growth.

Slovenia was the first new EU Member State of the 2004 enlargement round to introduce the euro in January 2007. According to Eurostat, the introduction of the euro increased inflation by 0.3 percentage point in the changeover period to March 2007. Apparently euro-related price increases in some goods and services categories (e.g. restaurants and hotels, personal services) were evident particularly in December 2006 and January 2007. However, the rise in inflation seen in recent months was primarily attributable to soaring food prices.

In March and April 2007, the Slovak central bank (Národná banka Slovenska) cut its key interest rate by 25 basis points in two equal steps to a current 4.25%. In June 2007 and on September 24, 2007, its Hungarian counterpart (Magyar Nemzeti Bank) followed suit, lowering its key interest rate by a total of 50 basis points to 7.5%. Declining interest rates as well as the key interest rate cut by the Federal Reserve provided Magyar Nemzeti Bank with the room for maneuver to take this step.

In August 2007, by contrast, the central banks of Poland (Narodowy Bank Polski) and the Czech Republic (Česká národní banka) increased their interest rates by 25 basis points to 4.75% and 3.25%, respectively. As anticipated, Narodowy Bank Polski raised its key interest rates. The growing pressure on wages and demand justified this increase. For the same reasons, Česká národní banka unexpectedly raised its key interest rates for the second time since June 2007. Above all, robust private consumption and falling unemployment may mean that the central bank might miss the inflation target of 3% by ± 1 percentage point (as measured by the CPI).

3.3 Divergent Current Account Performances, Volatile Exchange Rates

At the start of 2007, Poland, the Slovak Republic, Slovenia and the Czech Republic saw an improvement in their respective current accounts, primarily on the back of major advances in their goods and services balances, which were positive in Slovenia and the Czech Republic and only slightly negative in Poland and the Slovak Republic. There were two reasons for this improvement: first, more vigorous economic activity in the euro area and the related higher demand for goods and services, and second, a high degree of competitiveness (which is evident from these countries' dynamic productivity growth in industry, falling unit labor costs and improvements in the terms of trade). The income balance is the biggest strain on these countries' current accounts. In most CESEE countries, the income balance is in strongly negative owing to high profit repatriation levels.

Current account deficits widened in Hungary, Bulgaria and Romania. In particular, Bulgaria and Romania have large shortfalls in their respective current accounts. In both coun-

Table 3

Current Account Developments in Selected Central, Eastern and Southeastern European Economies

% of GDP

	2005	2006	Q2 06	Q3 06	Q4 06	Q1 07
Bulgaria	-12.0	-15.8	-12.5	-5.1	-25.4	-27.3
Poland	-1.6	-2.3	-2.0	-1.4	-3.5	-2.9
Romania	-8.6	-10.4	-11.1	-9.8	-11.6	-15.3
Slovak Republic	-8.7	-8.3	-9.6	-10.3	-6.9	0.9
Slovenia	-2.0	-2.5	-0.7	-2.8	-5.6	-2.6
Czech Republic	-2.1	-4.2	-5.7	-5.3	-6.0	-1.6
Hungary	-6.9	-5.8	-6.6	-5.1	-4.4	-4.8
Croatia	-6.4	-7.8	-15.3	-21.8	-17.4	-24.0

Source: National central banks.

tries, the dynamic economy, growing consumer confidence and high lending growth are spurring a boom in consumption and are thus deepening the deficit in the goods and services balance. In both Bulgaria and Romania, current account trends should be seen against a backdrop of healthy investment demand, but also partly as a reflection of brisk residential construction activity. A positive point is that the net FDI inflows (including intracompany loans) in both countries are significantly helping to narrow the financing gap, although the export-import ratio fell in the first quarter of 2007 compared with previous quarters.

The development of Croatia's current account has a strongly cyclical nature, which is primarily attributable to the country's services balance and, in this context, to tourism. Croatia's particularly high deficit in the first quarter of 2007 should be viewed in this light.

Owing to the latest financial market turmoil in connection with the U.S. mortgage crisis, the currencies of the new EU Member States temporarily depreciated somewhat

against the euro before firming marginally in September. The Hungarian forint was most severely affected, whereas the Czech koruna continued to appreciate, unaffected by the crisis. The reason was above all the liquidation of carry trades using the Czech koruna as an investment currency.

Although stock markets in Poland, the Czech Republic and Hungary fell sharply in value in August 2007, they had staged a recovery by the end of September.

4 Austria: The Economy Continues to Expand for Another Year

4.1 OeNB Economic Indicator: Strong Economic Growth in 2007

The Austrian economy is currently experiencing a period of expansion. At +3.1% (seasonally and working-day adjusted), real GDP growth proved to be very vigorous in 2006. In the first half of 2007, this trend continued unchecked, with growth amounting to 0.9% in both the first and second quarters of the year (seasonally and working-day adjusted, quarterly).

Table 4

Results of the National Accounts (in real terms)

	2005	2006	Q1 06	Q2 06	Q3 06	Q4 06	Q1 07	Q2 07
	Annual change in % ¹		Quarterly change in % ¹					
GDP	+2.3	+3.1	+0.7	+0.8	+0.8	+0.8	+0.9	+0.9
Private consumption	+2.0	+2.0	+0.5	+0.4	+0.4	+0.4	+0.3	+0.4
Government consumption	+1.8	+2.0	+0.6	+0.5	+0.4	+0.3	+0.1	+0.2
Gross fixed capital formation	+1.3	+3.1	+0.4	+1.1	+1.5	+1.5	+1.4	+0.9
Exports	+6.8	+7.3	+1.6	+1.7	+2.0	+2.1	+1.6	+1.3
of which: goods	+7.2	+7.8	+2.7	+0.5	+2.0	+2.4	+1.5	+0.9
services	+5.5	+6.4	+1.5	+1.6	+1.7	+1.6	+1.6	+1.6
Imports	+6.1	+4.5	+0.9	+1.3	+1.6	+1.5	+0.9	+0.5
of which: goods	+6.5	+5.6	+1.4	+1.4	+1.4	+1.6	+1.5	+0.6
services	+2.3	+5.2	+1.3	+1.7	+1.6	+0.9	+0.2	+0.3

Source: WIFO.

¹ Seasonally and working-day adjusted.

In the first six months of 2007, growth was led by net exports, in particular. Although export growth became sluggish, the simultaneous decline in the growth in imports stabilized the contribution of net exports to growth. Exports therefore appear to have passed their cyclical peak. The same goes for investment, which advanced appreciably more slowly in the second half of 2007 (+0.9%).

Consumption growth still lags behind expectations. In recent months,

however, the European Commission's consumer confidence indicator has settled at very high levels. In the first half of 2007, government consumption developed very sluggishly, almost stagnating.

Economic risks increased owing to the international financial market turmoil originating in the U.S. real estate market. Indicators published recently still do not allow clear conclusions to be drawn about how large an impact the turmoil has on the Austrian economy. However, it is an

Box 1

OeNB Economic Indicator of September 2007 Signals Continued Robust Growth in the Second Half of 2007¹

According to the current OeNB economic indicator, Austrian real GDP will grow by 0.8% and 0.7% in the third and fourth quarters of 2007, respectively (seasonally and working-day adjusted, quarterly). For 2007 as a whole, this means growth of 3.4%. The growth forecast for the third quarter of 2007 remained unchanged from the OeNB economic indicator published in June 2007.

Table 5

Short-Term Real GDP Forecast for Austria in the Third and Fourth Quarters of 2007 (seasonally and working-day adjusted)

2004				2005				2006				2007			
Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Quarterly year-on-year change in (%)															
1.6	2.3	2.8	2.6	2.3	2.2	2.2	2.7	3.2	3.1	3.0	3.3	3.4	3.5	3.4	3.3
Quarterly change in (%)															
0.6	1.0	0.8	0.1	0.3	0.9	0.9	0.6	0.7	0.8	0.8	0.8	0.9	0.9	0.8	0.7
Annual change in (%)															
2.3				2.3				3.1				3.4			

Source: Findings of the OeNB economic indicator of September 2007, Eurostat.

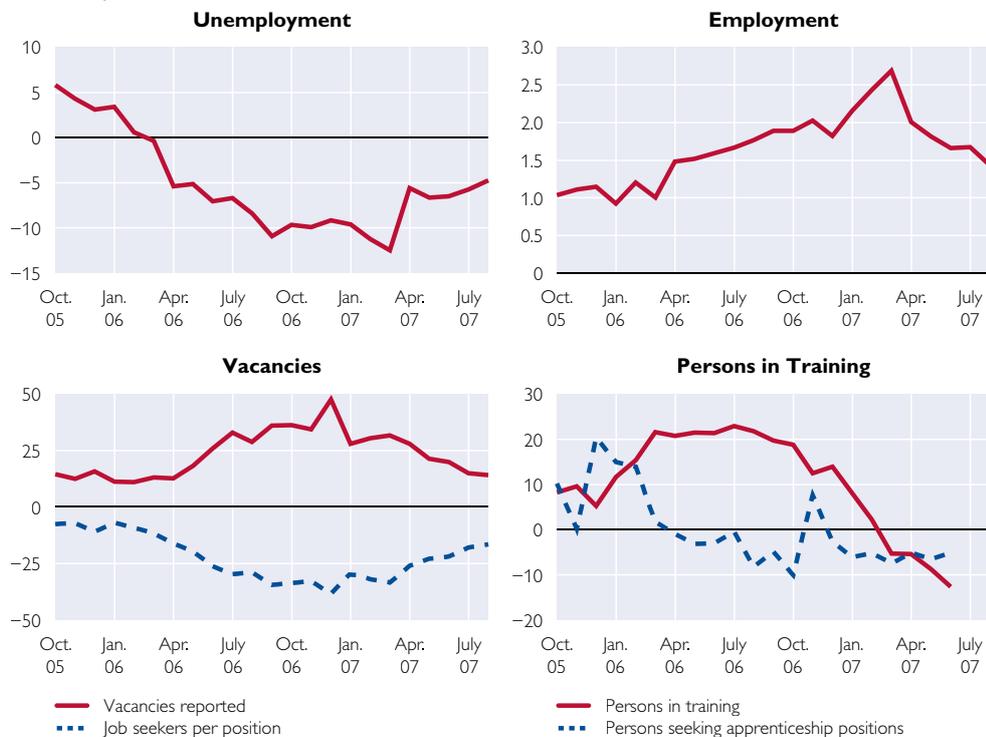
At +3.4%, annual growth in 2007 exceeds the OeNB's forecast of June 2007 by 0.2 percentage points. This increase is primarily attributable to the revision of historical data. Growth in the fourth quarter of 2006 and the first quarter of 2007 was revised upward from 0.5% to 0.8% and from 0.8% to 0.9%, respectively. The values registered by the OeNB economic indicator for the third and fourth quarters of 2007 remained unchanged on the OeNB's forecast of June 2007. To date, the international financial market turmoil originating in the U.S. real estate market has not been reflected in leading indicators and thus in the current values of the forecast.

¹ The OeNB economic indicator has been published four times a year since the first quarter of 2003. It forecasts real GDP growth for the current quarter and the next (in each case, quarterly, using seasonally and working-day adjusted data). The forecast's values are based on the results of two economic models, a stochastic decision space model and a factor model. Further details on the models used can be found at www.oenb.at under Monetary Policy and Economy/Forecasts. The next publication is due in January 2008.

Chart 5

Labor Market Developments in Austria

Annual change in %



Source: Statistics Austria.

indisputable fact that, in addition to high oil prices and the strong euro, the U.S. real estate crisis represents an additional risk factor for the economy.

4.2 Food and Energy Prices Fuel Inflation

In the first half of 2007, Austrian inflation (HICP) advanced from 1.7% in January to 2.0% in July. The rise in inflation in the first half of 2007 was attributable to two factors: first, high crude oil prices and, second, strong inflationary pressures in the separate category of food prices.

The price of crude oil (Brent) climbed from about USD 59 (January 1, 2007) by some 35% to almost USD 80 (July 20, 2007) and, since early September, has been just under

USD 80 following a brief rally (USD 66.8 on August 22, 2007). The dissipating base effect of prices of the core component energy and the increase in petroleum tax as of July 2007 are continuing to reinforce the rise in the price of crude oil. Price increases of the core component food are primarily attributable to higher bread and milk product prices. In August 2007, inflation retreated to 1.7%, i.e. to the euro area level.

4.3 Recovery in the Labor Market Slows Down

The Austrian labor market is continuing to develop very favorably on the back of economic expansion even though trends are becoming sluggish in some areas. Registered unemployment declined from 295,300 in Janu-

ary 2007 to 191,200 in August 2007. This corresponds to a 4.8% drop year on year in August 2007 and signifies a slight slowdown in momentum on July 2007 (−5.7%) (chart 5). The number of the long-term unemployed has fallen particularly sharply on account of the buoyant Austrian economy (−23.5%). In August 2007, the problem groups of the young unemployed (−5.6%) and those aged 50+ (−2.4%) registered a slight fall in numbers. In March 2007, employment growth peaked and has since been slackening marginally. In August 2007, it stood at 1.4% (see chart 5). At 4.3%, the jobless rate (Eurostat) has remained consistently low from May to August 2007.

Although the number of vacancies reported is continuing to rise steeply (August 2007: +14%), growth momentum has been slowing since December 2006. The number of job

seekers per position, i.e. the ratio of the number of those reported unemployed to the number of vacancies reported, is continuing to decline, thereby also reflecting Austria's currently favorable labor market environment (August 2007: −16.5% year on year). However, this figure, too, peaked in December 2006.

A trend reversal is evident from the number of persons in training. Whereas this figure registered positive double-digit growth in 2006, since March 2007 it has suffered negative growth. In other words, fewer people are taking up training compared with a year ago. In August 2007, a mere 34,025 persons were undergoing training. The same goes for the number of young persons seeking apprenticeship positions, which – as was largely the case in 2006 – is characterized by declining growth (chart 5).

IN FOCUS:
ECONOMIC AND FINANCIAL
EDUCATION

Economic and Financial Education: Concepts, Goals and Measurement

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A review of the literature and of specific education initiatives reveals a broad range of approaches to economic and financial education. What knowledge areas and skills are targeted and how content is presented very much depends on the motives and goals of the various education providers. Central banks, for instance, provide economic and financial education basically for five reasons: (1) to enhance the effectiveness of monetary policy, (2) to ensure the smooth functioning of financial markets, (3) to support sustainable economic policies, (4) to promote economic and financial literacy as a public good and, (5) by doing so, build their reputation and promote acceptance for their actions. Economic and financial literacy tests have generally uncovered substantial knowledge gaps among citizens. Yet given the methodological deficiencies of the existing analyses, test scores must be interpreted with caution. Improving methodology remains a challenge for future research.

JEL classification: A20, E58, I21

Keywords: economic and financial literacy, central banks, education.

1 Introduction

Efforts to teach economic and personal finance to consumers have been stepped up across the world in recent years. Government agencies, central banks, consumer advocate organizations, employer and employee representatives, nonprofit organizations as well as commercial financial service providers run numerous educational programs to raise public understanding of macroeconomic fundamentals and to enhance people's financial capability.¹

Economic education research (May, 2003) tends to revolve around the case for integrating economic and financial education into basic school curricula. However, the education initiatives referred to in this paper differ from school-focused educational programs in a number of aspects. First, these programs are not (or not exclusively) integrated into an institutional framework like school curricula but rather use a variety of

other channels (such as the mass media, courses and information campaigns) to reach target groups. Second, the rationale for these programs is more comprehensive; they are intended to support the achievement of broad-based economic policy goals rather than being limited to the provision of basic literacy skills at the school level. Finally, economic policy-motivated research will raise questions different from those typically studied by the established strand of economic education research.

Against this backdrop, this contribution provides a structured overview of definitions used for economic and financial education, of underlying educational targets and of test methods used to evaluate the effectiveness of such activities. Another purpose of the article is to juxtapose the practical approaches to economic and financial education with academic research in the field. To this end, section 2 provides an overview of the

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¹ The term "economic education" encompasses programs geared toward business and management skills as well as economic and personal finance topics. In this contribution we concentrate on the provision of economic education and on its links and overlaps with financial education. Our principal focus on economic and financial education notwithstanding, some of the educational programs discussed also cover aspects of business education.

broad spectrum of current economic and financial education initiatives and discusses the relevant academic literature. This review is expanded into an investigation of the motives and goals of providers of economic and financial education in section 3. Section 4 treats the special interest of central banks in economic and financial education. Section 5 reviews tests and test scores on consumers' economic and financial literacy, also discussing the limitations of such tests in the process. Section 6 concludes.

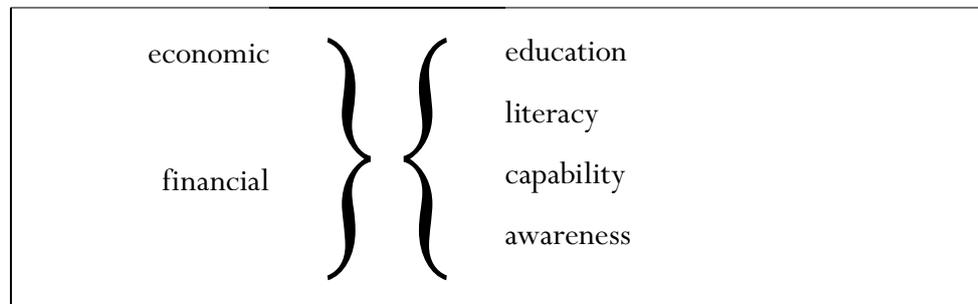
2 Definitions

Programs to enhance the financial capability of consumers have been launched in large numbers in recent years. They supplement a variety of programs introduced earlier to promote public understanding of basic

economic issues. Neatly distinguishing between the two sets of programs is not easy; education initiatives typically lie on a continuum that ranges from a special financial focus to a general economic orientation. Distinctions easily blur also between the specific knowledge areas and skills the various providers of education hope to target with their initiatives. To identify the nuances and characteristics of this continuum and to better understand its content, we have compared the definitions of economic and financial education used across a variety of selected initiatives and papers.

What is meant by economic and financial education, and how do the many terms used in this context relate to each other? The chart below shows the most important collocations used in the literature.

Collocations in the field of economic and financial education



Source: OeNB.

The first obvious difference is between terms that relate to the teaching activities of education providers (education) and terms that relate to the skills to be developed in target groups (literacy, capability, awareness). These terms give initial insights into the underlying conceptions regarding the interaction between providers of education and the general or specific audiences addressed. Yet the vague connotations these terms evoke only provide limited insights into the

concept of economic and financial education, in no small part because past usage has apparently been rather inconsistent.

We expect to derive a more detailed understanding of the terms from the definitions used in the mission statements of education initiatives or in academic papers. To this effect, we have analyzed around 50 initiatives and papers, including key initiatives of the public sector, seminal research papers and some of the

numerous private sector initiatives. To provide a structured overview of the heterogeneous connotations of the various definitions, we have grouped the definitions in three sections.

2.1 Knowledge, Understanding, Awareness, Decision-Making Capability

More or less all definitions of financial education invoke the idea of *enhancing literacy* (i.e. knowledge), *creating understanding* and *building decision-making capability* in the area of personal finance. Knowledge and understanding mostly relate to financial service products and their characteristics. Decision-making capability relates to the ability to put that knowledge to practical use in selecting a product. These definitions revolve around the consumer who has to choose among financial service products.

Some definitions also include the concept of *awareness*, either in the sense of recognizing the need to use the services of financial service providers (Ford and Jones, 2006), or in the sense of knowing about the range of products available (Mason and Wilson, 2000; OECD, 2005).

2.2 Interaction among Agents

A second group of elements supplements the knowledge, awareness and capability connotations reflected by most definitions and broadens the definitions to include the dimension that describes consumers' interaction with other agents. Such definitions see the act of consuming financial services as part of a process in which the interaction among the various agents involved has a decisive influence on how consumers act – even though consumers remain the key target of the educational efforts.

These elements include:

- *Confidence* (CEA, 2007; CFEE, n.d.; FSA, 2004; OECD, 2005): This aspect refers to measures instilling confidence into consumers that their transactions with financial service providers will be conducted in a correct, transparent and fair manner, and that they stand to benefit from seeking the services of finance professionals.
- *Knowing where to look for guidance and advice* (NEFE, n.d.; OECD, 2005): Knowing whom to approach for information and assistance eases the decision-making burden placed on consumers. Mobilizing experts for support may, to some extent, be an alternative to acquiring knowledge oneself.
- *Knowing one's rights* (BDA, 1998; Financial Literacy and Education Commission, 2006; Wilmink, 2007): As protection against fraud and abuse, knowing one's rights may also be a partial substitute for knowing how to navigate the sea of financial products.
- *Communicating and articulating one's needs* (Codice, 2007; Commerzbank, 2004; FSA, 2004; FTE, 2005; NEFE, n.d.; Reifner, 2006; Vitt, 2000): This element refers to the ability to articulate knowledge gained to the best of one's interest in communicating with other agents. The respective definitions typically relate to the negotiations between financial service providers and users; in addition, this concept may refer to the ability to form and articulate an informed opinion in discussing basic economic and framework conditions.
- *Social consequences and responsibility* (AdFLAG, 2000; Australian Ministerial Council, 2006; Gemein-

same Initiative, 2000; EASP, 2005; Government of Canada Policy Research Initiative, 2006; La finance pour tous, 2007; Reifner, 2006; U.K. Department, 2000): Economic and financial education is also meant to raise awareness for the consequences and secondary effects of one's actions for third parties. This concept relates to roles and responsibilities in society.

- *Access to financial services* (CSD, 2006; Ford and Jones, 2006): Gaining access to financial products and services may not be easy, and may in fact be impossible, especially for the poor (“financial exclusion”). People who are effectively excluded from financial services will have little use for knowledge about finances.

2.3 Social Context

A third category of connotations conveyed by some definitions of economic and financial education relates to the broader social context of which the financial services industry is part.

- *Values and attitudes* (Australian Ministerial Council, 2006; EASP, 2005; FTE, 2005; Gemeinsame Initiative, 2000; Park, 2006; Reifner, 2006; Walstad, 2006): Definitions containing this element refer to the political conditions under which individuals take decisions. Educating citizens and consumers to choose and act, which is what financial education initiatives are typically aimed at, only makes sense when framework conditions and citizens' values are in line with each other.
- *Economic reasoning* (FTE, 2005; NCEE, n.d.): Some general (not financial market-related) eco-

nomic education programs see the need to teach an economic way of thinking along the lines of the economic model of rational decision-making.

- *Judgment capacity in economic (policy) matters* (BDA, 1998): This element addresses consumers in their capacity as political citizens, participants and agents in democratic processes.
- *Raising awareness for relationships* between the personal sphere and the economy as a whole (JASS, n.d.; UFFE, n.d.; WIDE, n.d.).
- *Skills and knowledge in matters unrelated to navigating the financial services market*, such as the skills needed to run a business, or an understanding of tax and budget policies (pfeg, 2005).

As we can see, the concept of economic and financial education is highly heterogeneous. The various providers of education naturally target different goals and have different interests, which shape the programs they run and which also affect how they define their mission.

3 The Case for Providing Economic and Financial Education – An Overview of Educational Targets

Economic and financial education is offered by a wide range of institutions, including international organizations, government agencies, businesses and business associations, trade unions, nongovernmental organizations (NGOs), foundations, financial regulators and central banks. Between them, they offer or advocate a wide variety of programs, courses and resources. Provided the individual institutions expressly state educational targets, their measures may be considered to pursue one of three

types of goals: While all programs reach out to individual consumers, they are designed to ultimately benefit either the individuals themselves, or the functioning of the financial market, or the economy and society as a whole.

3.1 Supporting Individuals in Reaching Personal Goals

A first group of targets avails itself of measures that support individuals in reaching personal (finance) goals. The case for raising literacy to this effect is typically made by foundations, international organizations or government agencies (CSD, 2006; FTE, 2005; Ilves, 2007; NCEE, n.d.; NEFE, n.d.; OECD, 2005; U.K. Department, 2000).

3.2 Enhancing Market Performance

A second group of educational targets relates to improving the way in which the market for financial services works. Here, economic and financial education is seen as a structural policy tool that contributes to remedying financial sector problems by prompting consumers to change their behavior: Preventing consumers from accumulating excessive debt (OECD, 2005a) or educating consumers to change their saving and investment behavior (CitiGroup Foundation, n.d.; La finance pour tous, 2007; NEFE, n.d.) are concerns that nonprofit foundations and commercial businesses alike advocate.

Strengthening the demand side and advancing regulatory goals by empowering consumers to take informed decisions is an aspiration shared above all by public institutions (Bernanke, 2006; FSA, 2004; La finance pour tous, 2007; Gopinath,

2006; Ilves, 2007; Park, 2006). A number of programs specifically mention the goal of increasing consumer mobility in the sense of increasing their propensity to change providers (Financial Literacy and Education Commission, 2006; Ilves, 2007). Furthermore, as especially public and private financial sector agents often emphasize, who are consumers more discriminating in their product choice encourage competition in the market for financial services (Bernanke, 2006; Commerzbank, 2004; Stark, 2006). An aspect highlighted especially by central banks is the improvement of the information processing capacity of markets (Bernanke, 2006; Filar, 2006; Park, 2006; Stark, 2006). After all, a rise in the market's information processing capacity contributes to an effective transmission of monetary policy measures. Consumer advocates and financial service providers, finally, see financial education measures as having repercussions on the financial industry itself, as they raise industry awareness for the need to offer better quality (Korczak, 2007; Reifner, 2006).

