

Demographic Change, Bank Strategy and Financial Stability

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The purpose of this article is to disseminate the main results of the program “Ageing and Its Implications for Banks and Bank Strategy” of the Oesterreichische Nationalbank’s (OeNB’s) Financial Markets Analysis and Surveillance Division and to draw conclusions about the implications of aging for financial stability. The first question that arises is whether demographic change is relevant for banks and financial stability at all. The paper answers this question in the affirmative and goes on to analyze the impact of demographic change on the environment in which banks operate, i.e. on economic growth, interest rates, and residential real estate markets, and on the level and composition of household demand for bank services and products. The article summarizes how banks might adapt their strategies in response to demographic change. Finally, it draws conclusions about the potential implications for financial stability.

JEL classification: G21, J10

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1 Motivation and Objectives

The purpose of this article is to disseminate the main results of the program “Ageing and Its Implications for Banks and Bank Strategy” of the Oesterreichische Nationalbank’s Financial Markets Analysis and Surveillance Division and to provide information about the implications of aging for financial stability. The objective of the program was first, to discuss the impact of negative population growth, increasing longevity and migration on banks and bank strategies over a horizon of up to 20 years and second, to draw conclusions about the stability implications for the banking system. The program consisted of an issue paper (Wood, 2006) and two workshops on “Ageing and Its Implications for Banks and Bank Strategy” in April and September 2006, respectively. The first workshop was devoted to the impact of demographic change on the banking environment, i.e. on economic growth, real interest rates, and residential real estate

markets, but also included a presentation on demographic projections for Austria and the EU and presentations on the impact of demographic change on banks. The second workshop focused on the strategic responses of banks to demographic change. It made the findings of the first workshop accessible to banking consultants and bank strategists. As part of the program, the OeNB also put the issue on the agenda of the ESCB’s Banking Supervision Committee and led the respective study group.¹

The program was motivated by the important role financial stability plays for the OeNB and the ESCB, in addition to their main objective of preserving price stability.² In addition to the study of current developments, the anticipation of potential long-term developments in the economy and their effects on the banking system form an integral part of macroprudential supervision.

While the literature on aging and its consequences for the macroecon-

Referred by:
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¹ ECB (2006).

² Treaty on European Union OJ C 191, 29.7.1992.

omy, financial markets, and public finances has grown rapidly in recent years, the impact on banks has received little attention so far. A number of European and international institutions have studied the impact of aging from various perspectives: The Economic Policy Committee and the European Commission published a study in which the effect of demographic change on public expenditure in the areas of pensions, health care, long-term care, education and unemployment transfers are projected for all EU-25 Member States until 2050.³ The Group of Ten studied the implications of aging for financial markets.⁴ In 2006, the ECB's Monetary Policy Committee and the Governing Council engaged in intensive discussions on the impact of demographic change on the macroeconomy, on the current account, and – of course – on monetary policy. Given the intensive study of the impact of aging on so many subsectors of the economy, it is striking that its effects on banks and bank strategy have received so little attention. The OeNB's program has now closed this gap.

2 The Key Issues and the Conceptual Framework

The first question that arises is whether demographic change is at all relevant for banks and financial stability. We identified three main channels of interaction between demographic change and banking that provide the basis for an affirmative answer to this question: First, banks are

exposed to the repercussions of demographic change indirectly via its impact on the macroeconomy, on financial markets, on real estate markets and on household portfolio composition. Second, the increasing volume of funded pension provision and the blurring boundaries between banks and more traditional providers of age-related products have increasingly exposed banks to risks related to demographic change. This is illustrated by examples from the Austrian market: banks play an important role as shareholders of occupational pension funds and they are providers of capital guarantees for pension products. Third, demographic change can result in changes to the product portfolio of banks.

The conceptual framework for the analysis rests on the theory of financial intermediation, on contractual and market incompleteness as well as on the risks inherent to the structure of banks' balance sheets.⁵ To analyze the impact of the program's findings on financial stability, we look at selected items on banks' balance sheets and the profit and loss accounts.

The key issues of the paper are the following: What is the main content of current demographic projections (section 3)? How could demographic change affect the environment in which banks operate (i.e. economic growth, interest rates, and residential real estate markets) (section 4)? How do the banks that presented at the workshops (plan to) react to demo-

³ *Economic Policy Committee and the European Commission (EPC/EC) (2006).*

⁴ *OECD (2005).*

⁵ *Wood (2006).*

graphic change (section 5)? What are the potential financial stability implications of these reactions (section 6)?

