CHAPTER 3

Aging, Savings, and Financial Markets

Introduction

A common view is that aging societies can expect reduced levels of domestic savings because older people save less and that low savings will lead to lower capital accumulation, which, in turn, will depress investment and growth. When this concern is combined with the concerns about labor supply and productivity discussed in chapter 2, some observers—primarily in Western Europe and Japan—have drawn very pessimistic conclusions about the growth potential of aging societies (see, for example, de Serres and others 1998; Martins and others 2005). It turns out that the labor market story is actually quite complex and less demographically determined than is often thought. But what about the saving side of the story? Where aging is occurring in Eastern Europe and the former Soviet Union, will savings decline and thus constrain economic growth?

Different factors come into play in determining the specific financial consequences of aging in the region. Certainly, there are reasons to question whether the impacts expected under pessimistic scenarios in the older industrial countries will necessarily happen. In the first place, it is not clear how well the age-saving profiles that have emerged

from research in those countries apply to transition countries. Not only is there very little analysis of this relationship in the region, but also it is far from clear whether the saving patterns of the past 15 years can be extrapolated into the future. For instance, a desire on the part of households to replenish depleted assets from the early years of transition could have an impact on saving behavior in countries of the region that has not been seen in aging industrial countries of the Organisation for Economic Co-operation and Development (OECD). Similarly, improvements in income levels would encourage more savings. In contrast, saving levels could be a problem if productivity does not continue to grow and expected income gains do not occur and if households do not behave as anticipated.

Financial markets also play an important role. These markets are still relatively undeveloped and incomplete in Eastern Europe and the former Soviet Union, where few countries have financial systems that extend beyond banking. In comparison to industrial countries, where most of the analysis has taken place, countries in Eastern Europe and especially those in the former Soviet Union have very limited financial instruments. Institutional reforms to deepen financial markets will improve available saving instruments, thereby encouraging savings as well as enhancing overall productivity and growth through more efficient allocation of financial resources. So policy choices will make a significant difference.

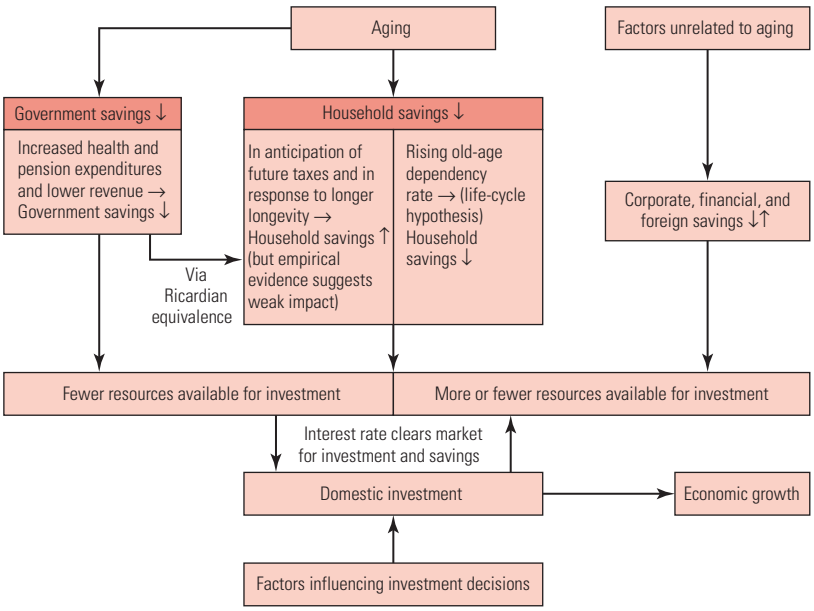
The next section discusses the theoretical and empirical links between aging and savings and then presents empirical evidence on the historical relationship between the two in countries of the region. The chapter then turns to financial markets, looking at their defining characteristics in these countries, as well as what the international evidence suggests about how aging is likely to affect them. The chapter concludes with a discussion of the policy implications for countries in the region.

Aging and Saving Behavior

The relationships between aging, savings, investment, and growth are depicted in figure 3.1. Although the figure helps structure the discussion, it cannot properly convey that an economy is a general equilibrium system in which households make saving decisions interdependently at the same time as firms (domestic and foreign) and governments are making saving and investment decisions. The general equilibrium effects are not addressed in a formal way in this chapter; rather, the focus is to describe the likely relationship between aging and savings.