A number of companies and business associations hope to derive practical benefits from consumers' financial literacy, namely to find financially competent consumers more responsive to their product marketing measures (pfeg, 2005; Commerzbank, 2004). Several initiatives see, above all, the promise of capital markets becoming more attractive for financially literate investors (EASP, 2005; Government of Canada Policy Research Initiative, 2006). Last but not least, some initiatives advocate financial education as a way to tackle the problems of financial exclusion (Gopinath, 2006; NCRC, n.d.; Reifner, 2006).

3.3 Contributing to Shaping Economic and Social Order

A third group of educational goals is very broadly based: The respective providers, typically sponsors of general economic education initiatives, share the vision of contributing to the economic and social order, and of influencing the debate shaping the latter.

As a case in point, the economic education programs of capacity-building NGOs advocating a participatory style of learning see the exchange of information and experience among participants as an important milestone in the learning process (Debt and Development Coalition Ireland, n.d.; WIDE, n.d.). A number of NGOs (Debt and Development Coalition Ireland, n.d.; WIDE, n.d.) as well as private and public initiatives (Codice, 2007; FTE, 2005; Gemeinsame Initiative, 2000) hope to enhance political participation through economic education and information.

The understanding of the concept of participation very much depends on institutional interests: Initiatives launched by trade unions, NGOs and consumer advocates, for instance, are often aimed at encouraging consumers to seek social change or are designed to build their critical ability (Debt and Development Coalition Ireland, n.d.; JASS, n.d.; Reifner, 2006; UFFE, n.d.). In contrast, institutions pursuing corporate or public interests will typically be concerned about public acceptance of market rules and change processes (reforms) (Australian Ministerial Council, 2006; BDA, 1998; Filar, 2006; FTE, 2005; Walstad, 2006). Especially central banks see educational efforts as measures to foster a better understanding of how monetary policy af-

fects the economy, thus building public support for monetary policy action (Park, 2006; Stark, 2006; Walstad, 2006) – see also section 4. A very practical dimension of participation and literacy, finally, is enabling consumers to be more capable, competent and self-reliant in financial matters (Australian Ministerial Council, 2006; EASP, 2005; FSA, 2004; Gemeinsame Initiative, 2000).

In a nutshell, designing economic and financial education programs invariably involves value judgments – such programs are, to a large extent, about conveying those values. Both aspects are closely related to the position the providers of education have in the economy and to their views of the economic system. At the same time, national differences in the structural and regulatory framework of economic systems shape the design of educational programs and their priorities.

In other words, it would be wrong to jump to the conclusion that economic and financial education is merely about closing knowledge gaps identified in target groups. Doing something about the lack of public understanding is only one of several possible motives for launching education initiatives. Other starting points are the fact that the general public and economic experts apply different yardsticks, have different perceptions about economic fundamentals and different preferences, and see economic and social roles differently. Finally, there may be the goal of putting judgments made by politicians or the mass media into the proper perspective.

Thus, the rationale for economic and financial education is not restricted to correcting an “objective” information deficit (see section 5) or

to fulfilling an explicit wish for such education on the part of target groups (as evidenced, for instance, by survey results). Motives for building the economic and financial capability of consumers are to be found just as much in the interests of the providers of education. These motives are rather heterogeneous, which helps explain the wide range of definitions of economic and financial education, and the range of issues covered.

4 Why Central Banks Care about Economic and Financial Education

A rising number of central banks proactively run educational programs, with an ever broader and deeper scope, to help citizens understand how the economy works and to offer them guidance in personal finance matters (Fluch, 2007). A number of authors have looked specifically into the underlying motives of central banks (Bernanke, 2006; Greenspan, 2003; Hartmann et al., 2000; Hogarth, 2007; Park, 2006; Stark, 2006; Walstad, 1998, 1999, 2006; Watts, 1998). Their analyses show that central banks provide economic and financial education basically for five reasons: (1) to enhance the effectiveness of monetary policy, (2) to ensure the smooth functioning of financial markets, (3) to support sustainable economic policies, (4) to promote economic and financial literacy as a public good and, by doing so, (5) to build their reputation and promote acceptance for their actions. In this respect, central banks' motives for providing economic and financial education basically match those described in sections 2.1 and 2.3.

4.1 Enhancing the Effectiveness of Monetary Policy

A first group of arguments for economic and financial education relates to monetary policy and how it works. Consumers who grasp economic fundamentals will be more receptive to central bank communication on (1) monetary policy targets, (2) the underlying monetary strategy, and (3) monetary policy action.

(1) Mobilizing public support for monetary policy targets

Educating citizens about monetary policy targets basically consists in explaining the primary goal of price stability most central banks have come to pursue explicitly (or sometimes implicitly) and in ensuring broad and sustained support for that goal among the general public. Public support for the primary goal of maintaining price stability requires an understanding of the economic impact of monetary policy and of the adverse effects of higher inflation on the economy. Unless people are aware of how complex the nominal and real economic effects of monetary policy are (multiple transmission channels, uncertainty about the strength and lags of effects from interest rate adjustments), they will not be able to comprehend the possibilities and limitations of monetary policymaking.

The statutory goal of a central bank to guarantee price stability may, by extension, be understood to include a mandate for a communication strategy that will secure sustained public support for this goal. Such proactive communication appears to be warranted especially in times of low inflation rates, in which the economic cost of inflation may fade into oblivion. Fluch et al. (2007) show e.g. for

Austria that older people who have experienced periods of high inflation feel more strongly about keeping inflation rates as low as they are than young people who have no such memories.

In addition, central banks share information on their price stability target also with a view to anchoring inflation expectations by publishing a concrete inflation target (Svensson, 2007). Thus, publishing an inflation target – or, in the case of the Eurosystem, a quantitative definition of price stability – is not only intended to “justify” the central bank’s policy in relation to the publicly announced target measure and to hold the central bank accountable; this measure is also intended to give economic agents clear guidance as they plan ahead. The purpose of these measures is to reduce uncertainty, lower inflation risk premia and increase the potential for noninflationary growth.

(2) Fostering a better understanding of monetary policy strategy

Central banks may explicitly formulate a monetary policy strategy for a number of reasons. First, an explicit strategy increases the transparency of monetary policy decisions and thus makes monetary policy more predictable: By avoiding surprises, the central bank thus helps reduce planning uncertainty for economic agents.

Second, *systematically* taking into consideration specific indicators or possible intermediate monetary policy targets projects competence, a structured approach and the reliance on scientific evidence in monetary policy decision-making. This is designed to enhance confidence in the central bank’s competence and in the credibility of its stability policy, which should in turn anchor inflation ex-

pectations, with the positive effects outlined above.

For those two effects to materialize, however, the people to whom such information is addressed need to be economically literate in the first place. This is where a third dimension of the monetary policy strategy comes into play: Publishing a monetary policy strategy is a stepping point for proactively offering information resources and educational programs, and may thus be seen as an economic education measure in its own right. After all, the elements of this strategy are repeated consistently (which is very important in a federal central banking system such as the Eurosystem) in many speeches and through numerous media channels, thus providing an occasion for anchoring indicators that are relevant for monetary policy in citizens’ minds.

(3) Enhancing the transparency of, and effective communication on, monetary policy action

By providing information, including detailed explanations, on monetary policy decisions, central banks provide economic agents with the signals they need to plan their economic activities. Yet economic agents have to have a basic understanding of economics and monetary policy fundamentals to be able to meaningfully decode such information and the way it changes over time. Central banks’ goal of communicating their monetary policy actions in an effective and transparent manner implies the need for economically literate audiences. This is why central banks care about enhancing citizens’ economic literacy. One way to build economic literacy is to explain the fundamentals of monetary policymaking and to continue to offer explanations when

the central bank takes action; another key to communicating effectively will be to use clear and understandable language.

4.2 Contributing to a Smoother Operation of Financial Markets

Central banks launching personal finance education initiatives often put forth two arguments for doing so. First, consumers who are aware of the range of financial products and who understand the basic concepts of financing will be able to take better informed investment and financing decisions. Customers who are able to shop around promote competition. This creates incentives for the financial industry to come up with innovations and makes the industry more efficient. As monetary policy is contingent on the effective transmission of key interest rate changes through the financial system to the economy, central banks clearly see the merits of raising financial market efficiency by building the financial capability of consumers.

A second aspect relates to the stability of the financial system or of parts thereof. Empowering consumers to make informed judgments should make them more likely to make sensible choices and better able to control their financial future. For instance, the risk that households become overindebted should sink, as should the probability that crisis incidents pose a threat to the stability of the financial system.

Better educated and more responsible consumers are less likely to take wrong financial decisions and more likely to recognize unfavorable deals. In this respect, the economic education efforts of central banks may also enhance consumer protection. This may be an indirect side effect at some

central banks and an explicit goal at others.

4.3 Supporting Sustainable Economic Policies

Central banks have an interest in keeping other areas of economic policy from undermining the goal of maintaining price stability. They also have an interest in measures that ease the absorption of economic shocks and that strengthen potential growth. Even though central banks do not have any decision-making power in the relevant areas – fiscal and structural policies – they can support the economic policy debate that precedes and accompanies the policy decision-making process with the arguments they put forth. In the words of Watts (1998): “... *improving the economic literacy of those who vote can strengthen the position of elected and appointed officials who work for good economic policies, and against bad ones.*”

In the area of fiscal policy, central banks call for policies that leave sufficient room for maneuver to cushion periods of weak economic activity, and to minimize fiscal policy-induced inflation pressures (e.g. policymakers banking on the economy outgrowing its debt burden). This is why it is important, from a central bank perspective, for the electorate to be aware of the economic effects of a high budget deficit and debt burden.

With regard to structural policy, central banks have an interest in product and labor markets being able to absorb shocks smoothly, so as to keep the need for offsetting business cycle policies low. At the same time, smoothly operating product and labor markets enable higher potential growth and lower structural noninflationary unemployment. Central banks can support reforms in this area by effec-

tively communicating arguments for the positive long-term effects of reform efforts.

4.4 Supporting the Public Good “Economic and Financial Literacy”

The case for central bank initiatives to build consumers’ economic and financial literacy outlined above results directly from the specific tasks and goals of a central bank. At the same time, one may argue that central banks, being public institutions with substantial economics know-how, are particularly well placed to promote the public good of economic and financial literacy as an integral part of basic education.

One advantage that central banks may have over other agents with commercial or political interests is that consumers expect central banks to provide neutral, nonpartisan information.

4.5 Building a Reputation and Promoting Acceptance of Central Banks’ Actions

For central banks, in turn, economic and financial education initiatives are a chance to reinforce their position as recognized experts in the field of economics. By providing useful services and high-quality information and education resources, central banks may build confidence and credibility, which will in turn serve the fulfillment of their monetary policy tasks.

5 Possibilities and Limitations of Measuring Economic Literacy

Given the broad range of economic education initiatives launched in recent years, it is surprising that the literature on economic literacy measurement is comparatively limited as

yet. After all, baseline surveys to establish the initial state of economic literacy and tests to measure knowledge gains ought to be an integral part of every economic education initiative: Every education initiative needs to start out by identifying existing knowledge gaps among the general public and flag target groups that may be in need of special support. Once the programs are up and running, it is likewise important to evaluate their success and effectiveness, and to establish a system of quality assurance to ensure that decisions about continuing the initiative are informed, to spot potential for improvement and to establish best practice catalogues. Programs need to be assessed not only against their costs but also against potential alternative approaches to achieving the same goal.

5.1 Which Method is Adequate for Evaluating Education Programs Depends on the Underlying Target?

As it is generally no easy task to measure educational attainment and progress, it is even more important to clearly define educational targets already in the design phase. After all, the most adequate method of measuring and evaluating literacy depends on the target and the target group. Take the definitions of economic and financial education outlined in section 2:

- If the primary aim of an educational initiative is to enhance the *knowledge and understanding* of economic and financial concepts, success can be measured with knowledge reproduction and comprehension questions, for instance with multiple choice tests. One option is to use internationally recognized standardized tests

such as the U.S. Test of Economic Literacy (TEL), which will be discussed in greater detail in section 5.2. Such tests have the advantage of being tried-and-true solutions and internationally comparable.

- Courses aimed at building consumers' *confidence* in their decision-making capabilities can be evaluated on the basis of surveys on subjective satisfaction and confidence before and after course participation. The tools of choice for this purpose may be standardized tests or open-ended questions. Yet when respondents' subjective assessment is not complemented with an analysis of actual changes in behavior, there is a risk that the sustainable effects will be overrated immediately after course completion.
- In case an educational initiative is aimed at influencing *values and attitudes*, surveys will bring shifts in opinion to light.
- Very often the overarching goal of enhancing knowledge, building confidence and influencing attitudes is bringing about *behavioral changes*, such as an increase in the saving ratio or in the number of bank connections, an increase in private saving for retirement, or a decrease in the ratio of delinquent loans. Frequently, these changes can be used as indicators that may be measured directly or with surveys. In the case of the above example, it is important to check whether there has indeed been an increase in net saving rather than a shift in funds. Moreover, it is anything but easy to establish a direct causality between observed behavioral changes and a given educational initiative.

As a case in point for the importance of clearly defining the target and the selection of adequate evaluation methods, take the following example: Every other year, U.S. high school students are multiple choice-tested for their ability to make informed financial choices under the so-called Jump\$tart Survey. Mandell (2006) finds that while financial literacy classes did not necessarily make a real difference in knowledge relating to students' financial decisions, they did raise students' propensity to save and thus triggered the desired behavioral change after all. In other words, measuring the effectiveness of educational initiatives with tests alone would be misleading.

Lyons and Scherpf (2004) give another example of how an inadequate measure for the success of an educational initiative may lead to wrong conclusions. The goal of the U.S. Money Smart program is to encourage unbanked participants to open a bank account. Yet the decision not to open an account may be the result of rational reasoning, based for instance on a cost-benefit analysis. Thus it would be wrong to measure the success of the program on the basis of newly opened bank accounts; much rather, it would be important to measure whether the program has succeeded in building the necessary skills for the underlying decision-making process.

Evaluations may be undertaken in the form of a before and after comparison or with the help of a suitable control group. This may be a comparable group of persons who have not benefited from a given education measure. The problem with such an approach is that it may lead to a causality conflict: In case participation is voluntary or associated with consid-

erable effort, participants are likely to differ systematically from dropouts or people not interested in the course in the first place, for instance with regard to welfare level, income, household status, educational attainment, age, motivation or initial knowledge (Lusardi and Mitchell, 2007). This may trigger an upward bias of results, which might be unveiled through an analysis of course dropouts and non-participants in comparison with successful participants.

A different scenario would be that a course specifically targets a group of persons who exhibit large knowledge gaps or undesired behavioral patterns. Such a scenario may skew the effects of the program downward. If the control group does not exhibit reasonably similar characteristics, the comparison may even show a negative correlation between course participation and literacy or behavior, even if the education measures proved to be a success with the given target group (Bernheim and Garrett, 2003; Bayer et al., 1996).

To properly evaluate a firmly established education program, finally, it would make sense to confirm the short-term effects with an analysis of the long-term effects. In practice, it is very difficult to get information from course participants several years after participation. Bernheim et al. (2001) is one of the few surveys that has looked into the long-term benefit of economics courses at U.S. schools in respect of students' saving behavior. This survey was made possible by the fact that a number of states made economics a required course at different periods in time. The authors conclude that exposure to an economics curriculum does lead to higher saving and wealth accumulation in students' adult lives, especially

in the case of children whose parents were not above-average savers.

It may prove even more difficult to subject a positive correlation between literacy or course participation and money management skills to a causality test, because active financial market participation itself increases financial knowledge. Given such prior exposure, a positive correlation between education and financial market data may lead to biased conclusions about causality. Kotlikoff and Bernheim (2001) is one of the few studies that find explicit evidence of a direct link between an economics curriculum and higher private saving for retirement.

Despite all these recommendations, the success of educational programs is de facto measured most often on the basis of input data (number of participants and courses) rather than output data. Thus, a survey among staff of U.S. financial education providers (Lyons et al., 2005) finds that three-quarters of all evaluations use the number of participants as an indicator for success, but less than half use actual changes in behavior. Often, the success of educational measures is never evaluated comprehensively because of a lack of expert knowledge, staff, resources and time.

5.2 Example: Test of Economic Literacy

The Test of Economic Literacy (TEL) is a standardized and internationally recognized test that was designed to measure high school students' understanding of economics. The test, first used in 1978, was developed by Soper and Walstad (1987) in the U.S.A. Since the initial applications of the TEL first evidenced large knowledge gaps, the test has been used on a regular basis, both to test students in

exams and to evaluate the effectiveness of high school curricula. The test consists of 46 multiple choice questions and covers four content categories: fundamental economic concepts, microeconomic concepts, macroeconomic concepts and international economic concepts. Results are typically presented as the ratio of correct answers, but a number of papers (e.g. Lietz and Kotte, 2000) also employ different weights, depending on the difficulty of the questions. In this paper, we will use the TEL to illustrate some problems typically inherent in knowledge tests. Box 1 shows three of the TEL questions.

Since the TEL measures the understanding of basic economic concepts, it is principally suited for international comparisons. Thus, there also exists a German version of the TEL, the so-called Wirtschaftskundlicher Bildungs-Test (WBT), produced by Beck and Krumm (1990) to test the literacy of German, Austrian and Swiss high school students. International comparisons need to take into consideration aspects of linguistic equivalence (e.g. English speakers are a lot more familiar with the term “resources” than German speakers are with “Ressourcen”). Moreover, sam-

ple comparisons of student answers – even if the students are of the same age – need to take account of differences in school systems and curricula. Judging from faculty opinions and test scores, Beck and Krumm (1994) find the German version of the TEL to principally have a good indicator quality for both Austria and Germany.

The big advantage of the TEL is that it is a tried and tested approach, and that its questions are standardized internationally. Moreover, the multiple choice procedure ensures a substantial degree of objectivity in assessment. At the same time, the TEL has also been criticized for a number of weaknesses, such as the ideological bias of some questions (Nelson and Sheffrin, 1991). As a case in point, the second question in box 1 (what is the main precondition for a smoothly operating market economy) comes with answer C (active competition in the marketplace) as the “right” answer, while the other answers (regulatory framework conditions, or a minimum degree of social responsibility) might be just as compelling when argued properly. Or note the distinct mindset that the wording of the third question reflects.

Box 1

Examples of TEL Questions

(Correct Answers Bolded)

Unexpected inflation is most likely to benefit

- a. Persons living on fixed pensions.
- b. Life insurance policyholders.
- c. Savings bank depositors.
- d. People who owe money.**

Which of the following is the most essential for a market economy?

- a. Effective labor unions.
- b. Good government regulation.
- c. Active competition in the marketplace.**
- d. Responsible action by business leaders.

In a market economy, the public interest is likely to be served even when individuals pursue their own private economic goals because of

- a. The operation of competitive markets.**
- b. The social responsibility of business leaders.
- c. Careful planning and coordination of market activity.
- d. Individuals who understand what is in the public interest.

Source: Krumm (1992), Nelson and Sheffrin (1991).

Lüdecke-Plümer and Sczesny (1998) have compared TEL scores, among others, for the U.S.A., the U.K., Austria, Germany and Switzerland as well as the Republic of Korea. Their comparison shows that typically less than half of all questions drew correct answers (Austria 44%, Germany and Switzerland 45%, U.S.A. 48%); in the Republic of Korea the correct score reached as much as 52%. The U.K. leads the ranking with a correct score of 64%, but this may be explained with a bias in the sample toward schools of higher education. In the German-speaking countries, the tests unveiled significant knowledge gaps especially in the area of international economic relations. Across all countries subject to the review, graduates of economics courses had better scores than students without prior exposure to economics issues.

Beck and Krumm (1994) compare the test scores for Austria, Germany and the U.S.A. In this analysis, Austria fares best, and the U.S.A. fares worst. Yet the gap between the strongest and the weakest subgroup (by school types) is more than twice as big in the two German-speaking countries than in the U.S.A., so that the weakest U.S. students still have a better score than the weakest Austrian students. This pattern may reflect the different schooling systems, as the education system is a lot more heterogeneous in German-speaking than in English-speaking countries. Above all apprentices attending vocational schools produce negative outliers.

Having undertaken additional analyses on the basis of TEL tests in Germany, Lüdecke and Sczesny (1998) arrive at the following results, which roughly coincide with findings

for the U.S.A. (e.g. Walstad and Rebeck, 2001) and other international studies (e.g. for Australia by Lietz and Kotte, 2000).

- Basic economic literacy improves with age (test participants were typically between 16 and 18), irrespective of targeted exposure to economic education. This would imply that economic literacy is largely fostered by active participation in the economy. Economics courses may accelerate this process, but the knowledge gain will hit a “saturation threshold” sooner or later.
- Students in high school-equivalent schools (“Gymnasium”) and in commercial schools fare better than students in vocational schools,

secondary schools ranking below high schools (“Realschule”) and apprentices.

- Lower test scores for female students than for male students have been attributed to social and cultural factors, cognitive determinants and interest in economics issues, but also to the fact that economic stereotypes tend to be male-dominated. What might also play a role is that female students tend to do worse on multiple choice tests, so that this type of test overstates gender differences (Walstad and Robson, 1997).² Yet typically, gender differences tend to be smaller than differences within each gender group.

Box 2

Knowledge Surveys and Knowledge Tests in Austria

Apart from the standardized, widespread Test on Economic Literacy, similar tests have been used in Austria to measure the economic literacy of Austrian citizens. The following list provides an overview of the most recent studies on economic literacy in Austria. Readers interested in a comprehensive overview of earlier research into the economic literacy of Austrians are referred to Hartmann et al. (2000).

- According to a survey by **GfK Austria** (2006) with a sample of 4,500 respondents, 53% rated their understanding of economic fundamentals in the range between “rather bad” and “very bad,” which is in fact a deterioration compared with a similar survey conducted in 2003.
- According to a survey conducted by the *Institut für Bildungsforschung der Wirtschaft (ibw)*, (2006) among 3,300 final year students, 63% of the respondents considered themselves very well or reasonably well informed about the international economy, with the most optimistic answers reported by students of commercial colleges or schools. 60% of the students report to follow economic topics with principal or high interest. What is interesting is that this self-evaluation often diverges substantially from the scores in a knowledge test based on 20 knowledge and comprehension questions. Commercial college students tended to do best at such tests, whereas commercial school students – contrary to their self-assessment – tended to do worst. However, an accurate interpretation needs to reflect that it takes five years to graduate from commercial colleges but only a minimum of three years to graduate from commercial schools. As has been indicated above, basic economic literacy rises with age and independently of schooling, through active participation in the economy. In the *ibw* survey, too, female students generally did worse than their male colleagues. At the same time, the scores of students with a migration background do not deviate signi-

² As a case in point, female students tend to leave questions unanswered if they are unsure, so that their success ratio is even below the guessing probability in some instances (Katschnig and Hanisch, 2004).

ficantly. This is in contrast to U.S. surveys (Soper and Walstad, 1987), according to which African-American or Latin-American immigrants tended to do worse than students without a migration background.

- **Katschnig and Hanisch (2004)** compare the economic knowledge of 2,179 graduates in Austria, Germany, the Czech Republic and Hungary based on 12 (partly TEL) questions, paying particular attention to the good translatability of the questions. They find the graduates' economic knowledge to be inadequate in general. The weak results in the Czech Republic and in Hungary are partly attributed to the insufficient technical skills of faculty, whose economic attitudes had been shaped in the times of the Iron Curtain. Female graduates do significantly worse than their male counterparts, especially in Austria.
- In 2006, the **Viennese Chamber of Labor** commissioned depth interviews with 28 employees and 6 apprentices, with the aim of assessing their financial literacy (Prantner et al., 2006). While generally the respondents were pretty well informed about the particulars of taking out and overdrawing a loan, they were less knowledgeable about interest rate adjustment clauses or effective borrowing costs. Based on that survey, consumers' knowledge of mutual funds is estimated to be inadequate for taking competent purchase decisions.
- A study commissioned by the **Kuratorium Wirtschaftskompetenz für Europa** uses the European Business Competence* Licence (EBC*L) – based on 16 knowledge and 4 comprehension questions plus 1 case study question – to evaluate the level of business capability in Austria, Germany and Switzerland (Ortner et al., 2006). Without studying specifically for the test, as little as 15% of the 342 participants were able to come up with correct answers for more than half of all questions – a score that is rather striking, given that 95% of the sample respondents had graduated from secondary school, and that 70% were part-time students, mostly at technical/vocational colleges. At the same time, respondents rated economic literacy as a very important job skill.

6 Conclusions

This paper shows that the concept of economic and financial education may be defined in very different ways. The available educational programs are designed to influence either individual decision-making, interaction among economic agents, or individuals' attitude towards the socio-economic environment. Institutions running educational programs may do so for a broad range of reasons, which in turn determine what knowledge areas or skills they hope to develop and the manner in which they do so. In addition, the topics covered and the way the message is put across will also depend on the target audiences selected.

Central banks take on a special role in fostering economic under-

standing and building economic skills, given their role as economic policymakers and public institutions. As central banks enjoy statutory independence, they have a vital interest in communicating their monetary policy goals and strategies and their monetary policy decisions in a clear manner to support sustained public acceptance of stability-oriented monetary policies and at the same time to anchor inflation expectations, both of which are crucial for the successful implementation of their goals. Effective central bank communication is moreover meant to reduce economic agents' uncertainty in decision-making. Last but not least, central banks seek to promote the efficiency and stability of the financial system and offer guidance in personal finance

issues with their financial education initiatives.