3 Demographic Change

Demographic projections for the European Union (EU) and for Austria provide the quantification of what we consider “aging” throughout the article, namely decreasing fertility, increasing longevity, and the growing importance of migration for demographic developments.

Although the world population is expected to grow from 6.1 billion in 2000 to 8.9 billion by 2050, an increase of 46%, population growth rates are declining in most major economic areas.⁶ The median age in the EU is expected to increase from 38 to 48 between 2000 and 2030, while the median age worldwide will eventually converge to approximately 45 until 2050. The distribution across age groups will change with a substantially growing elderly and a decreasing young population.

The EU will experience the lowest fertility rates worldwide and a standstill of natural population growth. In addition, the increase in longevity and the continuing dynamics of international migration will contribute to significant changes of the demographic structure. Overall, the population in the EU-25 is expected to grow until 2025 due to net migration effects but to fall thereafter. The share of the young population aged 0 to 24 will approach 23% in the EU as well as in Japan, while

it is expected to reach 30% in the U.S.A. At the same time, people aged 80+ will represent 12% of the EU’s overall population by 2050, compared to 15% in Japan and 7% in the USA.

Austria will follow the EU trend of a natural population decline, but the population will nonetheless grow to approximately 9 million by 2050 due to net immigration. At the same time, the structure of the population will change broadly in line with the EU average from 2005 to 2050. The share of people between 0 and 24 years of age is expected to decrease from 28% to 24%, whereas the share of people aged 65+ will increase from 16% to 28% and that of people aged 80+ from 4% to 11%. However, the economically relevant total dependency ratio⁷ will increase only very modestly from 101% to 108%.⁸ From a regional perspective, the population will grow in urban areas around the main economic centers, whereas the peripheral regions will lose residents.

Overall, the future sizes of current and past birth cohorts can be projected with some accuracy, while future fertility rates, longevity and net migration are outcomes of very complex societal, social and economic dynamics. Thus the uncertainty associated with long-term demographic projections is high.⁹ Nevertheless, they provide consistent scenarios to evaluate particular opportunities and challenges for societies in the coming decades.

⁶ The demographic projections are drawn from Lebhart (2006).

⁷ Here, the total dependency ratio is defined as the ratio of noneconomically active persons (i.e. pensioners, children, the unemployed) to economically active persons (i.e. employed or self-employed persons).

⁸ Tichy (2006).

⁹ Tichy (2006) draws attention to the large differences between the projections for Austria published in 2003 and 2005.

4 The Impact of Demographic Change on the Banks' Environment

The main results of workshop I on the impact of demographic change on the banking environment have already been documented¹⁰ and shall be summarized only briefly here.

The impact of demographic change on *economic growth* is expected to be modest compared to the recent growth experience in the euro area. For the euro area, the European Commission projects GDP per capita growth rates to average 1.8% per annum¹¹ until 2030. The historical value over the period 1981 to 2005 is even lower at 1.75% per annum. Although the projected growth rates are similar to historical values, their compositions are different. Annual GDP per capita growth rates consist of two components: the growth contribution of increasing labor productivity, and the growth contribution of changes in the input of labor. The first component contributed 1.9 percentage points to GDP per capita growth in the period 1981 to 2005, while the second one accounted for –0.15 percentage point per annum. The EU Commission's projections until 2030 expect the growth contribution of labor productivity (1.6 percentage points) to be lower than the historical value, while the growth rate of labor input is much higher and even positive (+0.2 percentage point). The low projections are attributable not to demographic change but to low projections of the future contribution of labor productivity.

Why is the future contribution of labor productivity so small? This is mainly a consequence of the low contribution of capital deepening to labor productivity growth, which is projected to equal 0.60 percentage point per annum compared to its historical value of 1.12 percentage points per annum. The latter in turn follows from the assumption that capital per efficiency unit remains constant from 2030 to 2050 in the EPC/EC (2006) study. This assumption leads to a downward bias in the projected growth rates of capital stock. The EPC/EC assumes that the growth rate of efficiency units (the growth rate of labor input plus labor productivity) and – on the equilibrium growth path – that of the capital stock are 1.6% per annum. This is below the historical average of 3.5% per annum over the period 1980 to 2001, which in fact exceeded the growth rate of efficiency units of roughly 2.2% per annum by 60%.¹²

Tichy (2006) concluded that the impact of demographic change on future GDP growth rates would be very modest, as he expected decreases in numbers of working-age individuals to be (partly) compensated by increases in participation rates, more and better human capital, more capital-intensive production, and factor-induced technical progress.