FIGURE 3.1

Conceptual View of the Possible Channels from Aging to Saving and from Saving to Investment and Growth



Source: World Bank staff.

In the rest of this section, the discussion focuses on the relationship between aging and household savings (box 3.1). However, aging is likely to have impacts on the other saving channels depicted in figure 3.1, including financial and government savings. The impacts of aging on financial markets are discussed later in this chapter. The effect of aging on government savings is addressed in the final three chapters of this report, which cover pensions, health care, and education, respectively. Although these aspects are discussed in various places, it must be emphasized that saving is a cross-cutting theme. A country's particular circumstances can be understood only by looking at all aspects together.

The Relationship between Aging and Savings

The life-cycle hypothesis provides a direct theoretical relationship between aging and saving behavior (Modigliani and Brumberg 1954). Based on the insight that individuals and households change their mix of consumption and savings over their expected life span, the theory implies that older people, who are closer to the end of their lives, and younger people, who are educating themselves or earning low levels of income, save less than middle-age individuals (figure 3.2).

BOX 3.1

Definitions of Saving Terms

Gross domestic saving rate: Gross domestic product (GDP) minus consumption by government and the private sector, expressed as a percentage of GDP.

In the United Nations System of National Accounts 1993, both GDP (which equals total income generated in the economy) and gross savings are broken down into five domestic institutional units: the household sector, the nonfinancial (or corporate) sector, the government sector, the financial sector, and the nonprofit sector. Consequently, gross domestic savings can be thought of as the sum of the savings generated in each of these five sectors.

Household saving rate: Gross savings by household, expressed as a share of household disposable income.

Private saving rate: Sum of savings generated by the household, corporate, and financial sectors, expressed as a percentage of the disposable income generated in the same three sectors.

Government savings: Government surpluses.

The empirical validity of the life-cycle hypothesis remains a topic of debate. Savings do indeed increase as people move from youth into middle age, but the evidence does not clearly support the proposition that individuals draw down their savings toward the end of their lives (box 3.2). In the United States, households increase their average net financial assets between household members' early 30s and their retirement. After that, the rate of increase declines, but if we compare the value of net financial assets held by people older and younger than 75 (which is roughly 10 years after retirement), there is no obvious

FIGURE 3.2

Age-Saving Profile Implied by the Life-Cycle Hypothesis

Source: World Bank staff, based on the life-cycle hypothesis.

BOX 3.2

When Can Aging Lead to Greater Savings?

One implication of the life-cycle hypothesis is that a larger share of elderly people with lower saving rates implies a smaller aggregate saving rate. However, this story does not consider the fact that demographic shifts such as aging occur very slowly and last decades. Thus, for policy makers, saving rates during the transition period are interesting in their own right, and they are likely to differ from the saving rates observed at the end of the transition. Moreover, demographic transitions—in this case a shift to a population with a larger elderly population—can be driven either by a rise in longevity or by a fall in fertility rates. If the main driver of the demographic shift is a decline in fertility rates, the share of middle-age (and high-saving) individuals in the population will swell before the share of older people and will lead to an increase in aggregate savings. This phenomenon is transitional, though. By contrast, longer life expectancy may permanently increase savings, if middle-age individuals fundamentally change their behavior to increase their saving rates in response to a higher life expectancy and offset the larger number of old people with smaller saving rates. For a recent discussion, see Bloom and others (2006).