The economic education debate reflects a range of didactic approaches to building economic capability: situation- and problem-oriented approaches, as a result of which the topics covered are tailored to participants' role in the economic process, action-oriented approaches, as well as approaches which derive their choice of educational content from economic theory (Weber, 2001). The economic theory-oriented approach is complicated by the fact that economists' opinions are divided on many theoretical and economic policy issues (Chase, 1977; Fuchs et al., 1997). This notwithstanding, most economists share the view that irrespective of economic policy differences, all schools of economic theory recognize fundamental conceptual and analyti-

cal categories as well as given facts (Tobin, 1986).

This understanding motivates the use of standardized multiple choice tests to measure the economic knowledge of participants. But measuring the economic literacy of consumers or the effectiveness of educational efforts is difficult in practice. For one thing, the most adequate method of measuring and evaluating literacy depends on the educational target and the target group. For another thing, it is difficult to establish a direct link between educational programs and observed changes in behavior. Against the backdrop of an intensifying public debate on economic and financial education and a host of surveys uncovering consumers' knowledge deficits, improving measurement methods would suggest itself as a meaningful focus for future research.

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Financial Capability of Austrian Households

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Based on a survey by the Oesterreichische Nationalbank (OeNB) in 2004, this paper aims to assess Austrian households' financial capability with respect to managing money, planning ahead financially, making financial choices and staying informed.

People's attitudes about money often depend on their education, income and age. A higher level of education, income and age tends to go hand in hand with a more positive financial attitude. The OeNB's survey, however, revealed that, in the case of Austria, there is generally no relationship between a household's financial behavior and the education level of its members. Moreover, half of the respondents seldom shop around for financial services and are thus not knowledgeable enough to make informed financial decisions.

JEL classification: D14, D18, D80, E21, G11, G14, G28

Keywords: financial education, financial capability, financial literacy, private households, surveys.

1 Introduction

As financial provisions for old age are increasingly being turned into each and everyone's individual responsibility, consumers are faced with the challenge of choosing suitable saving instruments from an ever-growing range of investment possibilities. With the growing need for individuals to play a more active role in the market for financial services, financial capability as a broad life skill is increasingly considered important. In this context, the following questions arise: Are Austrian households in the position to make adequate old-age provisions and to accumulate savings? Do Austrians have sufficient knowledge about the risks involved in investment? Do they adequately react to changing conditions?

This paper aims to provide answers to these questions by presenting empirical data on the Austrian population's financial capability based on a 2004 survey by the Oesterreichische Nationalbank.¹

First, we provide a brief overview of the terms used in international

financial education discourse in section 2, while section 3 will present the financial capability concept of the British Financial Services Authority (FSA). Section 4 contains an evaluation of the Austrian survey results based on the subcategories of financial capability identified by the FSA (managing money, planning ahead, making choices/choosing products and getting help/staying informed). Section 5 provides the results of a cluster analysis conducted to cross-check the results and section 6 concludes.

2 Financial Education

In the 1990s a number of private and public organizations in the U.S.A. launched initiatives to improve the financial literacy of specific population groups (Vitt et al., 2005).

The U.K. has likewise been active in promoting financial education for some time now (England and Chatterjee, 2005). On an international scale, the OECD embraced this topic and drew up related recommendations in 2004, which were endorsed

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¹ An analysis of the survey results on Austrian households' financial wealth is presented in Beer et al. (2006).

by the OECD Council in 2005 (OECD, 2005). The G8 nations expressed their support for the OECD's financial education activities in 2006 and organized conferences on related topics (G8, 2006). In 2007, the European Commission initiated a study on financial literacy schemes within the EU (European Commission, 2007).

To date, financial education discourse has lacked an appropriate theoretical framework (for an overview see Schürz and Weber, 2005). Different organizations have very different ideas about the concept of financial education, as is reflected in the terminological variety in related discourse. The most common terms used are *financial awareness* (Mason and Wilson, 2000), *financial literacy* (G8, 2006), *financial education* (OECD, 2005), *financial capability* (Atkinson et al., 2006) and *financial citizenship* (Citizenship Foundation, 2002):

This conceptual and terminological variety points to the fact that institutions involved in financial education have different objectives, as is reflected in their education programs. According to the Hamburg-based Institute for Financial Services (iff), there are five basic approaches toward enhancing financial education (Institut für Finanzdienstleistungen, 2007):

- 1 Providing professional training: Teaching course participants to think and act like financial service providers.
- 2 Providing money saving and debt prevention advice: Encouraging consumers to save and helping consumers to avoid falling into debt.
- 3 Developing basic economic literacy: Promoting a general understanding of fundamental economic terms and processes.

4 Explaining products: Familiarizing bank customers with the product range of financial service providers.

5 Empowering consumers to use financial services productively.

The policy debate on national and international financial education initiatives (G8, 2006; OECD, 2005; U.S. National Strategy, 2006) primarily focuses on the need to change consumer behavior to remedy problems such as overindebtedness, financial exclusion (i.e. no access to financial services) and insufficient old-age provisions. From this perspective, financial education is thus mainly understood to include measures to promote saving, discourage excessive borrowing and enhance product knowledge. The extent to which financial education can contribute to tackling the said problems is, however, subject to debate (Schürz and Weber, 2005).

By comparison, the debate among education professionals and researchers is characterized by a more strongly customer-oriented perspective, in particular in the German-speaking world. Financial educators' vision is to raise individuals' capability to make productive use of financial services. According to this concept, financial decisions are embedded in the economy of everyday life. Therefore, they have to be seen and made in the context of individual situations and objectives (Piorkowsky, 2003; Reifner, 2003; Schlegel-Matthies, 2002).

3 The Concept behind "Financial Capability"

"Building Financial Capability in the U.K.," the campaign led by the U.K.'s Financial Services Authority (FSA) aimed at improving the nation's knowledge and understanding of personal finance, is the most compre-

hensive financial education project launched in Europe so far. The aim of the FSA, which developed the concept of “financial capability,” is to fundamentally change consumer behavior. Financial capability is a broader term than “financial literacy,” which dominates discourse in the U.S.A. While “financial literacy” emphasizes knowledge, understanding and awareness, “financial capability” stresses the relevance of consumer behavior, decision-making and practical abilities as well as the importance of outside help to achieve sustainable change in financial behavior.

In its empirical evaluations of financial capability, the FSA focuses on respondents’ attitudes (toward risks, the future, specific financial operations, etc.) and their behavior (financial habits) rather than on knowledge (e.g. understanding economic relationships, knowing about the characteristics of financial products, etc.).

In a representative survey of the British population based on elaborate preliminary studies and discussions in focus groups, the FSA, established a baseline measure of financial capability – in terms of how well people manage money; plan ahead; choose financial products; and stay informed about financial matters (FSA, 2006):

3.1 Managing Money

The two basic components of managing money, as defined by the FSA, are making ends meet and keeping track of one’s finances. In assessing these abilities, the FSA examined e.g. in how far respondents prepare for upcoming expenditure and how actively they are involved in financial household decisions. Moreover, it analyzed respondents’ general attitudes about money (spending and saving).

3.2 Planning Ahead

Financially capable consumers will anticipate future needs and act accordingly. To gain insights into this component of financial capability, the FSA’s survey explored the frequency and impact of unexpected financial setbacks or expenses people have experienced and how well they prepare for anticipated major purchases. Moreover, the questionnaire was designed to reveal the degree of additional retirement provision and people’s propensity to plan ahead in general.

3.3 Making Choices/Choosing Products

Taking adequate steps to choose financial products that meet one’s needs is another basic component of financial capability. This includes taking the initiative to shop around, an understanding of risk and product detail as well as the propensity to consider switching service providers. The section of the questionnaire devoted to establishing the corresponding capability levels collected information on financial products currently held by respondents, their experiences with mortgage payments as well as their ability to recall details about their life insurance or other insurance products, personal savings, credit cards and loans.

3.4 Getting Help/Staying Informed

Finally, financial capability is also about people’s knowledge of financial matters and their ability to keep abreast of financial developments.

Questions asked in this context in the FSA’s baseline survey related to respondents’ subjective assessment of how important it is to stay informed; the number of sources they check and how often they do so; or what kind of

fraud incidents, problems and disputes with financial service providers they have experienced. Other questions were designed to document respondents' basic financial skills (ability to read bank statements and to understand percentage calculations; an understanding of the impact of inflation on savings; the ability to anticipate future returns based on charts; basic mathematical operations); knowledge about specific financial products; respondents' own assessment of how informed they are.

The 2005 FSA survey, which involved 5,328 respondents, showed financial capability deficits in the following areas (Atkinson et al., 2006):

- The extent to which respondents make provisions for the future/plan ahead is generally limited.
- For a small population group, overindebtedness is a major problem.
- Product choices are generally rather unreflected and risk awareness is low.
- Respondents below the age of 40 generally have a lower level of financial capability than older respondents.

4 OeNB Survey on Financial Capability in Austria

In 2004, the OeNB commissioned a survey of Austrian households' financial wealth. (For a presentation and analysis of the survey results on households' financial assets and asset structure see Beer et al., 2006; for an analysis of household debt in Austria see Beer and Schürz, 2007; for information on the distribution of financial wealth in Austria see Mooslechner

et al., 2007). This survey also contained a series of questions on respondents' outlook on financial issues and related behavior. The content of these questions basically reflected the FSA's financial capability concept.

The data derived from the OeNB's survey for the first time provided detailed information on the Austrian population's financial capability, with the added benefit that these data are fit for international comparison.

The descriptive presentation of these results which follows analyzes links between certain behavioral patterns and socioeconomic characteristics like age, education, income and professional background.² This analysis is designed to produce insights on possible causes for problematic financial behavior, from which policy conclusions may be drawn.

4.1 Managing Money

To test Austrians' money management behavior, the OeNB's survey assessed respondents' knowledge about their finances, their payment behavior and their account management and saving behavior.

More than 90% of respondents stated that they were meticulously keeping track of their finances. As can be seen from chart 1, the propensity to keep track of one's finances slightly increases with age whereas there is hardly any correlation with income and education.

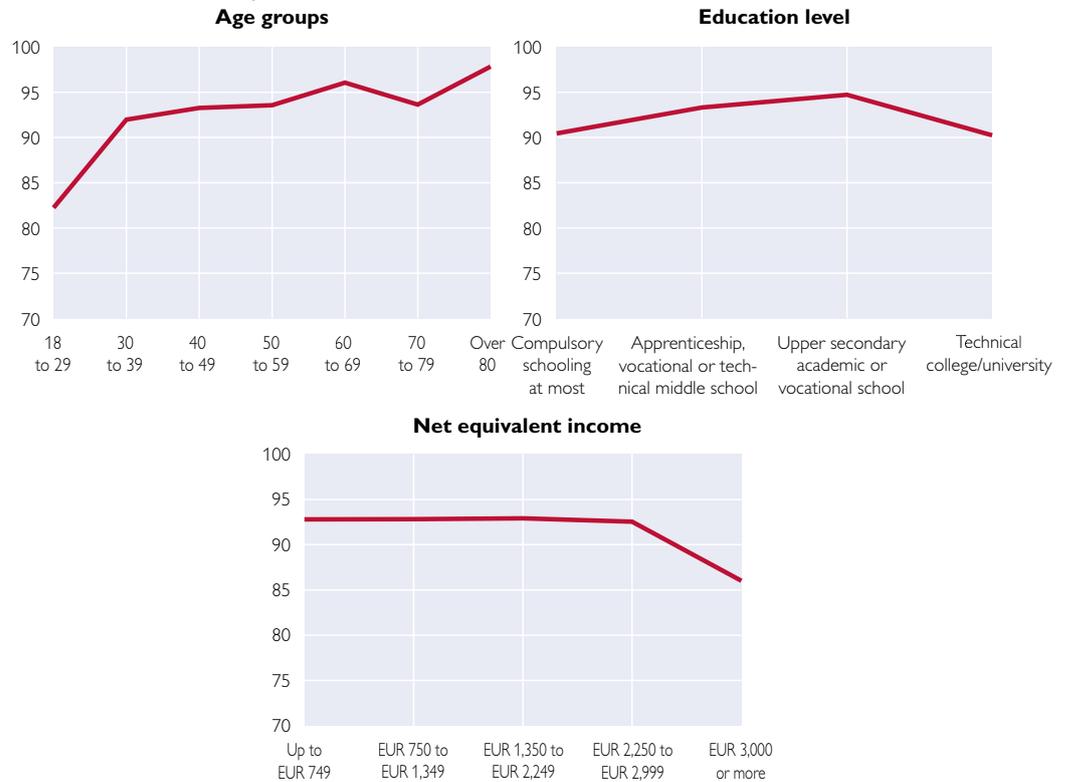
45% of households keep records of their finances, a habit which is more frequent in higher age classes. Also in this respect, income and education play only a subordinate role. More than 66% of the respondents

² In our calculations we have aggregated the response categories which apply to most of the questions ("completely applicable," "applicable," "and not very applicable," "completely inapplicable"). The analysis of income is based on net equivalent income. Details on the survey are presented in the annex.

Chart 1

I have a good overview of my finances

Share of household heads that agree with this statement in %



Source: OeNB 2004 survey on households' financial wealth.

said that they always read all the information materials sent to them by their bank; the frequency of this behavior increases steadily with age/ slightly with income (but only up to the medium income group; members of the highest income group have less of a tendency to display this behavior). The reason why wealthier respondents more often ignore such information may be that they are able to resort to alternatives, like private financial consulting, or that the opportunity costs tied up with reading all information materials provided by banks are simply too high. In other words, one might say that higher income groups can “afford” to lack knowledge.

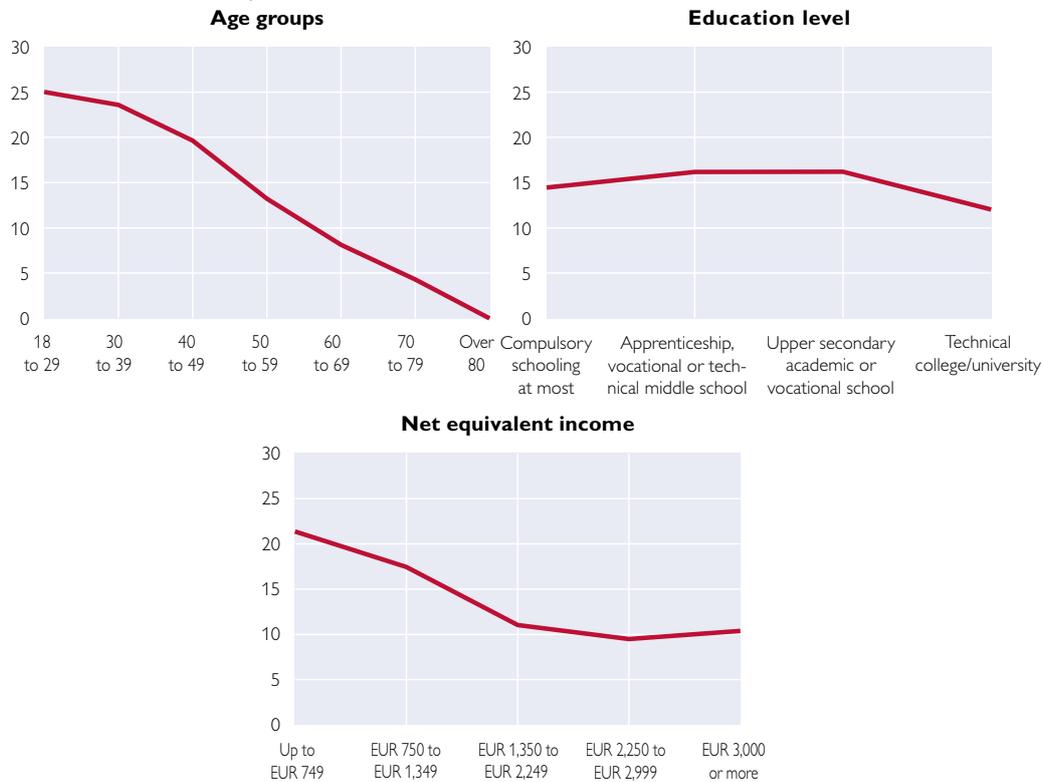
About 80% of respondents claim to usually pay bills immediately, which shows that Austrians' payment behavior in general is remarkable. It moreover improves with age and slightly increases with income, but only to a certain degree: In the highest income class, payment behavior is actually the poorest. The survey did not establish any relationship between payment behavior and education.

In terms of interest, overdrawing one's account is a suboptimal form of credit (depending on the duration of the overdraft), which is why overdrafts can be interpreted as indicative of problematic financial behavior. Chart 2 presents the related survey results. Of all respondents, 15% tend

Chart 2

I tend to overdraw my account

Share of household heads that agree with this statement in %



Source: OeNB 2004 survey on households' financial wealth.

to overdraw their accounts. Members of higher income and age groups are less likely to display this tendency. With respect to different levels of education, only small fluctuations are observable regarding overdrafts.

Around 43% of Austrians put savings aside on a regular basis, a share which increases with both income and education. Older respondents save on a more regular basis than their younger counterparts. 9% of the respondents make deposits under a savings plan, 19% put aside whatever income is left at the end of the month and 25% save at irregular intervals. Significant shares of households which are unable to set aside funds are only found in the low income group (net

equivalent income under EUR 749) and in the group of under 30-year-olds (12%). Also the group of respondents with the lowest level of education includes households unable to save (10%). In all other groups, the share of these households ranges at the one-digit level and almost invariably below 5%.

15% of the respondents stated that, if they wished to buy something, they preferred taking out a loan to saving up money over an extended period of time. This attitude is most common in the age group of 50- to 59-year-olds (22%) and among members of the two highest income groups. Its frequency is broadly similar across the various education levels.

Summary

By and large, respondents indicated that they handle their finances very carefully, though this tendency decreases in higher income classes.

How meticulously respondents keep track of their finances seems to primarily depend on age and hardly on education or income.

Whether respondents pay their bills on time or not, however, is not only a question of age but also of affordability. The share of respondents who take their time paying bills increases in parallel with education level, maybe because better educated persons consider themselves to be in a strong negotiation position or actively seek to optimize their finances.

Spending in excess of personal budgets is more frequent among members of groups with a lower level of income or education. This seems to be attributable to these groups' financial limitations rather than to irresponsible spending (for an analysis of the situation in the U.S.A see Schürz, 2006). An attitude toward debt which might be described as careless is more likely to be found among older and wealthier respondents; those respondents most inclined to overdraw their accounts can be found in "middle-aged" households of various income levels. This result might be explained through the life cycle hypothesis: Households can smooth their consumption over time, i.e. take out loans they plan to pay back later on the assumption of rising incomes.

4.2 Planning Ahead

The OeNB's survey was also designed to reveal in how far Austrian households plan ahead. The share of households stating that they were putting

money aside "for a rainy day" turned out to be roughly 85%. The tendency to save is more frequent among members of groups with higher age and income, and again is found to be weakly correlated with education. The group with the highest income and that with the lowest level of education, however, do not follow this pattern; in these two groups the tendency to save is low by comparison.

Of all the households covered by the survey, 82% consider individual saving for retirement important. It comes as no great surprise that the importance attributed to private pension savings declines with increasing age. More striking is the empirical result that private retirement provision is considered more important among respondents with higher income and education level.

More than half of the respondents indicated that their financial portfolios include a private pension product either acquired by themselves or by someone else for them. As can be seen from chart 3, about two-thirds of the respondents aged 30 to 60 stated that they had private pension savings, while in other age groups this applies to less than half of the respondents. The tendency to make private retirement provisions is more common among higher income and higher education groups.

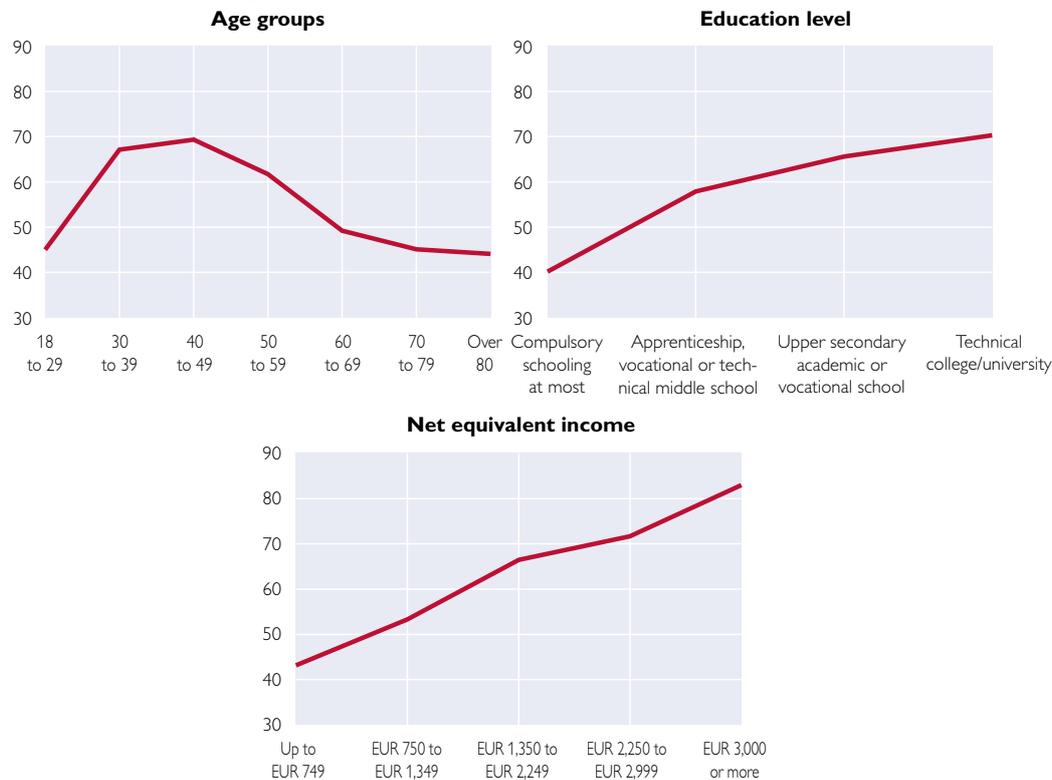
A breakdown by occupational background only shows a few significant differences in saving motivation. The share of old-age provision as a motivation for saving is more or less constant across all occupational groups. Especially employees and self-employed respondents consider it important to save "for a rainy day" and for the event of disease or unemployment.

Chart 3

I have made private provisions for old age

(or someone else has made them for me)

Share of household heads that agree with this statement in %



Source: OeNB 2004 survey on households' financial wealth.

Summary

Most households tend to save up money for emergencies. This tendency is correlated with income and age, but not with education. The majority of Austrians is convinced that private saving for retirement is a necessity. This conviction increases with income and education and, as can be expected, declines with growing age.

Austrian households' tendency to plan ahead has only recently manifested itself in measures directed at individual old-age provision, whose necessity is embraced as a "fact of life" only by the younger generations so far.

4.3 Making Choices/Choosing Products

The OeNB's survey collected information on households' decision-making behavior with respect to saving instruments chosen, risk orientation, factors which influence investment decisions and whether they shop around for financial products.

Almost all households covered by the survey save up money in one way or the other (97%). Of these, 85% have a passbook savings account, 71% a building loan contract, 27% a capital savings account, 16% a savings account and another 16% a premium-aided savings account.

About 54% of all households hold a life insurance policy, 11% bonds, 16% stocks, 11% mutual fund shares and 3% participating interests in enterprises (for details see Beer et al., 2006). There is a strong preference for traditional passbook savings accounts. About 90% of respondents prefer low-risk saving instruments, a preference which increases with age, is relatively constant across income groups and slightly declines in groups with a higher level of education. People with a high risk approach toward saving are a small minority and, in direct contradiction to theoretical literature, are more likely to be found in those groups with the lowest age, income and education level.

As only a small number of respondents own stocks, we did not evaluate this group's reasons for purchasing stocks. Respondents who do not own stocks, on the other hand, stated that they could not afford them (48%), because they thought risk was too high (43%), because they did not have enough information (19%), because they considered related costs/fees too high (8%), because their bank or friends had advised them against buying stocks (3%) or because they lacked interest (3%). This seems to indicate that many Austrians still see stocks as an investment instrument reserved to the wealthy. This perception is consistent with the overall finding of the survey that respondents are, as a rule, more likely to diversify their investments the higher their income. At the same time, low-risk saving instruments like passbook savings accounts and building loan contracts decline in importance vis-à-vis higher risk in-

vestments, although still being the most important savings instrument. While low-income respondents name non-affordability as the main reason for deciding against stock market investment, high-income respondents are more likely to be put off by the risk involved. However, also the lack of competent advice discourages members of the group with the highest income. In spite of an extended capital market media campaign in Austria, skepticism against stock market investment is still rather strong. About one-third (31%) of respondents who do not hold stocks consider it possible to acquire stocks in the future; for those aged below 50 this is true for approximately 40%, even. The likelihood of investing in stocks in the future rises with higher education and income, but remains below 50% in all income classes.