The impact of aging on *long-term real interest rates* is expected to be more pronounced than that on GDP per capita growth rates, given that the capital intensity of production will rise to compensate for a decline

¹⁰ ECB (2006, p. 23–28) and Schmitz (2007).

¹¹ Gomez-Salvador et al. (2006).

¹² Timmer et al. (2003, tables 6, 10, 11). For a detailed discussion of the EPC/EC (2006) and the OECD (2005) projections, see Schmitz (2007).

of the working age population.¹³ The OECD projects the long-term real rate of interest to decline by between 0.3 and 0.7 percentage point until 2025 in Germany, France, Japan and the U.S.A.¹⁴ This impact seems to be modest relative to past fluctuations of real interest rates. To examine the causes, Schmitz (2005) integrates demographics into a simple neoclassical growth model. Two opposing effects are at work in determining the impact of demographic change on long-term real interest rates: The increasing capital intensity of production exerts downward pressure on the marginal productivity of capital, while the increasing share of consumption of noneconomically active persons decreases aggregate savings and exerts upward pressure on the long-term real interest rate. In a simulation exercise for Austria, the author demonstrates that the former effect dominates and that long-term real interest rates would fall in the model roughly in line with the OECD projections. Given that funded pensions are a long-term investment of up to 60 years, even modestly declining interest rates can have a large impact on future pensions. Schmitz (2007) presents simulation results for Austria in which a modest decline of long-term real interest rates leads to cuts of up to 15% of funded pensions (even under the international diversification of investments and the international integration of real capital and goods markets). Winter (2006) ar-

gued that the privatization of pensions would exacerbate the decline in the long-term real rate of interest, while international diversification would dampen it slightly. International diversification also entails a reallocation of production, as capital exports would have to be accompanied by net exports of goods and services in the net accumulation phase to avoid a depreciation of the home currency. In the net decumulation period, the net dissaving of pensioners would reverse this trend and lead to an appreciation of the home currency, which would reduce the real return on internationally diversified investments in terms of the home currency unless pensioners spend their foreign savings mainly on foreign goods and services. In short, large exports of capital in the accumulation phase would be accompanied by real economic effects on the structure of production and the balance of payments.

The impact of demographic change on *residential real estate markets* is quite intricate to project. The demand for housing units and space is driven by the number, size, and age structure of households rather than by the size and age structure of the population. For Germany, Robischon (2006) expects the number of households to grow slightly until 2020 mainly due to the growing proportion of one- and two-person households and of small elderly households. The aggregate level of demand for residential real estate will not be strongly

¹³ For a discussion of the impact of demographic change on aggregate savings and financial markets see, *inter alia*, McCarthy and Neuberger (2003) and Schmitz (2007), who find that the econometric studies remain inconclusive and are confronted with substantial methodological problems.

¹⁴ OECD (2005). The study covered only these four countries. The results are roughly in line with the studies available for other countries (see ECB 2006, p. 25). However, one must bear in mind that the methods applied in EPC/EC (2006) and in OECD (2005) differ substantially. The extrapolations in the former are based on an exogenously fixed long-term real interest rates, while the simulations in the latter endogenize the long-term real rate of interest.

affected by demographic change, but its geographical distribution could change. Increasing mobility and a higher diversity of lifestyles and cultural backgrounds might lead to a very dynamic housing market with local oversupply or supply shortages and increasing price dispersion and volatility.¹⁵ External and internal migration and differences in local demographic dynamics may lead to large differences in the evolution of the size and the age structure of local populations within countries.¹⁶ Larger cities and central regions (e.g. Berlin, Vienna, Paris) profit from these developments and tend to be demographically younger, while peripheral rural areas may experience rapidly declining and aging populations. The ensuing brain drain – a consequence of the higher mobility of the young and better educated – would accelerate regional economic decline and increase the incentives to emigrate. The income gap between prospering centers and declining peripheral areas could increase, which would be mirrored by a widening gap in housing demand and housing prices.