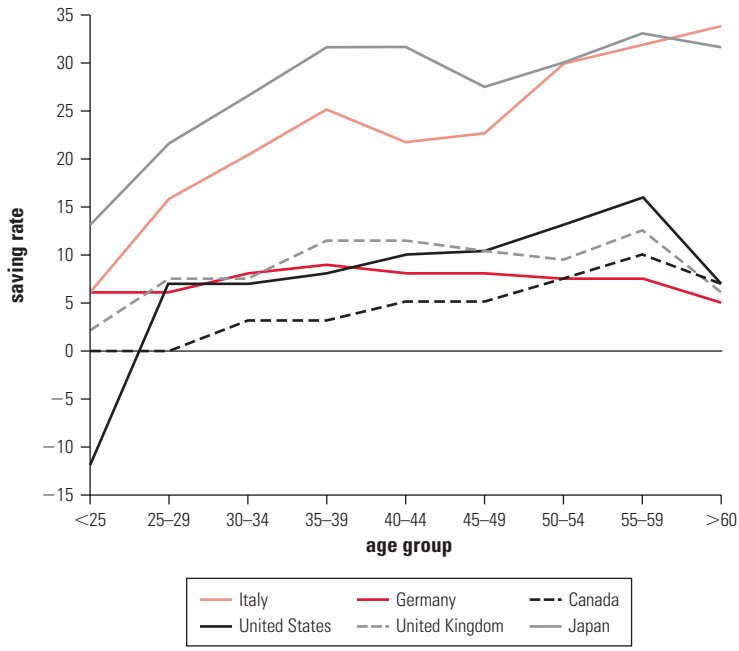
In all countries of the region, except the Russian Federation, the projected demographic shifts occur as a result of an increase in longevity as well as a drop in fertility rates. Thus, household saving may receive an upward boost—at least temporarily. In the long run, though, it is an empirical question: can the behavioral change of middle-age individuals—raising their saving rates in response to a realization that they are likely to live longer—offset the lower saving rates of a rising share of older people? Evidence from Western Europe indicates that countries with more old people also have lower saving rates, suggesting that behavioral changes do not offset the decline in saving. No evidence exists to confirm whether this finding applies to countries in Eastern Europe and the former Soviet Union.

decline. The same pattern was observed for Germany by Börsch-Supan, Reil-Held, and Schnabel (2003), who found that Germans, in fact, never stop saving.

Saving rates among the elderly may be higher than predicted under the life-cycle hypothesis because of precautionary savings for late-life events, including health care costs, and because of intended bequests. It is also important to note that the distribution of wealth has a profound effect. In the United States, according to the 2001 Survey of Consumer Finances, financial assets are heavily concentrated in the top end of the distribution, with approximately 70 percent of assets held by 10 percent of the population.[1] The concentration of financial assets suggests that decumulation (drawing down) of financial assets is not typical of all the elderly but may be more pronounced in the lower strata of the wealth distribution, where people may need to rely more on their savings to ensure adequate old-age income.

FIGURE 3.3

Comparisons of Saving Rates by Age Group, Selected Industrial Countries, 1990s



Source: Gregory, Mokhtari, and Schrettl 1999, figure 1.

Hence, the overall effect of aging on savings may have more to do with the relationship between aging and wealth distribution than with aging alone.[2]

A snapshot of the saving profile across age groups for six industrial countries shows the obvious increase in savings for middle-age groups compared with younger ones (figure 3.3). The life-cycle pattern is not nearly so clear when it comes to the middle-age and older relationship. Still, for all countries in the figure except Italy, individuals age 60 or older do save at a lower rate than those in the immediately younger age groups.[3] However, these cross-sectional data are not a valid test of the life-cycle hypothesis, because they can take into account only the age effect—that is, relative position in the life span. They cannot reflect the time effect—that is, the economic history of the preceding few years and its effects on people's behavior—or the cohort effect—that is, the economic experiences that people born in the same years have shared.[4] Within the current context in the region, time and cohort effects may be important in shifting age-saving profiles. For example, in the future, middle-age individuals may, in fact, increase their savings in response to longer life expectancies. Larger fiscal deficits provide another reason for individuals to change their

behavior and start saving more than earlier cohorts did at the same age.[5] Unfortunately, the picture is complicated further by the lack of reliable estimates of age-saving profiles in countries poorer than those included in figure 3.3.

The Relationship between Aging and Savings in the Region

Researchers have tried to quantify the impact of aging on savings in two ways: an empirical approach, relying on econometric tools to estimate the empirical relationship between dependency rates and savings, and a general equilibrium approach.[6] In the general equilibrium approach, the salient features of the economy are modeled, a demographic shock is introduced (such as a rise in longevity), and the impact on, for instance, saving rates or growth in gross domestic product (GDP) is estimated. One strength of this approach is that the transition path from the current to the future state—which for demographic shocks can take decades—is clearly mapped out and explained. There are several drawbacks, though. It is assumed that the current state (to which the shock is applied) is a steady state, which seems imprudent given the socioeconomic turmoil over the past 15 years in Eastern European and former Soviet countries. Another drawback is the simplicity imposed on the economy, which is necessary in order to model the economy in the first place. One example of this restrictiveness is that although corporate savings seem to account for the bulk of domestic savings in the region, no attempt is made to model this feature separately. Moreover, the empirical literature suggests that factors such as degrees of urbanization and convergence in GDP per capita terms—factors that are changing drastically in the region—play a role in determining private savings. However, these features have been difficult to incorporate into these models, leaving all the dynamics to be explained by capital-output ratios, factor prices, and aging.