Chart 4 illustrates how actively Austrian households seek out financial information. Overall, 48% of respondents generally check out various banks' offers to find the best product. The tendency to shop around increases in parallel with education level, drops with increasing age and grows with income up to a medium level of income, then declines again in higher income groups. The correlation between the wish to keep track of one's finances and the habit of comparing offers before deciding on a financial product is very weak.³

Summary

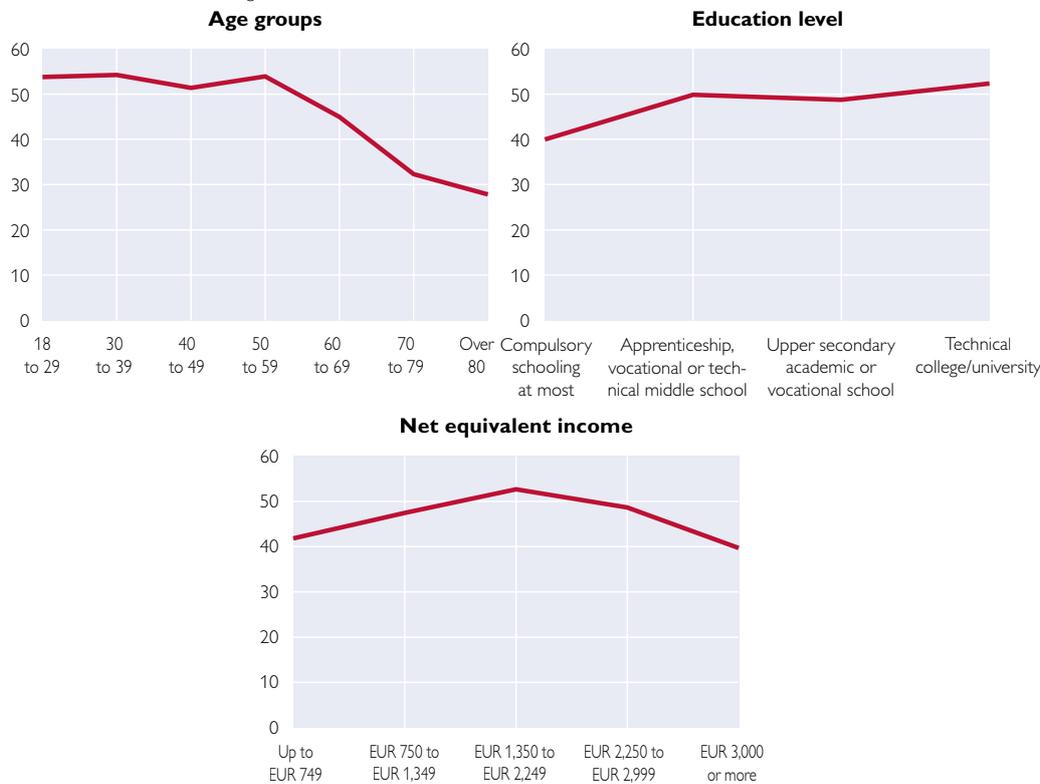
Almost all respondents put aside money in one way or the other. The most widespread saving instruments are passbook savings accounts, build-

³ Pearson correlation coefficient: 0.045; significance: 0.089. The weak correlation may be attributable to the fact that offers are only compared in the case of current financial decisions.

Chart 4

I always compare different banks' offers to find the best product

Share of household heads that agree with this statement in %



Source: OeNB 2004 survey on households' financial wealth.

ing loan contracts and life insurance policies. Only a small minority holds more risky assets.

Professional groups with stable incomes (civil servants) tend to have more strongly diversified portfolios, while respondents with more insecure income prospects (workers) do not invest in many different instruments.

Respondents who do not own stocks name various reasons for not investing in the stock market, most importantly non-affordability, high risk and lack of information. Generally, respondents rate the importance of financial advice through banks high, in particular when it concerns risky investments. Older people and

high income respondents tend to be more loyal vis-à-vis their banks than other respondents. Educated and medium income respondents are most likely to look into various offers, maybe because wealthier respondents are in a stronger negotiation position vis-à-vis financial service providers. Half of the respondents do not usually compare different providers of financial services.

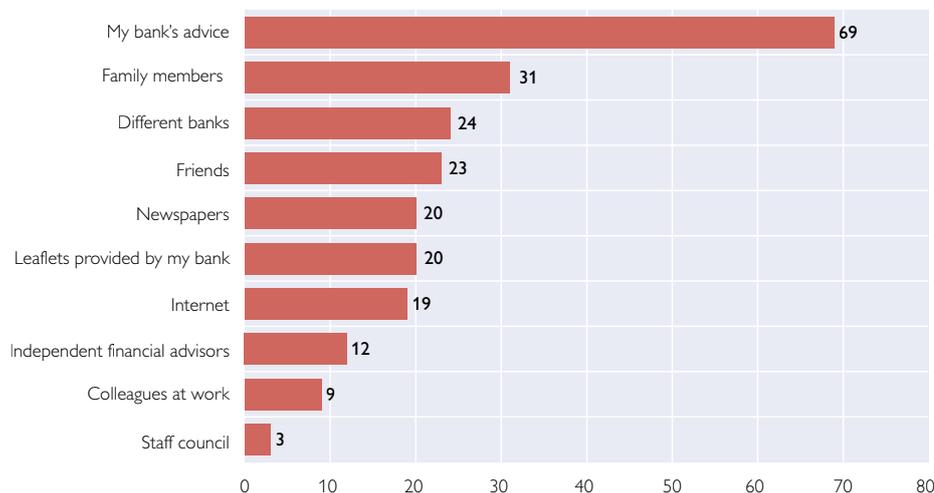
4.4 Getting Help/Staying Informed

This competence area was assessed through questions on the sources from which consumers seek information, on confidence issues and on respondents' information wishes and needs.

Chart 5

Which sources do you use if are looking for information on financial issues**(saving, investments, loans, etc.)?¹**

Share of household heads that agree with this statement in %



Source: OeNB 2004 survey on households' financial wealth.

¹ Multiple responses were possible.

As can be seen from chart 5, the by far most frequently used source of financial information is individual advice provided by respondents' "own" banks (69%), followed by advice by family members (31%), information provided by different banks (24%), advice by friends (23%), leaflets provided by banks (20%), information from newspapers (20%) and the Internet (19%). On average, households rely on 2.3 information sources. The number of information sources used declines with increasing age and rises in parallel with income and education level.

Chart 6 shows Austrian households' confidence in different sources of information. Based on multiple choice questions (multiple answers possible), the questionnaire revealed that respondents place most confidence in the Austrian consumer affairs organization (Verein für Konsumenteninformation, 47%), financial service providers like banks or insur-

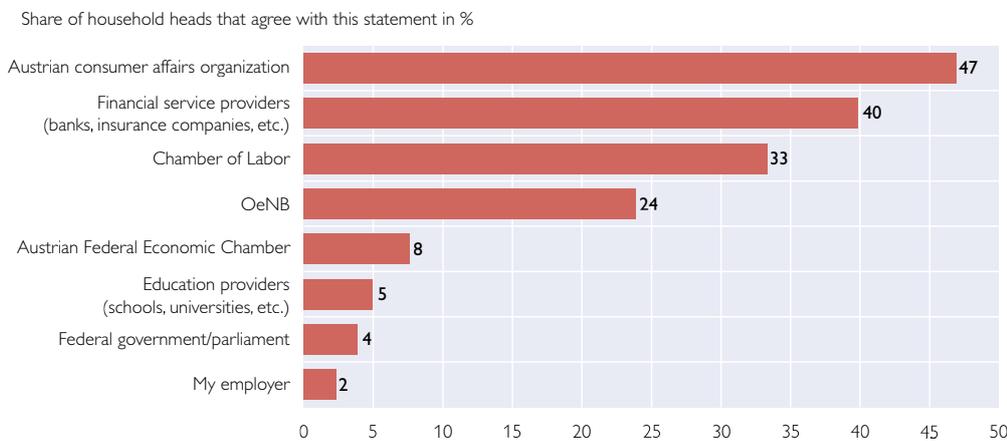
ance companies (40%), the Chamber of Labor (33%), the OeNB (24%), the Federal Economic Chamber (8%) and the federal government, education providers and employers (each below 5%). Confidence in financial service providers and the OeNB tends to rise with income.

In finance matters, 56% would rather rely on individual advice from their bank than on their own judgment. The older respondents are, the higher is their trust in individual advice from their bank, which is probably attributable to long-standing customer relationships. Respondents with a higher level of income and education have greater confidence in their own financial knowledge and skills.

At the same time there is a general skepticism toward banks. 63% of respondents agreed with the statement that "ordinary bank customers get ripped off." Interestingly, this view is especially common among

Chart 6

Which sources of financial information do you trust the most?¹



Source: OeNB 2004 survey on households' financial wealth.

¹ Multiple responses were possible.

respondents with very low or very high incomes, and there seems to be no strong correlation with education or age. It is possible that this negative perception corresponds to the personal experiences of low income respondents. Respondents with the highest incomes, on the other hand, may not have felt that “ordinary bank customers” included them.

59% of respondents enjoy dealing with financial issues, while only 10% dislike dealing with them. Especially very young and very old people tend to have negative sentiments about financial issues, a tendency which declines with increasing income and which is lowest among respondents who have graduated from upper secondary academic or vocational schools.

47% consider their knowledge about financial issues as mediocre. Self-assessment becomes more positive with higher income and slightly more positive with a higher level of education. Of all respondents, 66% would like to have more information

about financial issues. Around 56% stated that they wanted to keep abreast of new financing opportunities, a desire which is less widespread in higher age groups. While there is no clear income-related trend, respondents who did not progress beyond compulsory education, members of the lowest income group and of the highest age groups (retirement age) are most strongly opposed to this attitude.

Around 90% of respondents thought that financial education in Austria should be improved. This share is fairly constant across all age, education and income groups. This broad consensus may be attributable to the generally positive connotations of education in Austrian society. The fact that respondents generally agree with a notion, however, is not necessarily reflected in their own personal behavior. Respondents' assessment that they are not well-informed in financial matters, for instance, is not positively correlated with the desire

for more information.⁴ This lack of demand for financial education needs to be taken into account by economic policymakers interested in improving financial literacy (Schürz and Weber, 2005).

67% of respondents would welcome government measures improving the comparability of financial products, a wish which is slightly less frequent among members of groups with a high level of education. This result points to the fact that respondents' trust in market mechanisms is relatively low.

Summary

Confidence in one's own financial capability grows with education and income.

According to respondents' statements, banks dominate financial consulting; however, respondents' trust in banks is limited, as both low and high income respondents seem to have had some bad experiences with banks or are prejudiced against financial institutions.

The share of respondents who use the Internet as an alternative source of financial information is highest among well-paid employees between the age of 30 and 49. However, the invested assets of this group, on average, are not very substantial.

The wish to be better informed about financial issues is generally strong, and two-thirds of respondents would welcome public sector measures designed to improve the structure of the information offer in the financial services sector.

5 Cluster Analysis

We conducted a cluster analysis of the survey data in order to cross-check our statistical results and the derived relationships.

Cluster analysis classifies households based on their responses to questions. To analyze the four components in terms of which we measure financial capability – managing money, planning ahead, making choices/choosing products and getting help/staying informed – we selected several relevant questions from the questionnaire which we considered as characteristic of these four topics (see annex). Based on their responses, households were thus grouped into four statistically most homogeneous groups, each containing respondents with similar attitudes or behavior patterns.

The advantage of cluster analysis is that it groups households into clusters using a range of variables. This approach is opposed to a purely descriptive analysis, in which households can be characterized by just one or two variables (e.g. how well people keep track of their finances in correlation to their age or education level). Cluster analysis, by contrast, makes it possible to analyze the groups (the clusters) based on their diverse socio-demographic characteristics. To evaluate people's "planning ahead" capability, we calculated a cluster which encompasses all households which have made financial provisions for the future and another cluster in which the majority of households have not made provisions. Hence, cluster analysis allows for a more accurate char-

⁴ The correlation established is not only weak but also negative (Pearson correlation coefficient: -0.077 ; significance: 0.003).

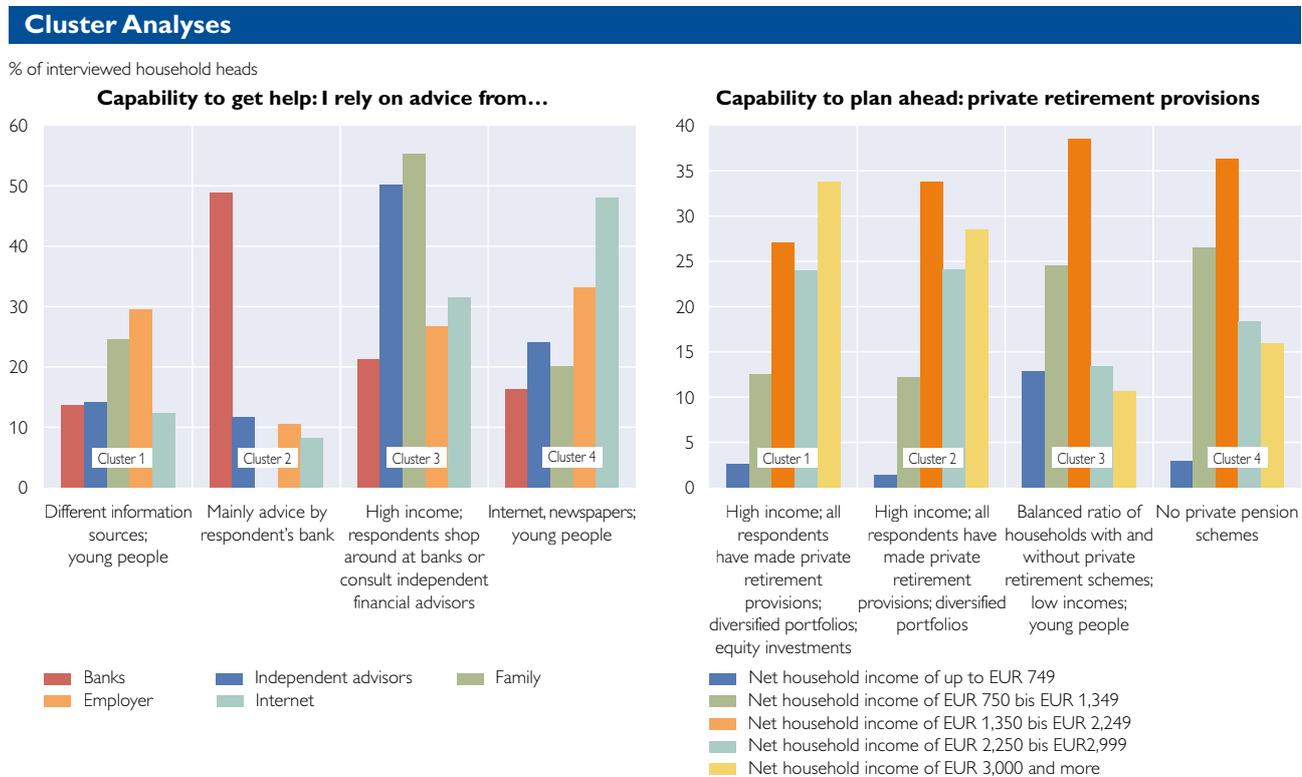
acterization of private households' behavior and financial capability.

5.1 Managing Money

The cluster analysis of people's money management capability relied on responses to the question how well respondents keep track of their finances, whether they prefer low-risk saving instruments and whether they tend to overdraw their checking accounts. The related responses yielded four primary clusters: two groups of respondents with generally positive bank account balances, one cluster with basically balanced accounts and a fourth cluster – containing 15% of all respondents – with those people whose accounts are usually overdrawn. The households in this last cluster have the lowest financial wealth, the least diversified investment portfolios (primarily passbook savings accounts; 61% hold life insurance policies) and the largest overall volume of consumer loans. Though this cluster includes the largest share of low-income recipients, it also shows a higher total share of high income households than those clusters which group together respondents with balanced accounts or positive balances. This pattern shows that the capability to keep track of one's finances is not dependent on income. Moreover, the households grouped in this cluster do not differ broadly across education levels. They do, however, differ in terms of age – the older households get, the better they keep track of their finances and the more scarcely they are hence represented in this cluster. Thus, cluster analysis confirms that the capability to make sure not to overdraw one's accounts and to keep track of one's finances is correlated with age and not with education or income (chart 7).

5.2 Planning Ahead

We also conducted a cluster analysis on households' capability to plan ahead based on questions looking into their financial provisions for the future. The indicators on which this analysis was based were answers to the questions whether respondents put aside money for emergencies, whether they have made individual retirement provisions and whether they would like to be better informed about financial issues. Prior to the analysis we removed data derived from the group of respondents aged over 60 from the dataset. Again, the analysis yielded four clusters. The first two clusters are characterized by the fact that about 93% of respondents have made private old-age provisions, have a high income and strongly diversified portfolios, which makes the detailed analysis of these two portfolios particularly interesting. Moreover, the respondents in these two clusters on average have a relatively high level of education, which again confirms the observation that private retirement provisions are more common among respondents with higher income and education levels, as was pointed out in the corresponding descriptive analysis above. The second cluster also includes respondents which have made considerable equity investments. The third cluster, which encompasses households without private pension schemes (about one quarter of respondents), is also very interesting. If one neglects checking accounts, respondents in this cluster have invested lower amounts in all investment categories than respondents in the first two clusters. The third cluster has the highest share of 50- to 59-year-olds and a share of 20- to 29-year-olds that is twice as high as in the first and sec-



ond clusters. In line with chart 3 in the descriptive part of this study, these results underline that very young respondents do not yet see the rationale for making individual pension provisions whereas respondents over 50 have already passed that point.

5.3 Making Choices/Choosing Products

In order to classify households based on how they make financial decisions, we used questions on the ownership of different investment instruments (passbook savings account, bonds, stocks, etc.) and the question whether respondents compare offers provided by different banks. Households in the high income cluster have clearly more diversified portfolios. Two clusters encompass medium-income respondents with moderately diversified

portfolios. The fourth cluster includes (low income) households with a low level of investment activity (16% of respondents).

5.4 Getting Help/Staying Informed

An indicator for responsible financial behavior is whether respondents rely on more than one information source in financial matters. The cluster analysis of responses concerning access to financial information produced four clusters.

In the second cluster, almost one-third of respondents consider advice by their own bank reliable. Of all clusters in this area, this cluster has the lowest share of under-40-year-olds and the highest share of over-70-year-olds. Cluster analysis thus confirms that loyalty vis-à-vis one's bank is particularly strong among older people. The third cluster (34.6%),

which contains households with high income and wealth, groups together respondents who preferably take advice from their family and seek out information provided by various advisors. Hence, cluster analysis confirmed once more that respondents with a higher level of education and income tend to shop around, not least because wealthier respondents are in a stronger negotiation position. Those households which primarily rely on the Internet and their employer as an information source are to be found in cluster 4 (19.2%), which has the highest share of respondents aged between 30 and 49 and the lowest share of over-50-year-olds. This cluster, which is primarily made up of salaried employees, contains more households that have made private retirement provisions than the other clusters (chart 7).

6 Summary

Based on a representative survey this paper analyzed Austrian households' financial capability in the following areas: managing money, planning ahead financially, making financial choices and staying informed.

One of the main findings of this study is that future efforts directed toward improving financial literacy should pay special attention to the differences between financial attitudes and actual financial behavior. Personal attitudes toward financial issues (e.g. risk orientation, propensity to invest in complex financial products and to shop around, self-confi-

dence in financial matters) are often linked with the level of education, income or age. Respondents with a higher level of income and education tend to have greater confidence in their own financial knowledge and skills.

Interestingly enough, Austrian households' payment and saving behavior or how well they keep track of their finances generally is not linked with education. In contrast, differences in income or age are often correlated with differences in behavior. The correlation between age and behavior points to the relevance of experience for financial behavior.

The results of the OeNB's financial wealth survey in Austria are broadly comparable to the findings of the FSA's financial capability survey (Atkinson et al., 2006). For a small group, overindebtedness is a major problem (Beer and Schürz, 2007). Most respondents choose financial products rather carelessly. According to the OeNB's survey, younger people tend to have a lower financial capability than older people. Not many households own risky financial products, and even these households usually rely on advice by their respective banks.

One striking result of the survey is that half of the respondents seldom compare financial services offers. As shopping around allows consumers to get better deals, encouraging consumers to do so would improve their basis for sound financial decision-making.

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Annex

The OeNB's 2004 Survey on Households' Financial Wealth

The survey was conducted by FESSEL-GfK (now GfK Austria) in summer and fall 2004 based on face-to-face and written interviews. FESSEL-GfK used multistage stratified clustered address random sampling to conduct representative surveys. A total of 2,556 analyzable data sets were compiled. Within Austria, households were stratified at the province level, and in Vienna, households were stratified by the 23 political districts. Within the districts, the prospective respondents were selected at random. For further details see Beer et al. (2006).

Equivalent Net Income

To measure a household's income level, households' income levels are weighted based on an equivalent income scale. Net equivalent income allows us to compare the level of wealth of households with different sizes and structures. The OECD scale we used here assigns a weight of 1.0 to the household head, a weight of 0.5 to all other members of the house-

hold who are older than 14 years and a weight of 0.3 to all younger children. For those households which indicated that they fell into the highest net income class (which had no upper limit in the questionnaire) it is not possible to assign any meaningful weights. This reduced the number of usable data sets from 2,556 households to 2,403 households, i.e. by the 153 households with the highest net incomes, for analyses concerning net equivalent income. Moreover, as a result of the weighting, many households are shifted into lower net equivalent income classes. The highest net equivalent income class is consequently largely composed of singles with high incomes and of couples without children.

Cluster Analysis

To cross-check clustering results, we used Ward's method to establish a hierarchy among respondents and the K-means procedure to partition respondents. First, the number of clusters was determined with Ward's hierarchical clustering method; then this number was confirmed by applying the K-means algorithm.

List of Variables Used in the Cluster Analysis

Issue in question	Variables
Managing money	<ul style="list-style-type: none"> * respondent pays bills immediately * respondent records income and expenditure * respondent reads all information materials sent to him/her by his/her bank * respondent keeps close track of his/her finances * respondent checks bank statements to make sure transfers have been effected * respondent prefers low-risk saving instruments * respondent has a checking account (overdrawn or not) * respondent prefers taking out a loan to saving up money for a long time
Planning ahead	<ul style="list-style-type: none"> * respondent has put aside money for emergencies * respondent has made individual provisions for old age * respondent would like to be more informed about financial issues
Making choices/choosing products	<ul style="list-style-type: none"> * respondent holds an investment product (passbook savings account, savings account, capital savings account, premium-aided savings, building loan contract, life insurance policy, bonds, stocks, mutual fund shares or equity investments) * respondent looks into and compares different banks' offers
Getting help/staying informed	<ul style="list-style-type: none"> * respondent relies on different sources of information on financial issues (banks, leaflets, friends, family, employer, Internet)

Financial and Economic Education Products and Services of Austrian Institutions and Enterprises

Sabine Schlögl¹

Austrian institutions and enterprises offer a broad range of economic and financial literacy products and services, including online products, brochures, folders, economic simulation games, TV and radio programs, presentations, seminars, company visits and guided tours. On closer inspection, however, it turns out that some areas and target groups remain largely neglected: Education products and services for students attending primary and compulsory school are still scarce, while comprehensive material is available for students and teachers of secondary academic or vocational schools. Moreover, the level of knowledge about certain basic economic and financial concepts was generally found to be low.

The deficiencies might be addressed by making the existing products and services more easily accessible in a structured fashion and by broadening the range of products and services to cater to the needs of all target groups.

JEL classification: A20, I20

Keywords: financial and economic education products/services, austrian institutions/enterprises.

1 Why Should the OeNB Have an Interest in Promoting Financial Literacy in Austria?

Internationalization and the globalization of the economy have long been buzzwords that we encounter every day in the media and that have become an integral part of the public debate. These phenomena have a profound impact on both our working and private lives, for instance when we have to make decisions about housing, taking out a loan or saving for retirement. Given the increasing complexity and speed of economic processes, it has become increasingly crucial for every individual to have a basic understanding of how these processes work. This is why we should consider economic thinking and acting key life skills that should ideally be taught already in school. More than one-half of Austrian students be-

lieve that they learn enough about the international economy in school (Schmid, 2006). This self-assessment is far from objective reality, however: The results of currently available surveys show that the level of economic and financial literacy among young Austrians is generally low (Schmid, 2006; Katschnig and Hanisch, 2006). The results for Germany, Hungary, and the Czech Republic are quite similar (section 2.2).

This contribution postulates that people have to be familiar with basic economic concepts to understand complex economic issues in general, and the function and role of a central bank in particular. Only people who have a basic grasp of monetary transmission, cash supply or banking supervision mechanisms will understand a central bank's key role in the economy. A sound understanding of economic and financial principles is

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also essential in everyday life – it helps us make informed decisions on how to handle pocket money or choose a suitable savings product, on which details to consider when we take out a loan, or on what to make of economic news. Measures to promote financial and economic literacy will benefit every individual; they are in the interest of the general public and the central bank alike. Numerous organizations offer economic and financial education programs, and they do so for a variety of reasons. For more details on the different approaches and objectives, see Gnan et al. (2007).

This study is structured as follows: Section 2 highlights the status quo of economic and financial literacy among young people (notably students at the post-compulsory level²) from Austria and its neighboring countries. Section 3 lists the financial and economic education services of selected Austrian institutions and organizations, including education facilities such as the Austrian Museum for Social and Economic Affairs, the Volkswirtschaftliche Gesellschaft Österreich, the Arbeitsgemeinschaft Wirtschaft und Schule, the adult education centers Wiener Volkshochschulen and the finance portal www.finanzportal.at, as well as the Austrian Federal Economic Chamber, the Vienna Chamber of Labour, the Austrian Trade Union Federation and Wiener Börse AG. The information products and services provided by two banks – Bank Austria Credit-anstalt (BA-CA) and Erste Bank der oesterreichischen Sparkassen AG (Erste Bank) – were chosen to

exemplify commercial banks' contributions to promoting economic and financial literacy. Last, but not least, we present the economic and financial literacy activities of the Oesterreichische Nationalbank (OeNB). Moreover, this review includes a detailed description of the contents, focus and target groups of individual products and services, as well as data on user acceptance and patterns of use, wherever available. Section 4 identifies those areas and target groups that are currently not (or not sufficiently) covered. Section 5 summarizes, provides suggestions on how to improve existing products and presents ideas for creating new ones.