5 The Impact of Demographic Change on Banks and the Banks' Strategic Responses

This section presents the common traits of banks' strategies in response to demographic change based on the presentations of financial consultants and bank strategists at the two workshops.¹⁷

5.1 Demographic Change Has an Impact on Banks and Their Strategies

Vooght (2006) emphasizes that banks frequently had to cope with demographic change in the past, i.e. increases in mortgage lending and construction finance during periods of strong population growth in Western Europe in the 1950s and 1960s. However, demographic change is part of a broad set of factors that are considered important in strategic planning. At the bank Citigroup, these consist of the growing share of world income accrued by (current) non-OECD countries and their increasing geopolitical influence, economic globalization, the changing structure of (Continental European) financial systems, but also of ecological threats, natural resource constraints and religious developments.¹⁸

¹⁵ Citing data from the city of Leipzig, Robischon demonstrated that even within the city, various districts experienced large changes in population size ($\pm 10\%$) over the relatively short period from 2000 to 2004. This led to large shifts of housing demand in opposing directions even within local markets.

¹⁶ Tourdjman (2006).

¹⁷ Bosek (2006), Hedrich (2006), Kraft-Kinz (2006), Raab (2006), Thompson (2006), Tourdjman (2006), Vooght (2006), Weiss (2006).

¹⁸ Thompson (2006).

5.2 Impact on Household Demand Is Considered Most Important

Banks regard the impact of demographic change on household demand as the most important channel of transmission. It is expected to reduce the demand for mortgages, consumer credit and basic financial services (demand deposits, payment services).¹⁹ Since the 1980s, household portfolio composition has undergone significant changes in many OECD countries, shifting from bank deposits toward investment funds, funded pension provision as well as stocks and bonds.²⁰ This trend is anticipated to accelerate. In addition to the search for yields, the debate about the future of the public pension system is set to motivate households to invest increasingly in alternatives to savings accounts. Banks are reacting to that trend by increasing product innovation, adapting distribution channels, and targeting marketing strategies to the 50+ generation.

- In countries with aging populations, the banks' *product portfolio* will change. Loans and deposits will remain part of the product portfolio offered, but will cease to be the core of the customer relationship. Product portfolios will increasingly contain integrated products and services (e.g. products that structure the decumulation of wealth, target funds, guaranteed products as well as longevity insurance), near-financial services (e.g. advice in handling bequests), and nonfinancial services (e.g. health and long-term

care). As a reaction to international migration, internationally active banks also plan to gain market share in international remittances. Many banks already offer reverse mortgages as a response to changing market demand: smaller cohorts of the main target group for mortgages could imply lower demand for mortgages. At the same time, the increasing share of households aged 55+ with a sizeable share of wealth invested in residential real estate creates a market for products that help to liquidize and generate income from this illiquid asset class. One bank emphasizes the strategic importance of the emerging asset class of infrastructure investments for institutional and public clients. It plans to expand in this area in the future by engaging in financing more infrastructure projects.²¹ Such projects merge the return on equity and steady cash flows with inflation protection and long-term maturity, making them a good addition to pension funds' assets to match their liabilities. For governments, they reduce the burden for public finances while maintaining the momentum in infrastructure development necessary to support competitiveness and growth. A strategic question for Austrian banks is whether to develop innovative products themselves or whether to rely on white-label products of international financial institutions. To a large extent, they

¹⁹ Weiss (2006) estimates that bank revenue will shrink substantially until 2050 due to aging. In Germany, total expenditure on financial services is projected to drop by about 19%, and the interest and commission surplus to decline by 25% from 2005 to 2050. In Austria, the interest and commission surplus is projected to drop by 10%.

²⁰ OECD (2005, table I.4, p. 18).

²¹ Thompson (2006).

already cooperate with international partners in the area of investment funds, but often integrate these components into own-label products.

- Banks continue to shift the *distribution* of traditional basic banking services (e.g. payment services) to automated channels (i.e. self-service areas, Internet banking) to free resources for new distribution channels. There is broad agreement among presenters that long-term customer care concepts are key to acquiring new and retaining existing customers. These concepts consist of comprehensive personal advice, tailor-made financial portfolios, and long-term relationship management. Banks will have to offer many services they used to reserve for private banking customers a decade ago to a broader market. This requires banks to rebalance their human resources mix from cashiers toward financial advisors and to lower the turnover ratios among their sales personnel. As a consequence, personnel costs might increase. Current incentive structures would have to change, too, and move from volume-based incentives to ones that reward long-term customer satisfaction. Wealth in most developed countries is concentrated among the generation aged 50+. This target group is expected to move further into the focus of attention of financial service providers. Competition for wealthy clients who are also more demanding and more willing to switch financial service providers is becoming

fiercer, increasing the cost of customer acquisition and retention.