Although the empirical approach also has weaknesses, it does allow consideration of a broader range of issues.[7] Although the life-cycle hypothesis suggests a relationship between an individual's age and savings, data constraints lead most researchers to use private savings (the sum of household, corporate, and financial savings) as their dependent variable. Most studies find that a rise in the young- or old-age dependency rates tends to lower private saving rates. Although the magnitude of the estimates vary considerably, Loayza, Schmidt-Hebbel, and Servén (2000: 401–2) conclude that "a rise in the young-age dependency ratio by, say, 3.5 percentage points leads to a decline in the private saving rate of about 1 percentage point; the negative impact on savings of an increase in the old-age dependency ratio is more than twice as large."

Before turning to the relationship between dependency rates and savings, one should note that the empirical literature shows that private savings are determined by a wide range of factors that are not easy to forecast. Of particular importance, both GDP growth and level of income are found to be statistically significant determinants of private savings, and Loayza, Schmidt-Hebbel, and Servén (2000) find that the influence of the level of income is greater in developing countries than in industrial countries.[8] The strong correlation between per capita income and private saving rates—plus the low saving rates observed in the poorest regions of the world—is a reminder that many households are saving not out of choice but out of necessity. As income levels rise, more households gets lifted out of the state where they are producing only enough to sustain themselves, suggesting that aggregate saving rates should rise.