2 Testing the Austrians' Knowledge of Economic and Financial Basics

The surveys described below aim at capturing the level of economic and financial literacy among the Austrian population, especially school students and apprentices. The results of (Austrian and international) surveys are consistent in that they identify numerous knowledge gaps.

2.1 Room for Improvement in Students' Economic and Financial Knowledge

As part of their “go international” initiative (section 3.3), the Austrian Federal Ministry of Economics and Labour and the Austrian Federal Economic Chamber commissioned a study that was conducted by the Institute for Research on Qualifications and Training of the Austrian Economy (Institut für Bildungsforschung der Wirtschaft – ibw) in 2005

² Students aged 15 and older.

(Schmid, 2006). Around 3,300 final-year students³ from 68 different Austrian schools were surveyed as to their interest in, knowledge about, and opinion of the international economy. Students' reading and television habits as well as the frequency with which they talk about economic and financial topics served as indicators of the level of interest in these issues.

Only around 10% of the respondents regularly read the business section of a daily newspaper or articles on economic topics, with commercial college students being a notable exception at almost 20%. The majority of students indicate that they sometimes read an economic article, while one-fourth of the respondents state they never do. Similar results were obtained for patterns of TV watching. More than one-fifth of the respondents said that they regularly discuss economic issues such as inflation, unemployment or economic growth with family members, friends or acquaintances. Around one-third indicate that they never speak about the Austrian economy, Austrian enterprises, the international economy or globalization.

The survey results can be summarized as follows: More than 60% of the students believe they are very well or reasonably well informed about the international economy. It comes as no big surprise that this share is markedly higher among commercial college students (above 80%). Yet the result of this financial and economic literacy test completed by the very same students clearly shows that there

is ample room for improvement: On a scale from 1 (very good) to 5 (very poor), the students scored an average of 3 (satisfactory) for all answers combined. The test questions (20 multiple-choice knowledge and comprehension questions about the international economy and about some basic economic terms) are outlined below, together with a summary of the results.

In response to the question which countries had joined the EU in 2004, only close to one-third of the respondents (31%) were able to choose the correct answers. While almost all students were able to pick the right definitions of "imports" and "exports," merely 55% were able to correctly estimate Austria's export ratio. More than 60% of the students knew the abbreviation OPEC, and seven out of ten respondents were informed about the WTO's tasks. Many students were not aware that no customs duties are levied within the EU: Only six out of ten respondents knew that an Austrian enterprise that imports goods from Portugal no longer has to pay customs duties. Just over one-half of the respondents identified the exact definition of direct investment, and only slightly more than 40% of the students were able to select the term that does not fit into the following list: balance of payments – corporate balance sheet – balance of services – current account balance – balance of trade (Zahlungsbilanz – Konzernbilanz – Dienstleistungsbilanz – Leistungsbilanz – Handelsbilanz).

³ The students surveyed were aged 14+ and attended the following school types: (1) higher education: secondary academic schools ("Allgemeinbildende Höhere Schule"); secondary technical colleges ("Höhere Technische Lehranstalt"); commercial colleges ("Handelsakademie"); secondary vocational schools of business studies, tourism, fashion and design (various types of "Höhere Lehranstalt"); as well as (2) medium-level schools: technical/trade schools; commercial schools; vocational schools (tourism, fashion and design).

2.2 Comparing the Economic Knowledge of Final-Year Students in Secondary Schools across Europe

The Vienna Economic Chamber commissioned a survey testing the level of economic knowledge among final-year students in secondary school. The survey (Katschnig and Hanisch, 2006) was conducted in 2003 and 2004 among more than 2,000 final-year students from Austria, Germany, the Czech Republic and Hungary. The questionnaire consisted of 12 multiple-choice questions about economic theories, about the impact of changes in general economic parameters, and about market economy basics. On average, less than one-half of the respondents were able to correctly assign certain economic policy measures to the underlying economic theories (neoliberal/monetarist vs. Keynesian),⁴ with only the German results being slightly higher at 54%. When tested for their understanding of economic parameters (e.g. budget deficit, inflation rate, or the impact of customs tariff reductions), almost three-quarters of the Austrian final-year students gave the correct answer. They scored higher than the Hungarian and Czech students (65% and 62%, respectively) and were outperformed only by their German counterparts (82%). Between 59% and 67% of the final-year students from all four countries were able to answer questions relating to the market economy, e.g. the characteristics of a

market economy, the significance and implications of a trade deficit and the consequences of increasing public spending.

2.3 Assessing Consumers' Financial Capability

In 2006, the Vienna Chamber of Labour commissioned the market research institute marketmind to conduct in-depth interviews with employees and apprentices from Vienna to assess their knowledge about consumer credits, life insurance policies and mutual funds (Prantner et al., 2006). The questions on consumer credits related to the contents of a loan contract, the components of loan repayments, and the difference between effective and nominal interest rates, etc. Even though many respondents had taken out a loan, only close to one-fourth of them knew that total loan cost is an essential factor in a loan contract.⁵ One-half of the respondents were not aware of the fact that loan installments typically consist of principal and interest payments, and two-thirds of the respondents did not know the difference between nominal and effective interest rates. Only one-third of the surveyed employees were able to outline the typical features of a mutual fund, and one-third could not explain this investment product at all ("don't know"). Several respondents associated the term solely with stocks or thought it referred to speculative transactions.

⁴ The question was: Please assign the following economic policy measures to one of the two main schools of economic thought (neoliberal/monetarist or Keynesian): A) active labor market policy, B) subsidies, C) reducing the public debt, D) cutting social welfare, E) family subsidies, F) abolishing minimum wages.

⁵ Question: What is a loan contract? What types of loans are you familiar with, and what are the essential factors of a loan contract?

3 Economic and Financial Education Products and Services in Austria – An Overview of Providers

This section describes several Austrian institutions and enterprises that provide economic and financial education material or programs because (1) this is their corporate purpose or (2) it is in their business interest to raise financial and economic literacy and they consider it part of their social responsibility to do so. Folders, presentations, Internet downloads and websites are the most commonly used information channels. Several information providers offer target group-specific material (e.g. for teachers or students).

The following overview mainly concentrates on education products and programs for young people as found on the Internet, and thus does not claim to be exhaustive. Moreover, it does not cover initiatives and cooperations by Austrian federal ministries, as they exceed the scope of this study. First, we present organizations that are exclusively concerned with raising economic and financial literacy, and then we turn to those that provide such materials and programs in addition to their core business.

3.1 Austrian Museum for Social and Economic Affairs

The Austrian Museum for Social and Economic Affairs (Österreichisches Gesellschafts- und Wirtschaftsmuseum, www.wirtschaftsmuseum.at) was founded in 1925 as a nonprofit, non-partisan association for the promotion of public education.⁶ Its primary

objective is to provide the public with clear, understandable information about social and economic developments with a focus on Austria. Numerous products (presentations, modular lectures, traveling exhibitions, computer games) are used to highlight the workings of the Austrian economy in an international context. These products were designed to familiarize young people – the main target group – with the interplay of economic forces. The museum also covers several other knowledge areas that are not considered here.

In cooperation with the OeNB, the museum organizes a traveling exhibition that primarily visits secondary academic schools to teach students about economic and financial basics. Using wall charts, an expert informs the students about economic policy and monetary policy issues, focusing on exchange rate developments, monetary policy decisions of the ESCB/Eurosystem and their implications for everyday life, and the OeNB's and the ECB's tasks. In cooperation with the Vienna stock exchange, Wiener Börse AG, the museum organizes another traveling exhibition that concentrates on the Austrian capital market. It is displayed at secondary academic schools as well as (medium-level and secondary) vocational schools and colleges. With these two products, the museum reached out to more than 14,800 students from all over Austria in 2006 (Österreichisches Gesellschafts- und Wirtschaftsmuseum, 2006). The traveling exhibition on economic and monetary policy was shown in

⁶ The members of the association's Board of Trustees come from Austrian ministries (Federal Ministry of Economics and Labour, Federal Ministry for Education, the Arts and Culture), banks (BAWAG-P.S.K., BA-CA), interest groups, and the OeNB, among others.

52 secondary academic schools, which corresponds to a mere 16%⁷ of all secondary academic schools in Austria. A comparison between different Austrian provinces shows that only 4 out of 87 secondary academic schools in Vienna made use of this offer, while it was 28 out of 48 schools in Upper Austria.

Visitors to the museum are invited to learn more about economic basics by viewing wall charts, models, short videos, publications and a modular exhibition staged on the premises of the museum. This modular exhibition conveys topical information on social and economic developments and is often used by schoolteachers as a complement to what they teach in class. The range of issues covered is extensive: labor, the budget, the European Union, money and currency, innovation, the capital market, agriculture and the social security system. The modular exhibition attracted more than 7,300 visitors in 2006. A permanent workshop familiarizes children aged 6 to 10 with economic processes by showing them how potato chips are produced. Teenagers are invited to use interactive learning and teaching software to test their knowledge about labor and employment, the federal budget, the euro, European Union, and the economy. All the information required to answer the questions is provided in the modular exhibition and the workshop.

With 138,660 visitors in 2006 and more than 6,000 guided tours and presentations, the Austrian

Museum for Social and Economic Affairs is one of the most important providers of economic and financial literacy programs in Austria. The number of students who make use of these comprehensive products and services is still quite low, however: The 6,900 students who visited the museum's modular exhibition and media room in 2006 compare with a total of more than 57,000 students attending secondary academic schools in Vienna alone.

3.2 Volkswirtschaftliche Gesellschaft Österreich

Conveying information about business administration and economics in a clear and understandable manner using numerous approaches (presentations, economic simulation games, workshops, projects, company visits, etc.) is one of the main purposes of Volkswirtschaftliche Gesellschaft Österreich (VWG, www.vwg.at). The VWG's material is targeted at schoolchildren, apprentices and teachers. Branch offices in all nine Austrian provinces⁸ offer different education products and services.

One of VWG's most important initiatives is the "Open Your Eyes" series of presentations and workshops, which focuses on current economic policy issues and on improving job skills. This series is designed for students aged 16 to 18 of secondary academic schools and students aged 17 to 19 of secondary vocational schools. The topics covered in classroom presentations include "Enterprises and the Economy" (ecological and eco-

⁷ Source: Grunddaten des österreichischen Schulwesens 2005/2006. Retrieved from www.bmukk.gv.at/schulen/bw/uebersicht/Ueberblick_Zahlen_und_Fa1533.xml

⁸ The corporate associates of VWG Vienna are, among others, Casinos Austria International, Bank Austria Creditanstalt, Brau Union Österreich AG, Hewlett Packard GmbH and Siemens Transportation Systems GmbH & CoKG.

conomic aspects, Austria as a business location), “Finances and the Stock Market” (the international financial industry, euro – U.S. dollar – Japanese yen) or “European and International Issues.” Several presentations and workshops are also available in English or French.

Playing economic simulation games (e.g. Ökoweb, Ökotopia, Ökonomia) allows students – even those with little prior knowledge – to gain insights into economic processes. In Ökonomia, for instance, the players are divided into four groups that represent the government, employees, consumers and companies, respectively. First, the gamemaster outlines the scenario and specifies certain predefined fundamentals such as wages, production volumes or consumption rates. Then the four teams assemble for a mock meeting, at which each team has to fight for its group’s interests on the basis of its own calculations, while at the same time aiming to reach agreement with the other teams. In the next step, the players and the gamemaster analyze the implications of the decisions taken at the meeting (e.g. tax increases, wage increases or higher investment expenditure), using computer-based calculations. This helps the students to better understand economic structures and processes. The target group of Ökonomia is made up of students aged 15 to 19. In 2006, more than 300 students from Vienna and Lower Austria played this game.

VWG also offers business simulation games (e.g. €-Cost, €-Trade, JUNIOR) to cultivate entrepreneurial thinking and acting, while at the same time conveying an understanding of complex business processes. The one-year project JUNIOR, for

instance, is a game for students aged 15 to 19 from all types of schools. Players also participate in a nationwide and Europe-wide competition. In JUNIOR, every team (consisting of a maximum of 15 students) starts a virtual company that offers a product or service. Each player has a specified role within the company. Just like in the real business world, the team has to perform certain tasks (e. g. choose a corporate name, do the bookkeeping, pay taxes). In 2006, more than 350 students from Vienna and Lower Austria participated in this game, thus gaining insights into the challenges involved in managing a company.

In 2005, VWG and its cooperation partners launched the “Dual Language Education (DLE) and Blended Learning” initiative, in which English is adopted as a working language in selected subjects. The program is primarily designed for secondary academic and vocational schools. In accordance with the curricula, English-language digital learning material is provided for the following subjects: geography, economics, and business administration. More than 10,200 students from Vienna and Lower Austria participated in this program in 2006, just one year after its implementation.

In cooperation with the OeNB, VWG offers training sessions for teachers of all school types, in which experts give hands-on presentations on economic and monetary policy issues followed by discussions. Through these seminars, VWG and the OeNB reach out to some 300 teachers per year. Company visits and workshops on business and economic basics as well as financial capability are also available.

3.3 **Arbeitsgemeinschaft Wirtschaft und Schule**

In 1966, economic studies was introduced as a school subject in Austria. At the same time, an association was founded for the purpose of providing teachers with teaching materials about economic issues: Arbeitsgemeinschaft Wirtschaft und Schule (AWS, wko.at/aws). The Austrian Federal Economic Chamber, the umbrella organization of Austrian savings banks (Sparkassenverband), the Federation of Austrian Industry and VWG Österreich are the founding members of AWS. To date, most teachers have already downloaded information material from the AWS's website.

In the context of the “go international” initiative (a cooperation between the Austrian Federal Economic Chamber and the Federal Ministry of Economics and Labour to promote Austrian exports), AWS developed a two-part information kit for schools that focuses on Austria's opportunities in the world markets. This kit deals with external trade from a business and economics perspective and presents a case study. It also contains a glossary and teaching material.

Moreover, in cooperation with the Austrian Federal Economic Chamber and the Sparkassenverband, AWS prepared an information kit for teachers of students aged 15 to 19. This kit aims at enabling students to handle day-to-day business transactions. It addresses questions the students are likely to encounter in their professional and private lives (sales contracts, employment contracts, etc.) and is suited for both self-study and classroom presentations. AWS has also produced information kits with educational material on Austrian in-

dustry, on trade in Austria and on EU enlargement.

AWS keeps teachers informed about current economic issues, publishing information booklets about selected topics at regular intervals. Worksheets are included in the appendix to these booklets. Several issues are available only in English and French. In addition, the AWS prepares economics teaching materials at two-week intervals, selecting current economic articles from print and online media and complementing them with comprehension questions and other test tasks as well as links and resources for further reading.

AWS has also developed an economics information kit for elementary schoolchildren. It consists of four modules and deals with money (from barter transactions to debit cards) and saving. Questions about pocket money aim at making children aware of what they do with their money (spending patterns) and familiarize them with the notion of saving, e.g. by means of short stories. Economic processes and economic sectors are outlined briefly, as is the significance of imports and exports. Worksheets and slides complement this kit, which was produced in close cooperation with teachers.

Last, but not least, AWS provides a German dictionary that defines and explains the most important financial terms and concepts.

3.4 **Wiener Volkshochschulen**

Courses in economic subjects account for a rather small share of the extensive range of courses offered by the adult education centers Wiener Volkshochschulen (www.vhs.at). The basics of business administration can be acquired in several general courses or in preparatory courses for the Berufs-

reifeprüfung exam, which is a necessary entrance qualification e.g. for apprentices to study at university. One course focuses on money management, teaching participants how to become informed customers who can avoid being manipulated by financial advisors. Another course teaches the basics of financial literacy. The adult education centers also offer training courses for the European Business Competence* License (EBC*L), which covers corporate goals, cost accounting, financial planning, etc. EBC*L holders have core business management knowledge of an internationally recognized standard.

3.5 Finance Portal – www.finanzportal.at

Since its creation in 2005, this online portal has provided information on investing, financing and taking out insurance policies for the following three target groups: teachers and students, consumers, and companies and financial service providers. Accordingly, it consists of an education portal, an information portal and a consultants portal. It has been steadily extended through cooperations with the Austrian Federal Economic Chamber, the online portal of the Austrian Broadcasting Corporation ORF (www.orf.at), the Austrian Federal Ministry for Education, the Arts and Culture, and several banks and insurance companies. The information portal provides consumers with clear and understandable information on various types of investment (fixed-income funds, mutual funds or real estate) and common financing products (consumer loans, housing loans or leasing contracts). Foreign

currency financing, however, is mentioned only briefly, which is remarkable considering the significance of this instrument for the Austrian market. The education portal was developed in cooperation with the Austrian Federal Ministry for Education, the Arts and Culture. It focuses on conveying economic and financial information to teachers and students. The portal provides interactive and multimedia material and gives concrete, realistic examples. The knowledge acquired can be tested with multiple-choice questions. With the help of calculation tools, the students can complete given tasks and make their own calculations so as to familiarize themselves with the issues covered. The solutions to the given tasks are available for teachers, who are also provided with suggestions of how, when, and where to introduce a subject to the curriculum in each school type and for which age group.

From 2008, the portal will offer a hands-on financial literacy program (a “financial driver’s license”) that focuses on conveying basic knowledge about the most common financial services. Graduates of the program receive a certificate.

3.6 Austrian Federal Economic Chamber and Its Cooperations

Together with several cooperation partners, the Austrian Federal Economic Chamber (Wirtschaftskammer Österreich – WKÖ, portal.wko.at) offers a broad range of economic and financial education services for different target groups, e.g. an online economics quiz⁹ that contains not only specific questions (about starting a business, Basel II, etc.), but also tests

⁹ This quiz was on WKÖ’s website until August 15, 2007.

participants' knowledge of basic economic concepts (inflation rate, business cycles, etc.). WKÖ's business promotion center (Wirtschaftsförderungsinstitut – WIFI) offers numerous programs and courses, most of which address business issues but also convey economic basics. An initiative to familiarize consumers with financial issues (e.g. life insurance) was launched by the Austrian consumer affairs organization (Verein für Konsumenteninformation) and WKÖ's Viennese organization of financial service providers (Fachverband Finanzdienstleister).

Students should learn about the facts of business life and gain an understanding of business and economic basics at an early age. This is why WKÖ offers a four-module program for students aged 10 to 19 to obtain the Entrepreneur's Skills Certificate in school as an additional qualification. This program aims at improving students' economic knowledge and honing their business skills.

In addition, WKÖ developed a media kit to promote entrepreneurship among apprentices in cooperation with the Austrian Federal Ministry of Economics and Labour and the Institute for Research on Qualifications and Training of the Austrian Economy. The kit offers trainers practical suggestions and examples of how to integrate the relevant key skills in the apprentices' workplace training. WKÖ also provides a brochure that encourages apprentices to consider starting a business as an option for their professional future, and an online game in which apprentices can demonstrate entrepreneurship.

3.7 Vienna Chamber of Labour and Its Cooperations

In cooperation with the Austrian Trade Union Federation (Österreichischer Gewerkschaftsbund – ÖGB, www.oegb.at), the Vienna Chamber of Labour (Arbeiterkammer Wien – AK Wien, wien.arbeiterkammer.at) launched a project in 1980 to support schoolteachers in their task of preparing students aged 14 and over for work. The project familiarizes students with life on the job and promotes their social and communicative skills, using teaching material, seminars, job application trainings and economic simulation games.

AK Wien cofinances more than 2,000 education and training courses offered by various institutions (the vocational training institute bfi, WIFI, Wiener Volkshochschulen, etc.). It provides training vouchers that permit all employees to attend courses at a reduced fee. A few of these courses focus on economic topics, especially on the basics of business administration.

Information on financial issues (loans, guarantees, debt restructuring, etc.) can be retrieved from the consumer portal of the Chamber of Labour's website. The Chamber of Labour also produces a wide range of print publications.

In cooperation with the Austrian Trade Union Federation, AK Wien has launched an institute that aims at supporting employee representatives in the fulfillment of their tasks and responsibilities as supervisory board members (Institut für Aufsichtsrat-Mitbestimmung). This institute offers seminars on the basics of economics and business administration as well as specific seminars (e.g. "Understanding Balance Sheets").

The Austrian Trade Union Federation's adult education association (Verband Österreichischer Gewerkschaftlicher Bildung, www.voegb.at) also offers numerous courses for employee representatives. One course addresses monetary policy, interest rates and inflation, while another focuses on stock exchange crises, and a third deals with the early detection of corporate crises.

In cooperation with the Austrian Trade Union Federation, AK Wien offers a four-module program for (future) works council members that covers economics and business topics, among other things.

3.8 Wiener Börse AG

The Vienna stock exchange (Wiener Börse AG) provides beginners and professionals as well as specific target groups (e.g. students and teachers) with capital market-related information on its website (www.wienerborse.at). The newcomer portal (German version only) offers a concise overview of the stock market and introduces some basic concepts. Downloadable brochures, a stock market glossary and video clips are also available free of charge. In cooperation with the WIFI Management Forum, Wiener Börse Academy offers seminars and courses on stock market and capital market issues (mostly for a fee). The target group includes private investors and professional market participants. More than 70 seminars attracting some 900 participants were held in 2006. Website users can choose from among three online tests with varying degrees of difficulty to test their knowledge of the stock market and the capital market.

For several years, Wiener Börse AG has offered a school kit on the Austrian capital market – especially

designed for students aged 16 to 19 of secondary academic or vocational schools – which consists of a textbook, a folder, slides and other teaching material. The textbook focuses on the tasks and functions of the stock exchange, on the various types of securities and on investment decisions. The slides present the key features of the capital market, above all the securities market and the commodity market, the cash market and the futures market. In addition, the material highlights stock market developments, contains information on securities, derivatives and hybrids, and outlines the key organization principles of a stock corporation. The factors influencing stock market developments are sketched, the items in a typical newspaper quotations list are presented, and mutual funds, bonds and investment decisions are explained. The teaching materials include e.g. worksheets with various puzzles and games (Trimino, Domino, or the popular word guessing game Taboo for stock exchange keywords). Playing these games helps students reinforce the capital market knowledge they have acquired in school. Wiener Börse AG offers one- and two-day seminars on capital market issues, which are especially designed for teachers at secondary academic and vocational schools; they are conducted in cooperation with the teachers' association ARGE Geografie und Wirtschaftskunde and the national teacher training institute Pädagogisches Institut des Bundes.

3.9 Commercial Banks – Bank Austria Creditanstalt and Erste Bank

What commercial banks do to promote economic and financial literacy is exemplified by the information

products provided by Bank Austria Creditanstalt (BA-CA) and Erste Bank. In line with their business interests, the two commercial banks offer numerous information brochures and folders on their financing and investment products. Various calculation tools are available on Erste Bank's website – for pension benefits, (foreign currency) loans, housing loans, etc. In addition to providing product-linked advertising, the banks also produce objective information materials on financing and investing. For instance, a glossary explaining frequently used financial terms is available from BA-CA, and Erste Bank publishes a brochure on securities that gives an overview of investment options and includes a small glossary.

BA-CA has created an Internet platform (www.lehrerweb.at/schulinfoheft) on which it presents information – combined with advertising – to students, teachers and heads of schools (all school types). The bank also provides an online simulation game for students that focuses on how to start and manage a business, namely a virtual surf shop, which the students have to run for three years using the predefined startup capital. Playing this game (which takes about one or two hours) helps the students learn more about the facts and demands of business life, as they are responsible for all tasks involved in running such a business (e.g. bookkeeping, marketing and budgeting). The game is designed as a teaching resource for economics teachers.

BA-CA also supports a practice firm project by the Austrian Center

for Training Firms ACT¹⁰ in which students attending vocational school can gain insights into the banking business. The practice firms' banking transactions are carried out by the ACT bank. In addition, payment transactions and bookkeeping forms (featuring BA-CA's logo) can be downloaded from BA-CA's website and used in economics classes. A brochure on treasury instruments is also available from BA-CA, and guided bank tours round off BA-CA's services in this field.

On its website (www.sparkasse.at/sgruppe), Erste Bank offers advice on how to handle money, addressing young people aged 14 to 19. This website section covers various topics (recreation, school, jobs, etc.), but also includes some economic education material. Its main focus, however, is on conveying information about bank card use and account management, which is in line with Erste Bank's corporate purpose as a commercial bank.

Erste Bank also offers students the possibility to gain insight into the banking business through either presentations in class or guided bank tours. Since 2003, Erste Bank has organized presentations in which students learn some basic facts about banking: What are the legal requirements for opening an account (minimum age, etc.)? How do you compare bank services (service fees and overdraft charges on bank accounts, lending and deposit rates, etc.)? What are the most common types of saving and investment vehicles? Which types of payment are available? In addition, some keywords (e.g. interest margin)

¹⁰ ACT was launched by the General Directorate for Vocational Education and Training of the Austrian Federal Ministry for Education, the Arts and Culture.

are explained, the spending habits of young people are discussed and the students learn how to avoid debt. An information leaflet lists 12 tips for creating a simple personal budget plan, thus helping students manage their own finances. Another presentation focuses on retirement provisions, highlighting private pension products, but also covering public and occupational pension systems.

The umbrella organization of Austrian savings banks (Sparkassenverband), to which Erste Bank belongs, and Arbeitsgemeinschaft Wirtschaft und Schule have been working together for decades (section 3.3). The output of this cooperation includes numerous brochures on financial and economic issues as well as a booklet containing tips for students aged 14 to 19 on money management, which was published in September 2006.

3.10 Oesterreichische Nationalbank

Promoting economic and financial literacy has long been a key element of the OeNB's information activities, which address both the general public (e.g. through TV or radio campaigns) and specific audiences, such as students and teachers. The OeNB offers a broad range of financial literacy products and services: It organizes presentations and guided tours to the Money Museum in Vienna, as well as it produces teaching materials for schools.