- *Marketing strategies* will increasingly entail market segmentation.²² Brand loyalty is becoming more important to retain customers. The penetration of the 50+ age group requires a special marketing concept comprising specialized employee training, enhanced branding, and more personnel-intensive distribution channels. To protect their brands, banks need to focus (even) more on improvements of corporate governance, compliance, and risk management. Quality management in advisory services is gaining importance.

5.3 International Diversification Is Playing an Increasingly Important Role

There is broad agreement about the importance of *international diversification*. The different demographic developments in various regions of the world provide opportunities for banks, enabling them to fund their asset growth in countries with younger populations by means of liabilities in countries with aging societies. In the former countries, the markets for traditional bank services (consumer credit, mortgages and microfinance, payment services) are expected to post strong growth. Geographic diversification is the response to two interdependent challenges: retail and institutional customers require borderless services and higher returns; banks seek new markets. For global banks, prominent examples are China and India. Both countries have

²² However, the role of market segmentation is not undisputed. Hedrich (2006) argues that customers might feel offended if addressed as “aging customers with special needs.”

growing economies and expanding middle classes. Starting from low levels of financial intermediation, these countries' financial sectors are projected to grow over the next decades. India is also expected to face population growth. For more regionally oriented banks in Austria and Germany, the focus clearly rests on the Central and Eastern European countries (CEECs), despite the demographic challenges these societies face. The economic catching-up process, increasing intermediation ratios, and the relocation of production to the CEECs are expected to boost market growth.

5.4 Adaptation of Mortgage Policies Envisaged

Real estate price developments are considered to be influenced by demographic change. Banks need to adapt their *mortgage policies*. Low fertility and urbanization lead to a vicious cycle for many peripheral areas across Europe. Increasingly, price developments can strongly and unexpectedly diverge between neighboring districts. Residential real estate price volatility may increase. Banks that have already experienced exacerbated regional demographic change in recent years due to internal migration claim that they have by now factored these developments into the valuation models for residential real estate collateral and into the pricing models of mortgages.

5.5 Branch Network Strategy May Require Reorientation

Demographic change might impel banks to rethink their *branch network strategy*. While branches were mostly seen as cost factors in the last decade, their role as distribution channels and advice centers is expected to increase

again. Moving will remain common over the age of 60. Younger pensioners will seek "fulfillment" after retirement (e.g. by moving to traditional holiday destinations) but will probably move back closer to cities and their relatives after the age of 75. This would result in rethinking geographic proximity and the establishment of branch networks in locations to which aging clients move. That might also include the establishment of specialized branches in foreign countries to which banks' affluent clients move (e.g. British and German banks that establish branches in Spanish and French coastal regions). Internal migration and the divergence of economic performance also affect the regional development of bank revenues. For banks that have high market shares in declining peripheral areas, demographic change calls for a strategic focus on increasing market share in increasingly prosperous centers. Some banks plan to respond to international migration and high shares of migrants in prosperous centers by increasing the share of own staff with a migration background.

5.6 Maintaining Strategic Relevance Is Central

Banks are under increasing competitive pressure from nonbank financial intermediaries and new market entrants (e.g. retail chains). In order to *maintain strategic relevance* for their customers, banks need to offer superior service as well as superior risk/return profiles, and they should focus on their core competences. This could prompt banks to focus on specialist niche markets where they can gain a maximum competitive advantage. They could specialize on a particular product, service, process or geographic territory. Banks could fo-

cus on the provision of pure advisory services, on the production or on the distribution of financial products. At the other end of the spectrum, (large) banks could choose to offer the full range of standardized banking services and products to a mass market combined with more advice-intensive personalized services for selected customer segments. Size and international reach might also be a competitive advantage for the production of financial products, which are then distributed either directly as own-label products or via smaller, more regionally focused banks (white-label products). Controlling costs and delivering sustainable margins are core competences for the strategic orientation toward the mass market. However, Hedrich (2006) voices a deviating opinion on the strategic relevance of demographic change for banks: He argues that aging has more operational than strategic consequences for banks; the main objective of the banks' boards should be raising awareness throughout the company to the issue of demographic change and its potential impact on the bank's profitability in the future.

5.7 Human Resource Management Will Be Influenced

Demographic change also affects banks' *human resource management* and the age structure of their employees. Some banks' age structures showed relatively low shares of lower and higher age groups and a concentration of employees in the 35 to 50 age group in 2004. Without an immediate response, this would imply a shortage of experienced staff in 2030, when baby boomers retire. In addition, the

age profile would no longer correspond to the age structure of the population. An aging workforce increases personnel costs (e.g. higher salaries and absence costs). In addition, older employees are often classified as less resistant to stress, less flexible, and less willing to learn than their younger colleagues. Banks are addressing these problems by increasing training across all age groups, intensifying recruiting, entering new markets to recruit and expanding knowledge management capacities. In order to maintain high productivity among higher age groups, banks are focusing on health management to reduce absences, building teams of mixed age groups, and offering more flexible part-time models. Some banks are attempting to develop a corporate culture that ensures that the company remains "young" despite an aging workforce.

6 Financial Stability Implications

The conceptual framework for this section rests on selected items on the bank balance sheet and the profit and loss account.²³ These are loans to customers (mortgage loans, consumer loans, loans to small and medium-sized enterprises – SMEs) and debt securities (especially long-term government bonds) on the asset side, and deposits, debt certificates, and loan loss provisions on the liability side. But we also take into account some off-balance sheet items (i.e. guarantees and hedging instruments in general). The selected items on the profit and loss statement are interest and noninterest income on the income side, and interest payable, staff costs

²³ The framework follows our approach in ECB (2006).

and loan loss provisions on the expense side. This section is structured along the lines of the common traits of banks' strategies in response to demographic change presented in the previous section. The questions we focus on are: What are the main risks that might emerge from banks' strategic responses? How can supervisors (and other public authorities) react to these risks?²⁴

6.1 Bank Profitability Will Come under Downward Pressure

The expected effects of demographic change on household demand for traditional bank products and services could translate into downward pressure on *bank profitability*. Lower bank profitability results from a number of factors: intensified competitive pressure, worsening cost-income ratios, and lower revenues from maturity transformation.

- Lower growth rates in the market for banking intermediation could lead to *higher competitiveness*. The growth rate can be decomposed into the growth rates of the following components: the banking intermediation ratio, GDP per capita, and the population. If aging leads to a lower growth rate of the market for banking intermediation, competitive pressure in the market could increase. If banks' strategies focus on the growth of market share or at least aim at avoiding shrinking revenues, banks will have to choose more aggressive and more competitive strategies.²⁵ The banking

markets' growth rate might be negatively affected by demographic change through the following channels:

First, the structure of Continental European financial systems has changed in recent decades. The role of financial markets and non-bank financial intermediaries has grown.²⁶ Aging is expected to amplify this trend through its impact on household portfolios (i.e. an increasing share of funded pensions and investment funds at the expense of savings accounts). Many banks expect the demand for SME and consumer loans as well as for mortgages to decrease. Thus, the downward pressure on the bank intermediation ratio might grow.

Second, although regarded as unlikely in section three, the possibility still remains that demographic change might negatively impact GDP per capita growth rates.

Third, demographic change will reduce the growth rate of the population.

- At the same time, changing household demand for traditional bank products and services could cause banks' *cost-income* ratio to increase.

First, the reduction of household acquisition of savings accounts will force banks to seek other funding sources with – usually – higher funding costs. At the same time, the increasing importance of long-term customer relation-

²⁴ These questions are addressed under a *ceteris paribus* assumption relative to a world without demographic change. They are necessarily speculative, given the period of 10 to 20 years to which they apply.

²⁵ However, a second-round effect could attenuate the impact of higher competitiveness, as it might further amplify the market consolidation process in the EU.

²⁶ European Commission (2006).

ship management, advisory services and personalized financial products will increase operating costs relative to a world in which standardized products are sold to a mass market. The composition of staff is expected to shift toward better trained employees, which increases personnel cost (both through higher salaries and through increasing training costs for an aging workforce). Banks plan to actively address the problem by striving to increase efficiency and cut costs in other areas. The increasing role of brand loyalty was pointed out above. This has ambiguous stability effects: On the one hand, it increases marketing costs and reputation risk, which both have detrimental effects on bank costs and stability, respectively. On the other hand, as Vooght (2006) points out, it increases banks' incentives to protect their brand by improvements in compliance, risk management, and corporate governance, which have positive effects on bank stability.

Second, lower demand for traditional bank products (loans) decreases interest receivable from banks' traditional core business.