The OeNB has a particularly great interest in providing students with economic literacy products. At the presentation of the OeNB's school information kit in 2005, the OeNB's governor Klaus Liebscher emphasized the importance the OeNB attaches to familiarizing young people with eco-

nomics fundamentals. The "money and currency" school information kit, for instance, is one of the OeNB's key education products. It was designed for students aged 10 to 14, but can also be used in secondary academic and vocational schools. This free information package for teachers – also available on CD-ROM since 2005 – contains brochures on the Austrian financial system, on money and on the OeNB's role in the European System of Central Banks, as well as worksheets and slides. The teaching materials cover the history of money, highlight the origins and development of the European Union, and deal with monetary policymaking institutions and their key tasks. The material was created and compiled in close cooperation with teachers. Hard copies or CD-ROM versions of the school information kit, which is also available on the OeNB's website (www.oenb.at), have been sent to more than 3,000 Austrian schools. The interactive online quiz T€MPO (with prize draw) is yet another element of the OeNB's educational services.

The OeNB's Money Museum offers guided tours on the history of money for various target groups. After the tour, a free one-hour lecture mostly on monetary and economic policy is available for school groups. These presentations, which are held in cooperation with the Austrian Museum for Social and Economic Affairs, generally serve to deepen the knowledge the students have already acquired in class; the lecture can be adapted so as to meet specific curriculum demands, if required. In 2006, more than 3,000 students from 115 school classes attended lectures at the Money Museum.

In summer 2005, the Money Museum for the first time partici-

pated in the children's university offered by the University of Vienna, familiarizing children aged 7 to 12 with the origins and development of money. The Museum's involvement in the summer activity program the City of Vienna organizes for children and its participation in the annual Museum Night have proved to be a big success, too.

The OeNB actively promotes the advancement and dissemination of economic knowledge at university level, granting scholarships and awards (e.g. Olga Radzyner Award, Franz Weninger Award) to young economists working in various specialized fields. Through its Anniversary Fund for the Promotion of Scientific Research and Teaching, the OeNB also cofinances selected research projects in the social sciences, humanities, medicine or economics.

In addition, the OeNB has e.g. launched numerous campaigns to inform the public about economic basics (such as purchasing power, gross domestic product or price stability), relying on various channels: cooperations with radio and TV stations as well as print media, trade fair events, folders and brochures. Of course, the OeNB also addresses experts, organizing training sessions, congresses, workshops, conferences and seminars.

4 Which Areas and Target Groups Are Not Sufficiently Covered?

To date, a large number of institutions and enterprises provide economic and financial literacy products and programs in Austria. The different products and services are not well coordinated, however: Many areas are covered by several providers,

while others are (sometimes completely) neglected.

For instance, retirement saving is an issue about which one would expect to find more information. Neutral and understandable guides on retirement benefits are hard to come by – it comes as no surprise that the information material produced by financial service providers is guided by their own business interests. Finding neutral in-depth information about financing is not easy, either. While some information covers the most common types of financing, many important basic issues (e.g. the difference between effective and nominal interest rates) are largely neglected. This observation is consistent with the survey results reported above, which reveal critical knowledge gaps in this area. Education products that focus on basic economic concepts (such as inflation, gross domestic product, competitiveness) in a clear, understandable manner are also sorely lacking. The fact that many people still compare the current level of (euro) prices with the 2001 (schilling) price level suggests that they are not sufficiently familiar with the concept of inflation. Additional targeted information campaigns could help remedy this situation. Furthermore, the education products examined hardly ever highlight the difference between real and nominal wages, which is, however, essential to understanding collective bargaining negotiations that directly affect every Austrian employee.

Regarding the availability of suitable educational products for different target groups, much is available for 15- to 19-year-olds, whereas especially primary schoolchildren seem to have been largely neglected so far.

Teaching younger children how to manage money responsibly makes sense, though: After all, the amounts of pocket money they receive have increased steadily in recent years. In addition, not enough educational products are appropriate for 11- to 15-year-olds. Promoting economic and financial literacy among this group is crucial – young people may leave school at 15. The last year of compulsory school education is the last chance to reach out to students who leave the school system at the end of the year and teach them the most important basics (e.g. how to manage a household budget or what the implications of excessive indebtedness are).

5 Conclusions and Recommendations

In the area of economic and financial literacy, knowledge gaps are evident across all age groups in Austria. Several studies conclude that many Austrians have absolutely no or very few basic business skills and no or little economics knowledge. Country comparisons show, however, that these knowledge gaps also exist in other industrialized European countries. The OeNB attaches great importance to promoting economic and financial literacy, as is reflected in a statement by the Governor of the OeNB, Klaus Liebscher, at the opening of the 35th Economics Conference of the OeNB (entitled “Human Capital and Economic Growth”), who labeled education as a bridge to participation in economic and social life. Therefore, the OeNB has defined the promotion of financial and economic literacy as a key strategic goal. The increasing complexity and pace of economic processes have made understanding the basics of business and economics

an essential life skill today. This is why acquiring this skill should begin early. The OeNB has already taken important steps to promote economic and financial literacy, as is evidenced by the broad range of educational products it offers. It will continue and expand its activities in the future.

Even though a number of other enterprises and nonprofit institutions also provide economic and financial literacy products, they do not cover all areas and target groups. Considering the discrepancy between the large number of products available for students and adults on the one hand, and the low level of financial and economic literacy on the other, we may assume that the implementation of education measures must be methodologically improved. It seems that people are either not interested in these issues or find it hard to locate the information they actually need.

Moreover, too few education measures are targeted at specific groups, notably students attending compulsory school. Educational computer games or comics might be a suitable means to reach out to primary schoolchildren. Creating new products and services for students aged 11 to 15 is also of high priority, as compulsory schooling stops at age 15.

The lack of coordination between the different information providers is another major obstacle. Consumers can find it exceedingly difficult to locate specific information products, while teachers tend to find it easier to procure information, as they have access to the school’s resources and educational support material. To remedy the situation, Austria could create a common platform covering the products of different service providers, thus following the examples set by Germany (www.kursraumgeld.de)

or www.geldundhaushalt.de) or the U.S.A. (www.federalreserve.gov) (Fluch, 2007). Ideally, such an initiative should be launched by an independent institution to ensure that people accept and appreciate this project. In a nutshell, our findings suggest that making the available products and services more easily accessible in a structured fashion is key to the success of financial literacy campaigns.

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Selected Central Banks' Economic and Financial Literacy Programs

This study examines the type and extent of information central banks provide to advance economic literacy in general and financial literacy in particular.

- Some 30 central banks across the world provide financial education products of varying complexity for different target groups, some in close cooperation with other institutions.
- Some central banks consider their financial education activities a core competence and give them a prominent role, whereas the “educational visibility” of others is limited. Several central banks have recently launched financial literacy campaigns.
- Products designed to make people financially knowledgeable are aimed at key target groups, basically children, adolescents, students and teachers.
- Print products – once the product of choice – have been losing importance. Conversely, central banks use more and more modern knowledge transfer methods, in particular (multilingual) multimedia and e-education packages ranging from online games to multiyear educational programs. Moreover, some central banks have invested heavily in establishing special visitors or training centers, or have pooled knowledge e.g. at money museums.
- Central banks' educational Internet resources differ extensively in scope and presentation; only few central banks' websites provide truly comprehensive and easily accessible information.
- Financial knowledge transfer appears to work best from simple media and for products that are very strongly focused on individual benefit.

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1 Mobilizing Financial Education to Create Awareness for the Economic Benefits of Central Banking

Central banks' contribution to strengthening citizens' financial capability and economic literacy is an excellent investment, simply because it is investment in knowledge, which according to Benjamin Franklin, “always pays the best interest.” A number of central banks have thus lately expanded or updated their economic and financial information products and more or less institutionalized educational activities as part of their functions. To this end, many central banks have sought out national or international institutions with similar

objectives as cooperation partners in promoting financial literacy whereas some have taken the initiative to create new platforms. Overall, central banks' financial education activities are typically designed to complement the programs offered by the education system in general (Stark, 2006). Among central banks worldwide, the Federal Reserve System (Fed) in the United States has assumed a leading role on financial education. Its activities already have a long history, and they are informed by the Fed's fundamental commitment to providing financial knowledge, as evidenced by the following quote: “The Federal Reserve will be a national leader and trusted partner in the provision of economic and personal finance edu-

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cation in order to offer the public the opportunity to understand and participate fully in the U.S. economy.” (Malin, 2006). In Europe, the educational activities of the Deutsche Bundesbank or of the Bank of England can look back on a long tradition.

The Oesterreichische Nationalbank (OeNB) has also offered a wide range of financial education products for many years (Schlögl, 2007). The OeNB has been intent on steadily expanding this range, and made sure to thoroughly revise its education products following Eurosystem entry. Nevertheless, polls such as the quarterly OeNB Barometer survey signal that Austrians still have a sketchy understanding of monetary policy and of central banks' general and economic policy role and tasks. Part of the reason may be that communications media have not been targeted explicitly enough at particular audiences, which may in turn have responded with insufficient interest. Schools evidently need to make more room for financial and economic education, too: even after graduating from a secondary school after eight or nine years, adolescents display knowledge gaps (Schlögl, 2007; Schmid, 2006). For this reason, the OeNB decided to step up its financial education activities and initiated a campaign to strengthen Austrians' financial competence and economic literacy. This campaign will run up to 2010.

This contribution takes stock of the activities of central banks besides the OeNB. The main questions we try to answer are:

- Why do central banks undertake economic and financial education activities? (section 2)
- How do central banks transfer economic knowledge? (section 3)

- What role does financial education play among central banks' responsibilities? (section 4)
- Which strategies underlie central banks' financial education activities and what are essential ingredients for their success? (section 5)
- What media do the central banks target, and what programs and instruments do they use? What are the target groups for the financial education activities? What topics are covered? Who do the central banks cooperate with on financial education? (section 6)
- What does the profile of strengths and weaknesses look like? What conclusions may be drawn? (section 7)

2 Financially Literate Citizens Are Good for Society – And for Central Banks

Why do central banks across the world undertake financial education activities? Cathy E. Minehan, president and chief executive officer of the Federal Reserve Bank of Boston (Minehan, 2006) put the answer simply at a conference in Warsaw in 2006: “... central bank support for economic and financial education is a form of enlightened self interest.” And why is this so? Gnan et al. (2007) cite five main reasons for central banks' interest in financial education: (1) to enhance the effectiveness of monetary policy, (2) to ensure the smooth functioning of financial markets, (3) to support sustainable economic policies, (4) to promote economic and financial literacy as a public good and, by doing so, (5) build their reputation and promote acceptance for their actions. In other words, consumers who understand the workings of an economy and who

are financially competent reinforce market efficiency, in turn providing good conditions for sustainable economic growth and financial stability. Along these lines, one of Minehan's (2006) key messages is: "Economies are made up of individuals, and the better informed and educated their economic decisions, the more likely the economy's prosperity."

All of these dictums – "Knowledge is power" (Santomero, 2007), "Knowledge is your greatest asset" (Duguay, 2007), and "Informed consumers are more capable, competent and self-reliant" (paraphrasing Weber, 2007) – also apply to financial and economic knowledge. Therefore, economic literacy and financial competence play a strong role in society and the economy, because greater knowledge helps people make wiser financial decisions and protects them from making borrowing, savings or investment blunders. A number of studies (Hogarth, 2007) have shown that greater financial literacy among households correlates with a more favorable financial situation. However, financial illiteracy is widespread. A study drawn up for the Netherlands (de Nederlandsche Bank, 2006) reveals that only 40% of the respondents answered five fairly simple questions on interest rates and inflation fully correctly. Only 6% were able to answer all eight additional questions on the potential risks and returns of investing in stocks, bonds or passbook savings, and on house

price developments, whereas 16% were able to provide no more than one correct response. The respondents' assessments of the rate of economic growth and of inflation were just as disappointing. One result of this lack of knowledge is that people are careless in handling their financial affairs. This creates problems of an alarming proportion in many countries, even in highly developed economies (OECD, 2006; Smith, 2006): Financial mismanagement includes hopelessly overdrawn credit card and checking account balances, to which banks may even respond by canceling accounts; inadequate knowledge about stocks and investment products; insufficient retirement savings; or the inclination, especially of young adults, to procrastinate when making financial decisions.² At the same time, an overwhelming proportion of the population wants more information about financial topics, as a German study (Leinert, 2004) shows, calling for financial education to be part of school curricula or demanding that employers offer information about how to provide for retirement.³

3 Central Banks Transfer Economic Knowledge at Several Levels

Central banks require knowledge to fulfill their responsibilities and are thus important knowledge centers of economies. Central banks range among the most prolific producers of knowledge.⁴ Moreover, central banks'

² In Austria, some 300,000 people – or one in 25 persons – do not have a bank account (Eisenmenger, 2007). In 2006, around 7,500 people declared personal bankruptcy, up by nearly 12% from 2005 (ASB-Schuldnerberatungen, 2007). Almost 50,000 people consulted a debt management center in 2006; their average debt totaled roughly EUR 38,000 per person.

³ 95% of German respondents called for financial education at schools. 85% want employers to be obligated to organize presentations of information about company and individual retirement provision (Leinert, 2004).

⁴ The OeNB's knowledge activities, e.g., have been recorded and presented annually in an Intellectual Capital Report since 2003.

knowledge pool is expanded steadily through their contacts with the general public, policymakers, and economic and (economic) science institutions. These contacts enable central banks to identify new developments and academic findings without delay and to benefit from them in fulfilling central banking functions. As central banks must be accountable and transparent vis-à-vis the general public⁵ (ECB, 2002; Stark 2006), they have also introduced a broad range of instruments to enable knowledge transfer.

Economic education activities represent an important and yet specific cornerstone of central banks' communications strategies. The type of knowledge transferred depends on the target group:

Among the important audience of schoolchildren, primary schoolchildren (aged up to 11) are the first target group. The aim is to familiarize these children with basic, easy to understand money concepts in an entertaining fashion. Second, education initiatives for secondary schoolchildren (aged 12 to 19) are based on special education packages intended to complement the school curriculum and focusing on money management and economic fundamentals.⁶ Many central banks distinguish between a greater number of age groups (see below, e.g. the Bank of England).

(Prospective) college or university students are the third target

group. Many central banks have prepared advanced level packages containing a mix of academic literature, presentations, roundtable discussions and special seminars or courses. Every year, the OeNB, for example, gives about 40 students from technical colleges the opportunity to complete their mandatory half-year internship at the central bank.

The fourth target group is made up of mainly secondary school teachers. A number of central banks have prepared special packages for this target group, given that it has a strong multiplier effect. Economics seminar series (partly held together with other teacher training institutions, such as Volkswirtschaftliche Gesellschaft in Austria) are one such focus. Another focus is targeted teacher training material (handbooks, slides, quizzes, questionnaires) on money, monetary policy and economics.

Additionally, some central banks periodically run information campaigns, availing themselves of the mass media – TV, radio, high-circulation newspapers and news magazines – as multipliers to inform the general public about monetary policy and other activities and areas with the intention of enhancing financial literacy.⁷

In addition to producing knowledge themselves, central banks also benefit from external expertise in their fields. Therefore, central banks promote a wide variety of academic activity and facilities, ranging from

⁵ See also www.oenb.at/en/geldp_volksw/geldpolitik/merkmale/institutional_features.jsp

⁶ Or, as Manfred Weber puts it more succinctly in the newspaper *Börsen-Zeitung* of June 16, 2007: "Wirtschaft in der Schule: Bildung, die Früchte trägt" ("Economics at School: An Educational Investment that Yields Returns") (Weber, 2007).

⁷ In the fall of 2004, for instance, the OeNB conducted a comprehensive information campaign with the slogan "I work hard for my money. Good that every euro is worth it." Using ads, TV spots, advertorials and media cooperations, this campaign maximized impact and media reach by combining marketing and public relations activities.

special research institutions, which they finance in part or completely, to endowments and funds that provide research funding, to grants, awards for academic work, subsidies, sponsorships and donations. This study will only refer to financial literacy-related educational facilities and activities (seminars for central bank employees or the public, special awards in tertiary education).

4 Finance Education Activities Have Low Visibility among Central Banks' Responsibilities

Central banks still differ substantially from each other with regard to the visibility of their financial literacy initiatives. Because providing financial education is neither among the statutory duties of central banks (with the

Table 1

Overview of the Educational Mission of Selected Central Banks		
Central bank	Educational Mission	Source
Oesterreichische Nationalbank	Educational activities represent an important cornerstone of the OeNB's public relations mission.	Liebscher, K., OeNB press release of December 14, 2005
	The OeNB is dedicated to improving economic and financial literacy, because knowledge allows consumers to make informed financial decisions about investments and retirement savings.	Liebscher, K. (2007)
Deutsche Bundesbank	The Deutsche Bundesbank promotes economic education The Deutsche Bundesbank has been actively committed to providing basic knowledge about economics and monetary issues for more than 30 years. A good understanding of how the economy and money work is especially important for young people, who have to deal more intensely with economic and financial issues once they start to make a living. Every year, the Deutsche Bundesbank provides schools with updated teaching materials about money and monetary issues free of charge.	Extract from a press release issued by the Deutsche Bundesbank on January 15, 2007 (translation)
National Bank of Belgium	The National Bank is an active partner in education and for the academic world.	website of the Nationale Bank van België/the Banque Nationale de Belgique (www.nbb.be)
Bank of England	The Bank offers a range of resources and services to build awareness and understanding of its role and functions, and of central banking more generally.	website of the Bank of England (www.bankofengland.co.uk)
Magyar Nemzeti Bank	The most important mission of the MNB's Visitor Centre is to provide information concerning the basic functions of the economy, the role of money and its history in Hungary.	website of Magyar Nemzeti Bank (Visitors' Centre) (english.mnb.hu)
Narodowy Bank Polski However, it is especially desirable to give the young people a grasp of the basic principles of the economic system we live in. One of the Bank's goals is to ensure that economic literacy becomes a priority on the national education agenda. To function successfully for the young people in the workforce is to close the gap between what they ought to know and what they are being taught at school.	website of Narodowy Bank Polski (www.nbp.pl)
Federal Reserve System	The Federal Reserve has been involved in economic education initiatives for some time. We consider them integral to our mission. As you know, the Fed serves a three-fold function in our economy; it conducts monetary policy, supervises and regulates banks and financial institutions, and maintains an effective payments system. Our economic education efforts are important to, and intertwined with, all three functions.	Santomero, A. M. (2003)
	Recognizing the importance of educated and informed Consumers to the operation of efficient markets, the FED has been an active provider of economic literacy materials to help the students and the public better understand the U.S. economy and the role of the FED. Each of the 12 FED-banks supports	Braunstein, S. and C. Welch (2003)

exception of the Fed) nor among their core competences, mission statements or descriptions of main central banking tasks do not specifically reflect educational commitments. Such commitments can be discovered only when taking a broader and deeper look at central banks' activities (see summary table 1 for a selective overview). However, the content of this commitment is quite disparate from one central bank to the other. The range spans narrowly defined activities for a very small target group (e.g. schools and adolescents) to a very broad definition (education or economic education). Some central banks subsume the entirety of their education initiatives in special "money museums." Central banks generally organize their educational activities as part of their public relations activities. The communications media of choice for central banks' educational mission are press releases, references in speeches (Stark, 2006) or special newspaper articles (Kotz, 2007), and of course the Internet.

5 Strategies and Success Criteria Underlying Central Banks' Financial Education Initiatives

Gnan et al. (2007) examine the motives and goals that central banks have for their financial education activities. How can these goals be achieved? There are three different strategies to reaching those goals:

- 1 Creating awareness of the need to enhance citizens' basic economic and financial literacy at various levels: among policy-makers, education system stakeholders, the mass media community and the general public;

- 2 Improving access to information about economics and finance, and spreading information for consumer protection purposes;

- 3 Developing and improving citizens' understanding of basic economic concepts.

While the strategies and methods used to support the attainment of these goals have common denominators, they differ in practice and may cover a broad range, depending on the scope of activities undertaken by each individual central bank. These activities comprise numerous educational materials and various courses and seminars, partly in dedicated educational facilities, e.g. money museums at many central banks. Moreover, central banks also seek bilateral or multilateral cooperation with educational facilities, consumer protection organizations, financial market authorities or institutions, municipal facilities, trade associations and even financial industry partners. National and international networks as well as common online platforms represent an additional avenue through which to reach target groups.

Representatives of central banks with a strong educational commitment point out that specific criteria must be observed to reach the respective audiences and to actually enhance economic and financial literacy. A key factor is (1) the support and active participation of the central bank's management itself (Hogarth, 2007; Minehan, 2006). The former Chairman of the Federal Reserve Board, Alan Greenspan, and Ben Bernanke,⁸ its current Chairman, have repeatedly cited raising economic literacy as a priority among central banking

⁸ See Bernanke (2006).

tasks in their speeches. This also has a positive impact on the resources made available. A second factor with a positive impact (2) is the advantage central banks have as independent and objective institutions with a reputation for integrity, credibility and impartiality. People trust their central banks and expect them to provide fair and truthful information. A third success factor is (3) readability and user friendliness. Educational materials must be easy to use e.g. at schools, not time-consuming or cumbersome. Another success factor is (4) clarity and attractive design (Ganley, 2006; Minehan, 2006). Central banks are well advised to seek the support of experts in the fields of education, teaching, teaching methods and design. In this vein, some central banks even use comics and cartoons to get their message across or cooperate intensely with marketing, education and public relations experts to design their educational products.⁹ Finally, (5) research promotion with the aim of identifying best practice, and (6) central bank staff training are crucial to the success of a central bank's education activities.

6 Financial Education Programs: Comprehensive at Some Central Banks

6.1 Taking Stock of Selected Central Banks' Financial Literacy Initiatives

The review of individual central banks' education activities presented below is based on (1) presentations

of individual countries' systems in a conference volume of Narodowy Bank Polski (2006), (2) OECD studies and reports, (3) research on the central banks' websites, and (4) bilateral contacts to some central banks. In some respects, this analysis of central banks' information products may no longer be fully accurate at the time of reading, as some central banks are currently working on a relaunch of their education concepts for 2007 or later.¹⁰ Another drawback of the research on central bank websites is that the specific and comprehensive products are frequently available only in the national language version; the analogous English-language websites often provide only synoptic information, if any. This makes it quite difficult to take stock of the various financial literacy initiatives and compare them across central banks. Finally, central banks post the relevant information on very different parts of their respective websites, and the information is frequently difficult to find.

6.2 Many European Central Banks Offer Innovative Financial Education and Plan to Extend It

We included some 30 central banks from all over the world in the stock-taking exercise. As tables 2.1 and 2.2 show, these central banks offer audience-specific financial and economic education packages and programs aimed at children in primary and secondary school and at students of technical colleges and universities. In addition, many central banks support

⁹ Such cooperation has also proved very valuable for the OeNB, which cooperated intensely with experts from the areas cited in developing its educational products. The Swiss National Bank also paid special attention to these aspects in its 2007 relaunch of educational products (see also section 6.2).

¹⁰ Currently, e.g., the Swiss National Bank is working on a relaunch (the main features of which can be found in the comparison in this study); moreover, the Central Bank and Financial Services Authority of Ireland and the Banco de España are preparing for a relaunch of their education products. The current status of the education work at these central banks is reflected in the presentation in this study.

Table 2.1

**Central Banks' Economic and Financial Education Products:
Target Groups and Educational Facilities and Services – Part 1**

	AT	AN	AU	BE	CA	CH	CZ	DE	DK	EE	ES	ECB	FI	FR	HU
Target groups															
Children	x				x	x						x			
School children/adolescents	x	x		x	x	x		x				x	x		x
Students/universities	x	x	x		x			x					x		x
Teachers/seminar participants	x	x	x			x		x				x	x	x	x
Campaigns/mass media	x	x										x	x		
Research institutions/research funding/foundations	x		x	x	x	x		x	x			x	x	x	x
Educational facilities and services															
Money museum (knowledge pool, exhibitions)	x		x	x	x		x	x	x	x				x	x
Open house							x			x					
Visitors centers		x												x	x
Guided tours															
Training facilities		x				x	x	x			x				
Training programs/lectures	x	x				x	x	x	x					x	x
Special seminars	x	x		x	x	x	x	x				x			
E-education (website, online)	x	x	x		x	x	x	x			x	x	x		
E-education portal								x							
EcFin promotion group								x							
Competitions/prizes/awards	x	x				x									
Fundraisers (for educational purposes)															
Euroservice											x				

Source: Websites of the respective central banks, Narodowy Bank Polski, bilateral contacts with some central banks.

Note: AT = Oesterreichische Nationalbank, AN = Eastern Caribbean Central Bank (monetary authority for Anguilla (AN), Antigua and Barbuda, Dominica, Grenada, Montserrat, St. Kitts and Nevis, St. Lucia and St. Vincent, the Grenadines), AU = Reserve Bank of Australia, BE = Nationale Bank van België/the Banque Nationale de Belgique, CA = Bank of Canada, CH = Swiss National Bank, CZ = Česká Národní Banka, DE = Deutsche Bundesbank, DK = Danmarks Nationalbank, EE = Eesti Pank, ES = Banco de España, ECB = European Central Bank, FI = Suomen Pankki – Finlands Bank, FR = Banque de France, HU = Magyar Nemzeti Bank.

research and science institutions and award various prizes for achievements in the field of economics. To round out the picture, tables 2.1 and 2.2 also provide an overview of education facilities established by individual central banks. The OeNB was included in the comparisons in tables 2.1 and 2.2, but for more detailed information about financial education initiatives of the OeNB and other Austrian providers, see Schlögl (2007) in this issue.