- Demographic change is projected to exert downward pressure on long-term real interest rates. Short-term real interest rates are determined by monetary policy, and we are not aware of any studies that suggest that aging would have a direct impact on them. Short-term real rates are determined by the structural liquidity deficit, liquidity preferences, liquidity demand and supply on the money market. Therefore, aging leads to a flatter yield curve,

ceteris paribus. That reduces bank revenues from maturity and liquidity transformation, reduces *margins and net interest income*. It further amplifies the pressure on profitability.

Lower bank profitability reduces the ability of banks to absorb adverse shocks by profits in the respective period. Shocks can more easily hit bank capital adequacy ratios. This implies a higher volatility of bank capital reserves, which could also translate into a higher optimal level of reserves. The immediate implications for supervisors are modest, since bank capital adequacy has been at the center of supervisory attention for a while now. The recent introduction of the capital adequacy directive in 2006 in the EU improved the framework, so that potential negative impacts of aging on profitability do not call for immediate action by supervisors or regulators to further adapt the capital adequacy regime. However, in the future the statutory minimum capital adequacy ratio might be reviewed in the light of the increasing reliance on the shock absorption capacity of bank capital.

6.2 Changes of the Bank Product Portfolio Will Give Rise to Risk

There are additional risks that emerge from changing household demand for traditional bank products and that can have stability effects:

- Changing household demand spurs innovation in banks' product portfolios. New products can increasingly expose banks and households to *operational, reputation, and legal risk* (relative to traditional products). For supervisors, this calls for the proactive analysis of these risks' potential financial stability implications.

Wood (2006) reports that reverse mortgages bore substantial reputational risk for U.K. banks in the early years. Households often misjudged the high costs associated with this product, which in fact is a bundle of credit and insurance components, each of which carries a price in terms of the divergence between the current value of the residential real estate asset and the discounted expected value of the future annuities. Households found it difficult to adequately assess the true costs of the product. The bundling of credit and insurance products in reverse mortgages makes them complex products which require sophisticated regulatory frameworks to reduce legal risk. Provisions that increase market and price transparency for consumers and ensure adequate consumer protection might be called for. In countries that have not yet put in place specific regulations, bank supervisors might want to proactively set the issue on the agenda.

- In addition, banks are expected to be increasingly exposed to traditional *insurance* risks (i.e. longevity risk, health care risk). For supervisors, this poses the challenge that the traditional functional and organizational boundaries between banks and insurance companies are blurred further. The blurring of boundaries amplifies an existing trend to which supervisors and regulators have already reacted by establishing integrated supervisory institutions in many countries and by imposing a regulatory framework for financial conglomerates. Nonetheless, cross-sector contagion risk can increase,

and supervisors need to (further) increase their understanding of the interlinkages between banks and insurance companies. However, new risks can pose a special challenge if markets are incomplete and risks cannot be hedged efficiently and effectively. One example that has attracted increasing attention in recent years is longevity risk. Market incompleteness implies nonnegligible risks and costs for banks. On the one hand, due to their right to tax, governments are in a unique position to act as risk bearers of last resort by supporting the issuance of longevity bonds. This enables the government to spread risks in society after they have materialized. On the other hand, government is already exposed to substantial longevity risk, as its expenditure is positively correlated to longevity (i.e. health care and public pensions).

- The increasing reliance on funded pensions (i.e. occupational pension funds) could raise regulatory concerns among supervisors to ensure the protection of pensioners' lifetime savings, which could expose banks to *regulatory risk*. Vooght (2006) draws attention to the consequences for banks: With banks' increasing importance in the provision of pension related products, demands for additional regulations addressing this new role could be voiced. Clark (2004) and Schmitz (2006) show that the current governance structures of occupational pension funds entail risk for the interests of the beneficiaries, both in the trustee system (i.e. the U.K.) and in systems in which occupational pension funds are licensed as credit institutions

and incorporated as joint stock companies (i.e. Austria). Banks hold large stakes in occupational pension funds in Austria, which could expose them to regulatory risk.

- Innovations are concentrated around products and services that generate noninterest income to substitute for declining net interest income. The above-mentioned examples include the provision of advisory services, asset management, annuities and the distribution of near-financial services. The increasing role nonbank financial intermediaries tend to play combined with the continuing role banks play in financial markets (e.g. as market makers or brokers) and as shareholders in nonbank financial intermediaries themselves could lead to an increase in the fee and commission income banks generate from nonbank financial intermediaries (commissions, fees, and dividends). In combination with the downward pressure on interest receivable and payable and decreasing margins, this higher income raises the *share of noninterest income* in bank profit. The financial stability implications thereof depend on the volatility of noninterest income and on the correlation of shocks to noninterest income with the shocks to interest income.