ECB Information Material in over 20 Languages

The ECB's flagship educational product is an information kit for pupils and teachers entitled "Price stability:

why is it important for you?" This kit, which was developed in cooperation with the Eurosystem central banks in 2005 and is now available in 22 languages, launched the ECB's financial education program, which is to be expanded substantially in the next few years. In mid-2007, the ECB added a set of powerpoint slides ("Facts") for presentations about the EU, the Eurosystem and Eurosystem monetary policy to its educational products and services. The ECB moreover invites students and graduates of economics to join dedicated programs (Wim Duisenberg Research Fellowship Programme, Lamfalussy Fellowship Programme, Student Research Assistantship Programme).

Table 2.2

**Central Banks' Economic and Financial Education Products:
Target Groups and Educational Facilities and Services – Part 2**

	IE	JP	KR	LT	MX	NL	NZ	PL	SE	SG	SK	TR	UK	US	ZA
Target groups															
Children		x				x	x	x					x	x	
School children/adolescents	x	x		x	x	x	x	x	x				x	x	
Students/universities	x	x	x	x	x	x	x	x		x			x	x	
Teachers/seminar participants		x		x			x	x		x			x	x	
Campaigns/mass media								x		x				x	x
Research institutions/research funding/foundations			x			x			x				x	x	
Educational facilities and services															
Money museum (knowledge pool, exhibitions)				x	x	x		x					x	x	x
Open house														x	
Visitors centers			x			x							x	x	
Guided tours						x								x	
Training facilities			x	x			x				x			x	x
Training programs/lectures		x	x								x		x	x	
Special seminars		x	x								x		x	x	
E-education (website, online)				x	x	x		x	x		x	x	x	x	x
E-education portal								x						x	
EcFin promotion group	x						x							x	
Competitions/prizes/awards				x			x	x	x					x	
Fundraisers (for educational purposes)													x		
Euroservice															

Source: Websites of the respective central banks, Narodowy Bank Polski, bilateral contacts with some central banks.

Note: IE = Central Bank and Financial Services Authority of Ireland, JP = Bank of Japan, KR = Bank of Korea, LT = Latvijas Banka, MX = Banca de México, NL = De Nederlandsche Bank, NZ = Reserve Bank of New Zealand, PL = Narodowy Bank Polski, SE = Sveriges Riksbank, SG = Monetary Authority of Singapore, SK = Národná Banka Slovenska, TR = Central Bank of the Republic of Turkey, UK = Bank of England, US = Federal Reserve System, ZA = South African Reserve Bank.

Deutsche Bundesbank Pursues Innovative Strategy by Participating in Larger Platforms on Money Topics

The Deutsche Bundesbank pursues educational activities e.g. by contributing to the Internet portal www.kursraumgeld.de. This information portal bundles all educational materials that the Bundesbank, private banks, savings banks, Volksbank and Raiffeisen credit cooperatives, insurance companies and the respective associations provide for school curricula on the issues of money management. Up-to-date information is well presented and easily accessible. The menu provides links to material on “the role of banks and insurance companies in the economy,” “pay-

ments,” “investment,” “financing and lending,” “monetary policy” and “old-age provision”; users may access order forms on the providers’ websites through these links. Another financial education platform that the Deutsche Bundesbank runs in cooperation with Deutsche Sparkassen- und Giroverband (www.geldundhaushalt.de) covers the four service pillars advice, presentations, Internet platform and cooperation (Wirz, 2007). By participating intensely in both platforms, the Deutsche Bundesbank has come to play a leading role in financial education in Germany. Moreover, the Deutsche Bundesbank has a 30-year-plus track record of providing specialized education material (Deutsche

Bundesbank, 2007). The bank's Money Museum, which has a separate website,¹¹ serves as an interactive education center that attracts some 30,000 visitors a year. Special German-language products for secondary school-age children, such as "Unser Geld" (600,000 print copies) and "Geld & Geldpolitik" (200,000 print copies) are updated annually. The online game "Mission Bundesbank" is another education tool. The Deutsche Bundesbank holds yearly summer workshops for students and awards up to EUR 30,000 of scholarships. A foundation established in 2002, Stiftung Geld und Wahrung, provides about EUR 50 million for the promotion of scientific activities. Moreover, the Deutsche Bundesbank organizes a broad range of seminars: The Bundesbank recruits some of its employees from a Bundesbank-operated technical college with a six-semester course of banking studies for secondary school graduates; moreover, university graduates are offered a 21-month internship (Kotz, 2007). The Bundesbank operates a training center at Eltville, not far from Frankfurt am Main, where numerous courses are held mainly for central bank employees. Together with the OeNB, the Deutsche Bundesbank has trained over 600 banking supervisors from more than 30 financial supervisory authorities in 25 countries since 2004 within the framework of a special supervisory training program.

The Bank of England's Key Role among Economic Education Providers in the United Kingdom

The provision of financial and economic education is split among several institutions in the United Kingdom (Ganley, 2006). The Bank of England provides a broad range of educational products and services to raise awareness and promote understanding of its role and functions and central banking more generally among various target groups ranging from schoolchildren to the general public. Personal finance aspects are specifically covered by the Financial Services Authority in cooperation with the financial industry. Business-related information falls within the ambit of the finance ministry and financial industry associations. The overview given below basically relates to products and services provided by the Bank of England. The money museum (seven employees), the Bank of England's main education center, provides a broad range of information about monetary topics and regularly organizes exhibitions. Some 60,000 visitors annually have the opportunity to take a guided tour of the Bank of England. Special learning resources have been put together for schoolchildren – the Pounds & Pence package (for 9 to 11 year olds) and Made of Money (for 14 to 16 year olds). In cooperation with the newspaper The Times, the Bank of England also runs Target Two Point Zero, the Bank of

¹¹ The visitor to this website is greeted very invitingly: "Money plays an important role in every area of our lives. But only stable money is good money. The Money Museum of the Deutsche Bundesbank shows the fascinating world of monetary and foreign exchange policy and offers an introduction to the history of money." For more information, go to www.geldmuseum.de/index.en.php

England/Times Interest Rate Challenge – a special competition that gives students aged 16 to 18 a chance to take on the role of the Bank of England's Monetary Policy Committee. Yet another learning resource is available for college and university students. Seminars and handbooks on central banking topics provided by the Centre for Central Banking Studies and research funding round out the Bank of England's educational contributions at the scientific level. The Bank of England's website (www.bankofengland.co.uk) is exemplary in that it prominently displays its financial literacy activities by listing education as a main menu item. The members of the Bank of England's Monetary Policy Committee hold up to 60 lectures a year at locations throughout the country.

Other European Central Banks: Selected Financial Education Activities

Some of the most outstanding activities among the range of financial literacy activities of individual central banks are presented below. The approach that Suomen Pankki – Finland's Bank has chosen is especially remarkable: the Bank of Finland Museum provides e-education services independently of the central bank's website. The central bank, moreover, established a separate institution in 1998 to perform in-depth economic research, BOFIT (Bank of Finland's Institute of Economics in Transition), which holds seminars regularly and runs a library.

De Nederlandsche Bank has established a visitors center that attracts some 10,000 information seekers annually. The bank seeks to draw in double the number of visitors from 2007, among other things with a newly set up program for 10- to 14-year-olds.

At the visitors center, students can play an interactive game, How to score with policy, to find out about monetary policy. As an additional educational resource, the bank has compiled a school information kit (The Money Box), which has been distributed to about 1,800 schools. On a scientific level, the bank offers seminar series accessible to the general public and special courses for students and post-graduate students. The bank opened a money museum in May 2007 (see www.geldmuseum.nl/web/show).

The Nationale Bank van België/the Banque Nationale de Belgique considers itself an active partner in education and for the academic world. The bank runs a money museum with 15 rooms (the museum is also responsible for developing educational materials for schools), provides a set of indicators online (under the website's main menu item education) and is actively engaged in promoting economic research.

Danmarks Nationalbank's money museum was opened to the public in 2002. The Danish central bank focuses its economic education efforts primarily on lecturers drawn from the pool of young central bank employees, who organized well over 100 events attended by a total of some 4,000 participants in 2006.

After having operated an online role-playing monetary policy game called Stargold as an outlet for its external education activities with the central bank president as a player character, Sveriges Riksbank is currently working on a similar new game. In 1968, Sweden's central bank established the Prize in Economic Sciences in Memory of Alfred Nobel; the annual prize amount is currently about EUR 1 million.

Banco de España provides educational resources, mainly about financial topics, on a separate (Spanish only) website (<http://aulavirtual.bde.es>). The bank is working on a similar portal focused on basic economic literacy especially for children and adolescents.

The Banque de France has focused its economic education initiatives primarily on monetary policy and macroeconomics and provides about EUR 2 million a year for research via a foundation. The bank partners with the national education system to offer targeted training kits, e.g. seminar series for teachers.

Ireland's Financial Regulator, a distinct component of the Central Bank and Financial Services Authority of Ireland, provides secondary school and third-level student kits such as Get Smart with Your Money and Money Tips for Students. Moreover, the National Steering Group for Financial Education established by the Financial Regulator is an initiative on which several partners have joined efforts to support financial education. The Irish financial authorities intend to expand their financial literacy program further.

"iconomix" – The Swiss National Bank's New Economic Education Package

The Swiss National Bank provides brochures and films on money and central bank policymaking some of which are targeted especially at schools. Moreover, the central bank regularly receives groups of schoolchildren and other interested visitors for a lecture plus banknote exhibition viewing.

The Study Center Gerzensee is a foundation of the Swiss National Bank for the training of central bankers as well as doctoral students and faculty members at Swiss universities.

On the occasion of the 100th anniversary of its foundation, the Swiss National Bank materially expanded its economic education activities in 2007. It is going to present a package it calls "iconomix" for the general public on a dedicated website (www.iconomix.ch). The education products are developed in cooperation with external experts to meet educational, didactical, methodical and design standards and are limited not simply to descriptions of monetary policymaking, but convey broader economic knowledge, principles and approaches. Higher secondary (post-compulsory, predegree) school teachers and students are the primary target group, and the resources are intended to complement teaching. The education products are offered in a modular fashion and provide flexible-use material over the Internet ranging from downloadable worksheets to complete learning units with a number of variable lessons. Some learning units draw on innovative learning software such as simulations or online strategy games. Students also have the opportunity to submit economics papers to participate in competitions. The teaching material is complemented by teacher training activities. The basic iconomix package is scheduled to go online end-October 2007. The full program will be available by 2009, after which it will be updated and refined. A comprehensive evaluation of the iconomix program is scheduled for within the first two years.

Narodowy Bank Polski's Proactive Education Initiatives

Narodowy Bank Polski stands out among the central banks of the new EU Member States with its economic education and financial literacy initia-

tives. The central bank is highly committed to promoting economic education as a high priority of Polish education policy and has set itself an ambitious goal: The bank will consider its efforts a success if it manages to close young working people's economic knowledge gap between what they are taught at school and what they need for everyday life. In addition to providing comprehensive educational kits encompassing a broad range of diverse products for every perceivable target group (including TV broadcasts about economics topics), Narodowy Bank Polski stages national competitions, and it is working hard on implementing a proactive economic education policy.

Furthermore, the central bank fosters the discussion of financial literacy issues and the exchange of information on dedicated activities among central banks. A noteworthy recent contribution was the conference *The Role of Central Banks in Economic and Personal Finance Education*, which the central bank organized in September 2006 (Narodowy Bank Polski, 2006). Another innovative tool designed to promote the exchange of information about central banking economic literacy initiatives is a new online portal: Economic Education Resource Bank (www.eerb.nbpportal.pl). However, at the time of writing only a few central banks were presenting their initiatives via this forum.

At its "People & Money Centre for Education," Česká Národní Banka, provides some 80 target-group specific panels on economic topics offering information in films, lectures and exhibitions. Roughly 75,000 visitors a year seek out information from this service point of Česká Národní Banka. Moreover, the Czech central bank

opens its doors to the public once a year and hosts a research open day every year. A publicly accessible online library rounds off the financial education products of the central bank.

Magyar Nemzeti Bank has a very similar set of financial education instruments. The visitors center is at the heart of the Hungarian central bank's efforts; it is complemented by an online program and a library comprising some 80,000 publications.

Latvijas Banka also focuses its economic knowledge transfer efforts on its visitors center. The permanent exhibition *Money World* was prepared by seven staff members and a number of experts at a cost of EUR 1 million. This exhibition presents material on 15 themes and boasts 30 interactive presentations aimed primarily at secondary school students under the umbrella "Come, See, Touch, Find Out and Understand." All material is presented in Latvian, Russian and English.

Estonia's central bank, Eesti Pank, also has a money museum and offers what is entitled "Euroservice" information.

6.3 Non-European Central Banks – The Federal Reserve System Provides Exemplary Financial Literacy Products

The non-European central banks that provide the most comprehensive financial education products and services are those of Australia, Canada, Japan, New Zealand, Mexico, Singapore and South Korea. Moreover, some African central banks – those of South Africa, Kenya, Belize and Botswana – provide material on financial education (Narodowy Bank Polski, 2006). Finally, central banks in the Caribbean area – those of Costa

Rica, Bahamas, Trinidad and Tobago as well as the Eastern Caribbean Central Bank – provide financial education information.

The Comprehensive and Very Diverse Set of Financial Education Instruments of the Federal Reserve System

The central bank of the United States, the Federal Reserve System, is one of the top providers of economic education and, above all, financial literacy products. The set of financial education instruments is expanded almost daily. Hogarth (2007) points out that 675 different financial education initiatives and programs were being operated in the United States in early 2007, providing a ten-page list of the programs and activities of the individual Federal Reserve Banks (Bernanke, 2006). By dint of the Fair and Accurate Credit Transaction Act (FACT Act), the U.S. government established a central coordinator, the U.S. Financial Literacy and Education Commission, which numbers the Board of Governors of the Federal Reserve System among a total of 20 U.S. institutions represented in the Commission. The central contact point is the MyMoney.gov website, which displays an impressive array of topics, a multitude of instruments and nearly 220 publications by federal agencies or partner organizations. Finally, the Commission developed a national strategy for financial education in 2006 (Taking Ownership of the Future; Financial Literacy and Education Commission, 2006).

The Federal Reserve System's financial education information is clearly structured and very comprehensive: The websites of the Federal Reserve Board and of the 12 regional Reserve Banks cover a broad range of topics prepared by a total of 75 em-

ployees (Minehan, 2006) from all regional Reserve Banks. Consumer Information and Publications as well as Education Resources are separate items at the top menu level of the Federal Reserve Board's website at www.federalreserve.gov, impressive evidence of just how important the Federal Reserve System considers financial education.

The Federal Reserve System provides basic educational kits for primary and secondary schools and comprehensive information material on dealing with practical money matters for postsecondary education target groups. The latter material includes information about medium- and long-term economic trends, e.g. about fiscal developments. The Federal Reserve System also provides consumer protection information, in line with its statutory obligation and motivated by its understanding that a financially capable, well-informed consumer is a well-protected consumer. Moreover, the central bank is intent on making people aware of developments like demographic ageing and its implications for (individual) retirement provision. The Federal Reserve System has made a point of providing objective financial access information to immigrants seeking advice to cope with the challenges of housing and markets in the United States.

The Federal Reserve System's educational material is very strongly geared toward target groups, as is the material provided by individual regional Reserve Banks. The website www.federalreserveeducation.org provides an overview of the heterogeneous array of educational products and services of the Federal Reserve System. Internet users may click on menu items to access very detailed additional educational information

for practically every medium (e.g. print, multimedia, e-learning) and may access cooperation partners' websites at the many additional links provided.

In 2003, the Federal Reserve System launched a campaign entitled "There's a Lot to Learn about Money." Since then, it has enhanced its financial literacy campaign with a multitude of special programs and materials. Teaching and visitors centers at regional Reserve Banks, special products, programs and seminars for (school)children, students, teachers and the general public, and the comprehensive e-education portal form the core of the instructional tools and facilities. To get its financial literacy messages across, the Federal Reserve System avails itself of a large gamut of instruments: targeted forums, school weeks, newspaper cooperations, multimedia packages, contests (such as the Fed challenge, an academic competition in which school teams of students make a monetary policy recommendation for the Federal Open Market Committee on the basis of an analysis of the current state of the economy), roundtable discussions and newsletters (Hogarth, 2007; Narodowy Bank Polski, 2006).

Moreover, the benefit of U.S. economic education and especially financial literacy programs has been widely evaluated (Braunstein and Welch, 2003; Hogarth, 2007). The Federal Reserve System itself has also analyzed financial education activities, but no clear conclusion can be drawn from the research. What is clear is that knowing more about the economy – being financially literate – has benefits for people's daily lives –

and for society as a whole. The extent of the benefit is nearly impossible to determine or put into numbers, however.

Other Central Banks: Comprehensive Seminar Series of the Central Banks of South Korea and Singapore Stand Out

The Reserve Bank of Australia focuses its financial education efforts on teachers, students and researchers, offering educational products and services much like those of European central banks. The Bank of Canada and the Reserve Bank of New Zealand work along quite similar lines. On its part, the Bank of Japan is a very active member of the Central Council for Financial Services Information, which has stepped up its financial education campaign considerably since 2005. The Bank of Japan's efforts concentrate on the target groups schoolchildren, teachers and students.

Since 2004, the Bank of Korea has refocused its efforts especially on seminars, in addition to textbooks and education programs (Park, 2006). As part of the Bank of Korea's education center, it runs a three-stage economic education program for participants with a low level, an average level and an advanced level of economic knowledge. The Currency Finance Museum, which attracts a large number of visitors, and the Economic Camp for Youths program are also part of the Bank of Korea's educational tool set.¹²

A similar economic and financial literacy program is provided in Singapore. The so called MoneySENSE program is spearheaded by the Financial Education Steering Committee, comprising the Ministry of Commu-

¹² See also *The Korea Times* of August 7, 2007: "Summer Camp for Financial Literacy Gaining Popularity."

nity Development, Youth and Sports, Ministry of Education, Ministry of Manpower, Central Provident Fund Board, People's Association and the Monetary Authority of Singapore. It is a three-tier program. Tier I is dedicated to basic money management and financial skills, Tier II equips participants with long-term financial planning skills, and Tier III imparts investment know-how and skills. Under the national financial education program MoneySENSE, the Monetary Authority of Singapore has developed a TV education show entitled Talking Dollar and Sense.

*The Public Education and Awareness
Programmes of the Eastern Caribbean
Central Bank*

The Eastern Caribbean Central Bank's website (www.eccb-centralbank.org) lists a menu item entitled Public Education and Awareness Programmes that opens to present a truly impressive array of educational materials and tools. Under heading "Manage Your Money – Enhance Your Life," the central bank clearly states what it intends to achieve with its numerous education initiatives for specific target groups. The range of topics covered and products presented is very broad and includes competitions, videos, audio programs (e.g. Financial Tips), a number of radio programs (e.g. The Economy and You, Financial Stability Issues) and newspaper series (e.g. The EC Currency and the Eastern Caribbean Currency Union or Investment Insights) as well as a special Financial Literacy Month campaign (every October). Education and exhibition centers offering courses and seminars for various levels support the central bank's broad and diversified financial education activities.

7 Summary: Despite Many Promising Initiatives, There Is Still Room for Improvement

After taking stock of some 30 central banks' financial education programs, only some of which are described in more detail for a lack of access to related information, the following assessment of central banks' economic education and financial literacy initiatives can be made:

Consumers with a better understanding of economics and better financial skills can grasp economic issues more easily and will therefore be more understanding of monetary policymaking. Many central banks undertake economic and financial education activities for precisely this reason. Knowledge transfer happens at many levels – the related knowledge products are available for various skill levels, are broadly targeted and diversified, innovative and interesting. Central banks take a particular interest in preparing materials for teachers and schoolchildren. Little is available for primary school-age children, with the notable exception of material prepared by the Bank of England and the Federal Reserve System, but some central banks (e.g. de Nederlandsche Bank) have begun to provide special materials and tools for this target group. Large financial education campaigns are the exception and are run rarely, if at all. Some central banks have earmarked substantial resources to develop the currently available financial education tools and instruments. Many central banks appear set to expand their financial education programs further, as their efforts and plans to enhance related products and services indicate.

Only few central banks visibly display their commitment to financial

education as belonging among their responsibilities. Only the websites of the Bank of England, Narodowy Bank Polski and the Federal Reserve System clearly reflect the high priority attached to the educational mission. Most central banks fail to show their financial education activities as a separate task, subsuming them under another responsibility instead. Accordingly, it is difficult to identify the objectives of central banks' educational activities and their strategic cornerstones.

Central banks' educational material focuses largely on enhancing economic literacy in general and financial literacy (money management) in particular.

A trend reversal of product design is clearly underway. Brochures, folders, pamphlets and the like are increasingly being replaced by multimedia packages and online material. The latest technology has made it possible to present useful messages in a lively and appealing way. Moreover, an unmistakable trend to formulate content more clearly and to use more down-to-earth and less abstract language in drawing up education programs, seminars and lectures has established itself. Education, teaching, teaching methods and design are crucial to succeeding in communicating economic issues. They are even more important for material targeted at younger audiences and in view of the brief time slot for instruction at schools compared to other subjects. Consequently, economic education material for schools should be practical, drawn from life, appropriate in terms of content and of the target audience, helpful and in tune with users' interests. This should increase teachers' willingness to integrate such products into their teaching rou-

tine. Currently, some central banks' material is not quite up to this big challenge – the wording and content still come across as too technical, meaning abstract and theoretical. As the experience some central banks have gained shows, intense cooperation with external experts for product design and product communication has proved very useful. Jürgen Stark, member of the Executive Board of the ECB, summarizes this insight as follows: “The basis for our success in the field of economic and financial education is cooperation with various professional educators, teachers and public groups which have a significant impact on the general public's opinions and level of knowledge.” (Stark, 2006). Some central banks have already implemented the new communication principles very successfully, whereas others have yet to do so.

Broadly speaking, central banks can choose from among three different media in their public relations work: they can opt for traditional print products, visitors or education centers (frequently money museums), and e-education modules. E-education is provided either on the central bank's own website, via separate websites (as in the case of money museums), or via separate online platforms. As attendance figures confirm, education or knowledge centers, which concentrate central banks' educational material (and exhibitions as well as lectures), have become especially popular. A few central banks put education products and services online nearly as soon as these are completed and present every product and service within a well-structured framework. The Federal Reserve System and the Eastern Caribbean Central Bank stand out as exemplary.

However, at most central banks, on-line information about educational activities is split up among various lower-level menu items, making it quite difficult to find. Therefore, many central banks would be well advised to improve the structure of their educational material and tools and to present the material more coherently online.

Theme-related Internet portals appear to be an especially promising approach to presentation. Here, central banks can establish a common web presence with their cooperation partners. Central banks can set up such networks among themselves, too – the Federal Reserve System's network may serve as a shining example. Narodowy Bank Polski's initiative – a worldwide Internet portal for central banks – is trendsetting as well. The cooperation between central

banks is to be intensified. This creates synergies, saves costs and could help optimize education products.

Virtually no analyses about how effective financial education measures are – apart from those for the United States – have become available, at least not publicly. With investment in central banks' education programs already high and set to rise further, such analyses should definitely be made part of the overall education concept. Some central banks have already done so – the Swiss National Bank, for instance, has scheduled an evaluation of the program introduced in 2007 for within the first two years of its operation. The Oesterreichische Nationalbank has also made regular monitoring an integral part of its campaign to strengthen financial competence and economic literacy in Austria.

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HIGHLIGHTS

Human Capital and Economic Growth – Summary of the 35th Economics Conference of the Oesterreichische Nationalbank

Jürgen Janger,
Burkhard Raunig

The 35th Economics Conference of the Oesterreichische Nationalbank, which took place on May 21 and 22, 2007, focused on the relationship between human capital and economic development as well as on the question of whether education policy can have a positive impact on this relationship. Good education systems can help step up slow productivity growth in Europe and help countries adjust to structural changes caused by globalization. The 35th Economics Conference followed up on the previous year's conference, which had explored globalization and the opportunities of economic policy in providing answers to future challenges. At the European level, the biggest need for adjustment was identified in the tertiary education sector, whereas Austria was judged to need reforms of its secondary education system as well. The speakers and panelists of the event included high-level experts of central banks and international organizations, as well as scientists, entrepreneurs, and politicians.

JEL classification: J240, O100, O150

Keywords: human capital, economic growth, educational policy, financial literacy.

Education Policy – A Panacea for Economic Problems?

In his opening speech, *Klaus Liebscher*, Governor of the Oesterreichische Nationalbank (OeNB), underlined that education policy could play a crucial role in overcoming two current economic challenges: First, since 1995, productivity growth in most EU economies – with a few exceptions – has not kept pace with that in the U.S. economy, which still operates at a higher productivity level. According to recent empirical studies, Europe's inability to close this gap, to secure economic prosperity and to deal with population aging can partly be attributed to the different education systems in Europe and in the U.S.A. and particularly to the fact that Europeans participate less in tertiary education.

Second, in the short- and medium-term, Europe will have to make structural adjustments of its economy to cope with increasing competition from the rapidly growing developing countries – even if globalization is

expected to have positive effects in the long run. In this context, Liebscher stressed that these adjustments called for a commitment to lifelong learning rather than for a protection of actually threatened jobs, since such an approach would enable people to bridge the gap between periods of unemployment and employment. Education increases the mobility of the workforce within a labor market and is therefore essential for the functioning of a monetary union in which asymmetric economic shocks can no longer be absorbed by adapting the exchange rate relations but have to be offset by flexible factors of production. For these reasons education policy played a crucial role, although it could not be seen as a panacea for all economic problems, said Liebscher. The EU still needs competitive product markets, flexible labor markets and sound public finances in order to meet the challenges ahead. Liebscher concluded that a stronger focus on the economic aspects of education policy should not

lead to a neglect of other educational aspects, such as social integration and personal and immaterial benefits.

In his address, Austrian Federal Chancellor *Alfred Gusenbauer* underlined that European countries including Austria had to embrace an innovative approach rather than a simple catching-up strategy if they were to remain among the wealthiest countries of the world. Therefore, education – particularly tertiary education – is a vital element of the Austrian government's economic strategy, along with increased investment in research and infrastructure. Yet, expanding top-level research and education opportunities in the tertiary sector should not be done at the expense of a sound education and training system available for everybody – because top results require a firm base and vice versa. Moreover, it is important to increase the number of women in research and science. According to the chancellor, Austria was failing to fully tap the potential of its talents. What current education policy lacked was the balance between equality and efficiency. In his conclusion, *Gusenbauer* stressed that investment in education showed a positive impact on growth only in the long run and that its success had to be measured by looking at both the economic parameters and the degree of participation in the knowledge-based society.

Joaquín Almunia, EU Commissioner for Economic and Monetary Affairs, encouraged EU Member States to use their human resources more efficiently and effectively to speed up the structural changes of their economies toward more high-value added activities. This change should not be achieved by merely increasing funds but also by raising the efficiency of public spending on

education. As an example, *Almunia* cited Austria, Finland, and Portugal: Although the three countries spend roughly the same amount on education (around 5.6% of their GDP), the results they achieve in the OECD's Programme for International Student Assessment (PISA) diverge widely.

A better use of human resources not only facilitates structural adjustment, it also increases employment rates. In 2005, for example, only 46% of the low-skilled workforce, but 69% of the medium-skilled and 83% of the high-skilled workforce had a job. The EU Commissioner stressed that reforms of the education system needed to be embedded in a comprehensive reform strategy built on the renewed Lisbon Strategy on Growth and Jobs. Simultaneous adjustments of product, labor and capital markets as well as of national innovation systems would maximize the effectiveness of education reforms, concluded *Almunia*.

A Better Education Means Better Incomes and Innovation

Lucas D. Papademos, Vice-President of the ECB, explored the connection between schooling and economic growth and between education and the development of financial markets. He pointed out that private returns on investment in education ranged between roughly 6.5% and 9% and that social returns were possibly even higher due to positive externalities. An additional year of formal schooling is associated with an increase in wages of 7.5% on average over the entire working life. Innovative methodological approaches (such as studies of twins who followed different education and life paths) provide ample evidence of this causality. Yet,

cross-country variation in growth rates can be attributed not just to the length of formal education but also to its quality. In fact, differences in the quality of education explain a significantly larger proportion of the cross-country variation in growth rates than the length of schooling.

Education influences growth not only directly but also indirectly, as education and innovation interact. Higher education levels foster innovation and the adoption of technological advances. Particularly the most technologically advanced countries, like the euro area countries, benefit from better education, which fuels growth in new sectors such as pharmaceuticals and electronics. By and large, the impact of technological progress on job opportunities varies according to the education level: While progress benefits educated and high-skilled labor, low-skilled labor increasingly comes under pressure. Investment in information and communication technologies (ICT), for example, leads to an increase in the number of high-skilled jobs while reducing low-skilled work. Due to this complementarity, it is crucial to invest in both human and physical capital.

Papademos then discussed the special aspects of economic and financial education. Although indispensable when to fully utilize the innovations of developed financial markets, economic and financial literacy are frequently rudimentary even in the most advanced countries. Well-functioning and liquid financial markets foster growth; consequently, financial literacy also plays a vital role in promoting growth. Moreover, such markets support the transmission of monetary policy throughout a monetary union and improve the capacity to absorb

asymmetric shocks. Thus, education is indispensable for the functioning of a monetary union, concluded Papademos.

Emmanuel Jimenez from the World Bank presented the World Development Report 2007, according to which favorable demographic conditions will accelerate growth in many developing countries in the coming years. With the number of young people peaking in these countries, their working age population has never been bigger than at present; fertility rates, however, have already begun to decline. Moreover, this huge labor force has relatively few children and elderly to support. The window of falling dependency rates can remain open up to 40 years; it is essential to invest in young people's education and training during this period. Jimenez then discussed several measures aimed at promoting effective education policies in developing countries. It is particularly important to improve the quality of primary education and to increase participation in secondary education while at the same time promoting labor-market oriented education and training.

Relevant information together with positive and negative incentives (e.g. in the form of higher taxes on tobacco or alcohol) can help young people to take the right decisions in their lives, including completing their formal schooling. Providing young people with information is particularly important, as it makes them aware of the economic value of education and of the fact that better education translates into higher income. Surveys show that young people regularly underestimate the income differential caused by better qualification. Second-chance programs should be implemented to help dropouts

return to formal schooling as soon as possible; because the older the drop-outs, the more difficult it is to reintegrate them into the education system.

Underestimated Impact of Human Capital on Growth

The first session, chaired by *Wolfgang Duchatczek*, Vice Governor of the OeNB, focused on the connection between human capital and economic growth. Older empirical cross-sectional studies underpin the hypothesis that the formation of human capital benefits economic growth. However, more recent research papers, combining time series with cross-sectional analyses, suggest at best just a weak link between human capital and economic growth.

Against this background, *Angel de la Fuente*, Vice Director of the Instituto de Análisis Económico, CSIC, Barcelona, argued that the disappointing empirical results could mainly be attributed to the poor quality of the underlying data, as even the best data sets contain implausible jumps as well as unrealistic time series and cross-sectional observations. Consequently, measurement errors in the data result in a systematic underestimation of the positive correlation between human capital and growth. After adjusting for this bias, the empirical evidence again shows a more distinct correlation between human capital and economic growth.

The European Tertiary Education System – Much Reform Needed

In the panel discussion *Mario Cervantes*, Senior Economist at the OECD, *Leslie Lipschitz*, Director of the IMF Institute, *Susanne Lohmann*, Professor at the University of California, Rick van

der Ploeg, Professor at the European University Institute in Florence, and *Georg Winckler*, President of the European University Association, discussed whether European education, skills and know-how were heading in the right direction.

Cervantes drew attention to the heterogeneous situation in Europe, where, by and large, smaller countries did better on average than bigger ones. In order to close the currently existing gap between the European and the U.S. education systems, Europe will have to step up its investments in human capital.

Lipschitz stressed how important it was to make economic knowledge available to people from developing countries. In this context, he appreciated the significance of the Joint Vienna Institute in providing economic education and training for participants from Central, Eastern and Southeastern Europe (CESEE).

In her statement, *Lohmann* emphasized the role of the universities in providing not only economic and technological know-how but also humanistic knowledge.

Van der Ploeg was rather critical of the current European tertiary education system. Despite the relatively good quality of European universities on average, they do not hold top positions in international rankings because they lack competition and suffer from intransparency, excessive red tape and a lack of funding, particularly compared to the U.S.A. Progress in this area hinges on a more important role for private funding with flexible and incentive-driven financial contributions.

In this context, *Winckler* pointed out that compared to the U.S.A. the returns on higher education were lower in Europe, which in turn

limited the scope for private funding. As an alternative, he proposed to further develop funding schemes for university education and research at a European level.

Financial Education Protects Consumers and Supports the Efficiency of Financial Markets

“Human Capital and Economic Development” was the focus of the second session chaired by *Josef Christl*, OeNB Executive Director. In his introductory remarks, he emphasized that economic and financial education contributed to a more efficient allocation of resources and a better understanding of monetary policy decisions. Christl drew attention to a new OeNB project on financial literacy that seeks to complement the OeNB’s current information material on economic and financial issues.

Jeanne M. Hogarth, Manager of the Consumer Education and Research Section of the Federal Reserve Board, talked about the Federal Reserve System’s role in providing basic economic and financial education. The Federal Reserve System engages in financial education for the following reasons: market efficiency, consumer protection, increased complexity of financial products and services, fast technological changes and demographic trends toward an aging society. Its activities include the provision of information on financial products and services, cooperation with other educational institutions and the support of relevant research projects and conferences. Hogarth stressed that educational programs for students and adults are very successful. In addition, she also underlined how important it was to take a neutral position on economic and financial education to prevent bias.

Austrian Education System Needs to Adjust to New Challenges

The last session of the 35th Economics Conference was a panel discussion on Austria’s economic policy with particular focus on education policy challenges.

Claudia Schmied, Austrian Federal Minister for Education, Arts and Culture, stressed that education was a key concern of the Austrian government in the current legislative session. The government’s plans include both higher investments and more qualitative measures. As reforms of the education system require concerted national efforts, Schmied envisaged initiating a broad public discussion. In this context, she welcomed the social partners’ educational policy papers, such as the “School 2020” concept of the Federation of Austrian Industry. She underlined that it was important to use an innovative and creative approach to education, to encourage good performance while at the same time showing solidarity with the disadvantaged.

As one of the concrete measures currently being implemented in Austria, Schmied mentioned the reduction of student numbers per class as of September 2007. Given the large number (more than 5,500) of school locations in Austria, this constitutes quite a big logistical problem. Other government measures include improving day care arrangements and teacher training programs as well as defining three or four test regions to implement a new comprehensive school model starting with the year 2008–2009. Finally, the organizational structure of the school system would need to be revised, with the distribution of competences among federal, regional and local authorities

reflecting their respective revenue and expenditure responsibilities.

According to *Günter Haider*, Head of the Project Center for Comparative Education Research Salzburg and Austrian Project Manager of the Programme for International Student Assessment (PISA), the main challenge for educational reform in Austria was what he referred to as the “long-overdue paradigm shift” in education governance. The Austrian education system – which is currently still hierarchical, centralized and bureaucratic, relies heavily on input factors and concentrates on preserving the existing structures – should be transformed into a more decentralized, autonomous and accountable system. Haider explained that the current governance structures of the Austrian education system dated back to the 19th century. As a consequence of Austria’s severe defeat against Prussia at the Battle of Königgrätz (1866), which was to some degree attributable to the large number of illiterate Austrian soldiers, schools were made part of the Austrian Empire’s rigid bureaucratic system, guaranteeing the quick establishment of a school infrastructure. At the time, this system was a role model for the whole of Europe. Problems did not become apparent until later: Administrative actions mainly based on rules and regulations prevented flexible adjustment to new conditions. As quality control was the duty of the legal experts at the ministry for education, the main concern was to ensure compliance with all rules and regulations and to manage the system by focusing on input rather than on output. As these shortcomings of the Austrian education system have now been identified, the following actions are necessary:

First, national education standards have to be introduced to make possible an objective assessment of the knowledge and skills acquired by students. Currently, standards are not harmonized, so teachers set their own standards and adjust them if the pressure increases. At the moment, different standards are an issue for Viennese children who are about to finish primary school: The grades in their school reports have a serious impact on their further educational careers, as they determine whether or not these pupils are admitted to secondary academic school or whether they have to attend lower secondary school. To provide objective information at all levels, a national education report is to be drafted and a federal institute for education to be set up by 2008. Moreover, local and regional schools should be enabled to take their own staffing and budgeting decisions, and the quality of their internal processes should be made more transparent. As an example, Haider referred to the current handling of school inspections in Austria, which was not really ideal, as it was common practice that school inspectors – often former staff representatives – announced their visits months in advance.

Christoph Badelt, Rector of the Vienna University of Economics and Business Administration and President of the Austrian Rectors’ Conference, underlined the positive effects of the Austrian university reform in 2002. The broad range of institutions in the tertiary education sector has, however, also created new problems: For example, the legal framework for technical colleges, public and private universities, etc. is not uniform. Thus, a comprehensive concept for the entire sector is needed. Accord-

ing to Badelt, the main challenges for Austrian universities included the definition of service level agreements, which constitute the basis for developing true competition among universities, and the access to tertiary education. Problematic issues within Europe are doctoral studies, the access of bachelor's degree holders to the labor market and the unclear signals with regard to top research at public universities. Then Badelt discussed the question of university access in Austria in greater detail (the Austrian Rectors' Conference has published a comprehensive study on the issue). He criticized that unlimited access to the universities was incompatible with their limited resources. Currently, 50% of the Austrian students are enrolled on courses with unfavorable student-teacher ratios, 30% with extremely unfavorable ratios. Badelt also attributed the relatively low number of Austrians participating in tertiary education to the shortcomings of the country's secondary education system, and in particular to its inherent social barriers.

Currently, only 37% of the Austrians leaving school in any one year continue with tertiary education and just 20% of them graduate – this is far below the OECD average of 53% beginners and 35% graduates. In the Global Higher Education Ranking, in which the accessibility to tertiary education of 13 countries¹ was studied, Austria ranks last.

Badelt called for a regulation of university access similarly to that already in place for technical colleges

as well as for the introduction of individually adapted selection schemes for certain courses, but most importantly for master and doctoral studies. As a result of the Bologna Process, which aims at harmonizing and restructuring the European higher education sector, anyone holding a European bachelor's degree could choose to attend a master's course anywhere in the EU. Given that most European universities already have selection systems in place, Austria might end up with just the second-rate students. Badelt concluded his presentation by calling for an active education strategy aimed at fully exploiting the pool of high potential in Austria – such a strategy would have to comprise primary and secondary schools.

Veit Sorger, President of the Federation of Austrian Industry, favored big and radical reforms rather than a piecemeal approach. Although the Austrian education system ranks in the middle range of most international comparative studies, it does not stand out in any particular area. Yet, this is exactly what Austria should aspire to. Therefore, the Federation of Austrian Industry drafted the strategy paper “School 2020” in which it calls for a compulsory and state-funded preschool year from the age of 5, and for one standardized secondary school type for all children aged 10 to 14 that at the same time allows for performance-linked differentiation. According to this paper, schools should be granted real autonomy and school managers should be responsible for their own staff and resources.

¹ Austria, Australia, Belgium, Canada, Finland, France, Germany, Ireland, Italy, the Netherlands, Sweden, U.K, U.S.A.

Prospective teachers should have to pass obligatory selection and ability tests; certified teachers should have to attend continuing professional development programs, they should get performance-linked salaries and a new employment law. In addition, the administration should be reduced to only three decision-making levels (federal, regional and local). Finally, education standards have to be harmonized and independent quality assurance mechanisms introduced.

Herbert Tumpel, President of the Austrian Chamber of Labor, focused on four problem areas of the Austrian education system. First, around 17% of the young people aged between 20 and 24 years have not progressed beyond compulsory schooling. At the same time, the number of primary and secondary students with above-average performance is below the European average. For this reason, the Chamber of Labor calls for the introducing of a compulsory pre-school year.

Second, the vocational or technical schools select too strictly and have high drop-out rates. Moreover, young people often get the wrong vocational training. Currently, vocational training programs do not really meet the requirements of the labor market, as rigid structures preserve agricultural, textile and manufacturing schools, while at the same time making it difficult to switch between education programs for health care and social services and initial training within the formal school system. According to the PISA study, Austrians find mathematics and natural sciences classes demotivating, and the study cites them as the least satisfied students in these fields. Tumpel called for the implementation of a govern-

ment program aimed at guaranteeing education and training opportunities for everybody up to the age of 18.

Third, Austrian university courses are characterized by their long duration and their high dropout rates. The latter can partly be attributed to difficulty of studying and working at the same time. Austria has fallen farther behind in tertiary education participation in recent years: While the average percentage of university graduates per year rose from 27% to 35% in OECD countries, it increased only from 16% to 20% in Austria. This is why the Austrian Chamber of Labor calls for reforms to give students a better work-study balance.

Fourth, in terms of continuing professional development, Austria lies far behind the leading European countries. While Austrian employees receive only about 422 hours of training, Danish employees can expect some 934 hours in their working life. In most cases, continuing professional development is funded privately or by the company, with only 2.3% of Austria's total public spending on education going into this sector. It should also become possible for Austrians to complete their formal education free of charge at some later stage – in other countries this has been common practice for decades. Tumpel concluded his presentation by calling for the implementation of a uniform education strategy with concrete targets, such as halving the number of young people without positively completed compulsory schooling to 2% of the students of any one year, increasing the share of secondary school graduates to 50% and the share of university graduates to the OECD average, raising the number of women science and technology

graduates, and doubling the number of people participating in continuing professional development.

**Summary:
Europe and Austria Have
to Exploit Their Human
Resources Better**

In summing up the 35th Economics Conference, *Josef Christl*, OeNB Executive Director, underlined that enhanced human capital and improved education systems would yield two benefits – individual job opportunities, and overall economic and productivity growth. Given the still rather moderate European productivity growth and the euro area labor pool, both job opportunities and growth remain the prime economic policy goals. But in demographically favorable periods, human capital also constitutes a key variable for developing countries.

Currently, neither Europe nor Austria are fully exploiting their human resources, which has an impact not only on employment, productivity, growth, wages and salaries,

but also on the smooth functioning of the monetary union. A better educated labor force tends to be more mobile and can thus contribute more to alleviating the effects of asymmetric shocks. At the same time, higher potential growth allows for faster economic growth without inducing inflationary pressure. At the European level, the tertiary education sector seems to be most in need of reform, whereas Austria might additionally have to adjust its secondary education system.

As a specific aspect of education, financial literacy plays a vital role for the efficiency of financial markets and consumer protection that cannot be underestimated.

However, by and large, education policy is not a panacea. Therefore, reforms of the education system have to be embedded in a more comprehensive strategy. Such a strategy would have to include the following elements: better public budgeting (e.g. more efficient education investment), flexible labor and product markets as well as liquid capital markets.

NOTES

Abbreviations

ARTIS	Austrian Real Time Interbank Settlement (the Austrian RTGS system)	IHS	Institut für Höhere Studien und Wissenschaftliche Forschung – Institute for Advanced Studies, Vienna
A-SIT	Secure Information Technology Center – Austria	IIF	Institute of International Finance
ASVG	Allgemeines Sozialversicherungsgesetz – General Social Security Act	IIP	international investment position
A-Trust	A-Trust Gesellschaft für Sicherheitssysteme im elektronischen Datenverkehr GmbH	IMF	International Monetary Fund
ATX	Austrian Traded Index	ISO	International Organization for Standardization
BCBS	Basel Committee on Banking Supervision (BIS)	IWI	Industriewissenschaftliches Institut – Austrian Institute for Industrial Research
BIC	Bank Identifier Code	JVI	Joint Vienna Institute
BIS	Bank for International Settlements	LIBOR	London Interbank Offered Rate
BOP	balance of payments	M3	broad monetary aggregate M3
BSC	Banking Supervision Committee (ESCB)	MFI	monetary financial institution
CACs	collective action clauses	MRO	main refinancing operation
CEBS	Committee of European Banking Supervisors (EU)	MoU	memorandum of understanding
CEE	Central and Eastern Europe	NACE	Statistical Classification of Economic Activities in the European Community
CEECs	Central and Eastern European countries	NCB	national central bank
CESEE	Central, Eastern and Southeastern Europe	OeBS	Oesterreichische Banknoten- und Sicherheitsdruck GmbH – Austrian Banknote and Security Printing Works
CESR	Committee of European Securities Regulators	OECD	Organisation for Economic Co-operation and Development
CIS	Commonwealth of Independent States	OeKB	Oesterreichische Kontrollbank (Austria's main financial and information service provider for the export industry and the capital market)
CPI	consumer price index	OeNB	Oesterreichische Nationalbank (Austria's central bank)
EBA	Euro Banking Association	OPEC	Organization of the Petroleum Exporting Countries
EBRD	European Bank for Reconstruction and Development	ÖBFA	Austrian Federal Financing Agency
EC	European Community	ÖNACE	Austrian Statistical Classification of Economic Activities
ECB	European Central Bank	POS	point of sale
Ecofin	Council of Economic and Finance Ministers (EU)	PRGF	Poverty Reduction and Growth Facility (IMF)
EEA	European Economic Area	RTGS	Real-Time Gross Settlement
EFC	Economic and Financial Committee (EU)	SDR	Special Drawing Right (IMF)
EIB	European Investment Bank	SDRM	Sovereign Debt Restructuring Mechanism (IMF)
EMS	European Monetary System	SEPA	Single Euro Payments Area
EMU	Economic and Monetary Union	SPF	Survey of Professional Forecasters
EONIA	Euro OverNight Index Average	STEP2	Straight-Through Euro Processing system offered by the Euro Banking Association
ERM II	Exchange Rate Mechanism II (EU)	STUZZA	Studiengesellschaft für Zusammenarbeit im Zahlungsverkehr G.m.b.H. – Austrian Research Association for Payment Cooperation
ERP	European Recovery Program	S.W.I.F.T.	Society for Worldwide Interbank Financial Telecommunication
ESA	European System of Accounts	TARGET	Trans-European Automated Real-time Gross settlement Express Transfer
ESAF	Enhanced Structural Adjustment Facility (IMF)	Treaty	refers to the Treaty establishing the European Community
ESCB	European System of Central Banks	UN	United Nations Organization
ESRI	Economic and Social Research Institute	UNCTAD	United Nations Conference on Trade and Development
EU	European Union	VaR	Value at Risk
EURIBOR	Euro Interbank Offered Rate	WBI	Wiener Börse Index
Eurostat	Statistical Office of the European Communities	WEF	World Economic Forum
FATF	Financial Action Task Force on Money Laundering	WIFO	Österreichisches Institut für Wirtschaftsforschung – Austrian Institute of Economic Research
Fed	Federal Reserve System	wiiw	Wiener Institut für internationale Wirtschaftsvergleiche – The Vienna Institute for International Economic Studies
FMA	Financial Market Authority (for Austria)	WKÖ	Wirtschaftskammer Österreich – Austrian Federal Economic Chamber
FOMC	Federal Open Market Committee (U.S.A.)	WTO	World Trade Organization
FSAP	Financial Sector Assessment Program (IMF)		
FWF	Fonds zur Förderung der wirtschaftlichen Forschung – Austrian Science Fund		
GAB	General Arrangements to Borrow		
GATS	General Agreement on Trade in Services		
GDP	gross domestic product		
GNP	gross national product		
GSA	GELDSERVICE AUSTRIA Logistik für Wertgestionierung und Transportkoordination GmbH (Austrian cash services company)		
HICP	Harmonized Index of Consumer Prices		
HIPC	Heavily Indebted Poor Countries		
IBAN	International Bank Account Number		
IBRD	International Bank for Reconstruction and Development		
ICT	information and communication technology		
IDB	Inter-American Development Bank		
IFES	Institut für empirische Sozialforschung GesmbH (Institute for Empirical Social Research, Vienna)		
ifo	ifo Institute for Economic Research, Munich		

Legend

- x = No data can be indicated for technical reasons
- .. = Data not available at the reporting date
- 0 = The numerical value is zero or smaller than half of the unit indicated

Discrepancies may arise from rounding.

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Summary of the 35th Economics Conference
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The quarterly English-language newsletter is published only on the Internet and informs an international readership about selected findings, research topics and activities of the OeNB's Economic Analysis and Research Section. This publication addresses colleagues from other central banks or international institutions, economic policy researchers, decision makers and anyone with an interest in macroeconomics. Furthermore, the newsletter offers information on current publications, studies or working papers as well as events (conferences, lectures and workshops).

For further details see www.oenb.at/econ.newsletter

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The English-language publication *Focus on European Economic Integration* is the successor publication to *Focus on Transition* (published up to issue 2/2003). Reflecting a strategic regional research priority of the OeNB, this publication is a channel for communicating our ongoing research on Central, Eastern and Southeastern European (CESEE) countries ranging from economic country studies to studies on central banking issues and related topics. One of the purposes of publishing theoretical and empirical studies in the *Focus on European Economic Integration*, which are subject to an external refereeing process, is to stimulate comments and suggestions prior to possible publication in academic journals.

Workshops –

Proceedings of OeNB Workshops

three to four issues a year

The *Proceedings of OeNB Workshops* were introduced in 2004 and typically comprise papers presented at OeNB workshops at which national and international experts, including economists, researchers, politicians and journalists, discuss monetary and economic policy issues. Workshop proceedings are generally available in English only.

Working Papers

about ten papers a year

The OeNB's *Working Paper* series is designed to disseminate, and provide a platform for discussing, findings of OeNB economists or outside contributors on topics which are of special interest to the OeNB. To ensure the high quality of their content, the contributions are subjected to an international refereeing process.

Economics Conference (Conference Proceedings)

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The *Economics Conference* hosted by the OeNB represents an important international platform for exchanging views and information on monetary and economic policy as well as financial market issues. It convenes central bank representatives, economic policymakers, financial market players, academics and researchers. The conference proceedings comprise all papers presented at the conference, most of them in English.

Conference on European Economic Integration (Conference Proceedings)

annual

This series, published in English by a renowned international publishing house, reflects presentations made at the OeNB's annual conference on Central, Eastern and Southeastern European issues and the ongoing EU enlargement process (formerly East-West Conference).

For further details see ceec.oenb.at

Annual Report

annual

The *Annual Report* of the OeNB provides a broad review of Austrian monetary policy, economic conditions, new developments in the financial markets in general and in financial market supervision in particular as well as of the OeNB's changing responsibilities and its role as an international partner in cooperation and dialogue. It also contains the OeNB's financial statements.

Intellectual Capital Report

annual

The *Intellectual Capital Report* is a review of the OeNB's intellectual capital and its use in the OeNB's business processes and services. The report clarifies the relationships between different types of human, relational, structural and innovation capital and describes various determinants that influence the OeNB's intellectual capital. The report provides an integrated view of the OeNB and serves to assess the consistency of the OeNB's intellectual capital with its knowledge-based strategic orientation.

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