6.3 Country and Political Risk as well as Exchange Rate Risk Will Come under Upward Pressure

International diversification is a common strategic response to aging. It might expose banks to *increased country and political risk and to exchange*

rate risk. In addition, many countries that are not affected by aging processes are emerging markets: legal and operational risks might be higher there relative to markets with which banks are more familiar. The implications for bank supervisors are modest, because these risks are not alien to banks or to bank supervisors. Bank risk management models and capital adequacy requirements usually account for such risks. As a consequence, bank supervisors can focus on how well banks handle increased risk within the traditional framework. Nevertheless, exchange rate shocks and country risk are often correlated within regions (i.e. Asian crisis). In addition, supervisory institutions could react to the (further) increase in the emerging market exposure of banks by (further) increasing international coordination and cooperation.

6.4 Mortgage Collateral and Credit Risk Will Come under Upward Pressure

The impact of aging on residential real estate markets will induce banks to change their mortgage policies. Increasing price dispersion and volatility can subject smaller, less diversified mortgage portfolios to increasing *real estate collateral risk* and *higher mortgage loss provisions*. Regional mortgage concentration could be an increasingly important issue for supervisors. Smaller, less diversified mortgage portfolios are subject to increasing real estate collateral risk, calling for more detailed valuation and risk management models that are able to capture these developments. Regional diversification of mortgage portfolios is needed to improve the risk/return tradeoff either by directly entering new regional markets or by investing

in real estate funds with the respective regional focus. Residential real estate price indices are often not sophisticated enough to provide the basis for efficient hedging instruments for regional and local residential real estate price uncertainty. If the market fails to provide adequate indices, public authorities might be called on to help filling the gap.

6.5 The Importance of Cross-Border Branching Will Grow

Banks adopt branch network strategies to ensure geographic proximity to customers, also in response to increasing (temporary) migration of pensioners to traditional holiday destinations. As a consequence, the *role of cross-border branching* might increase, especially in the EU. The current home-host supervisory regime addresses the issue of cross-border branching in principle. Thus potential new developments in this area do not merit immediate supervisory action beyond the call for (further) increased coordination and cooperation.

6.6 Risks Will Stem from the Search for Yields and Increased Risk Tolerance

Banks will try to maintain their strategic relevance for their customers, inter alia by providing higher yields for their customers. This search for yields, in combination with increasing competitive pressure, could encourage banks to *increase their risk appetite*. This might require higher loan loss provisions. However, given the capital adequacy regime in place and the additional incentives for banks to improve their risk management, their corporate governance, and their compliance, given the need for banks to protect their brand, no immediate

consequences emerge for supervisors or regulators. However, increased awareness of the potentially higher volatility of capital adequacy ratios would be warranted.

7 Summary

The first main message of the program is that demographic change indeed has an impact on banks and their strategies. The major interlinkages between aging and banks can be summarized along the following lines: The impact of aging on the level and composition of household demand for bank services and products is considered the major channel of transmission. But aging is also expected to have an impact on long-term real interest rates and regional price dispersion and volatility in the residential real estate market.

Banks' strategic responses focus on increasing product innovation, adapting distribution channels, and targeting marketing strategies to the 50+ generation. There is broad agreement about the importance of international diversification. To maintain strategic relevance for their customers, banks might have to offer superior service and/or superior risk/return profiles and to focus on their core competences.

The main financial stability implications are intensified competitive pressure, worsening cost-income ratios, and lower revenues from maturity transformation that might exert downward pressure on bank profitability. These developments reduce the ability of banks to absorb adverse shocks through profits in the respective period. Shocks can hit bank capital adequacy ratios more easily. In addition, the composition of bank profits shifts (further) from interest to noninterest income. New products

can increasingly expose banks (but also households) to operational, reputation, legal and traditional insurance risks (relative to traditional products). International diversification might expose banks to increased country and political risk as well as exchange rate risk.

The immediate implications for supervisors are modest in most cases: The statutory minimum capital adequacy ratio might be reviewed in the light of the increasing reliance on the shock absorption capacity of bank

capital. Supervisors might want to promote adequate regulatory frameworks for new products to reduce legal risk for banks. Given the increasing complexity of financial products and the ongoing shift of risks to households, provisions that increase market and price transparency for consumers and ensure adequate consumer protection will be required. Certainly, banks and supervisors should continuously monitor the impact of demographic change on banks and financial stability.

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