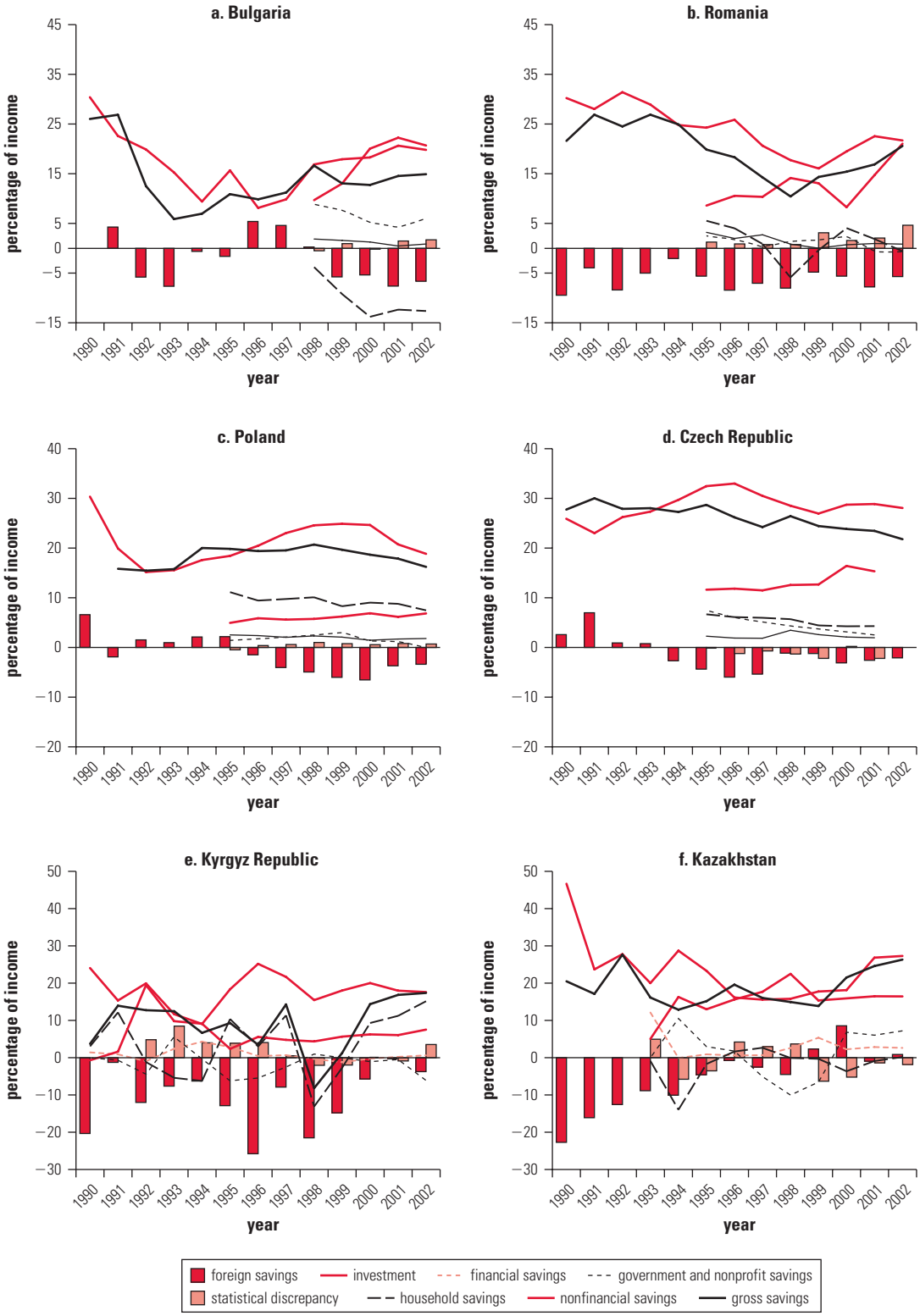
Saving Data

One important constraint in estimating the empirical relationship between aging and savings is the weak quality of saving data in the region. In many countries, only a few years of data are available. Also, gross domestic saving differs widely depending on whether data are extracted from the International Financial Statistics database of the International Monetary Fund (IMF), the World Bank's World Development Indicators database, or the United Nations (UN) System of National Accounts database. Finally, the basic saving-investment identity (that is, that foreign plus domestic savings should equal investment) does not hold in most countries, often leaving wide margins of statistical discrepancy.[9]

Two consistency checks are imposed on the data to ensure a minimum level of quality. First, the data include only countries that report institution-based savings (that is, by households, government, and others) to the UN System of National Accounts database. The rationale is that the additional work of compiling more disaggregated income and expenditure data is likely to have produced better-quality data. Second, a statistical discrepancy between savings and investment greater than 5 percent of GDP is seen as indicative of incomplete data, and these data are not accepted.[10] Despite these consistency checks, the quality of the household saving data remains questionable. Therefore, the regression analysis estimates the standard determinants of private savings as well as household savings. Moreover, the empirical analysis focuses on data available since 1998, because more countries have started to report savings by institution in recent years and statistical discrepancies are less common. Graphs for a sample of the countries used in the regression are shown in figure 3.4.

FIGURE 3.4

Savings and Investment as a Percentage of Gross National Income, Selected Eastern European and Former Soviet Countries, 1990–2002



Source: United Nations System of National Accounts database.

Domestic saving rates for all countries of the region, using data from the World Development Indicators database, are presented in annex 3.A; for the reasons already noted, the questionable reliability of these data must be recognized.

Determinants of Private and Household Savings: A Regression Analysis

Two models are specified and estimated with country-level panel data to test the relationship between savings and dependency rates. One uses household saving rates as the dependent variable, and the other uses private saving rates. The impact of aging is captured through dependency rate variables. Earlier chapters have emphasized that projected changes in dependency rates vary greatly across the region. The total dependency rate, defined as the number of persons younger than 15 years plus the number of persons 65 years or older per 100 persons 15 to 64 years, will rise in 12 countries from 2000 to 2025 (recall figure 1.20). Four countries will see almost no change over this period, and the rate will actually decline in 12 countries, where the sharp decline in the child dependency rate will generally offset the increase in the elderly dependency rate. Those demographic patterns indicate that, whatever the impact of aging on savings is, it will be a concern over the next two decades for only about half the region's countries. In addition to the dependency rates, the model includes a set of standard control variables (per capita income, growth, urbanization, foreign and government savings, terms of trade, inflation, and the real interest rate). Household and private saving data are taken from the UN database; the source for data on control variables is the World Bank's World Development Indicators database.[11]

So that saving behavior can be compared, the sample includes countries outside the region. From the complete sample of middle-income OECD countries and Eastern European and former Soviet countries in the UN database, only the countries that satisfied the quality consistency checks were selected. As a result, data on 23 countries (11 regional and 12 nonregional countries) for 1998 to 2001 were included in the estimation sample.[12]

The regression results are shown in table 3.1. Although the results are broadly in line with previous empirical work, three findings seem especially noteworthy. First, the regional dummy is statistically insignificant, irrespective of whether private or household savings are used as the dependent variable. This finding suggests that both private and household savings respond to factors such as aging, income, growth, and foreign savings in broadly the same way that they do in other countries. This occurs even though household and private savings play less of a role in financing investment in regional countries (discussed later). Second, the estimated impact of aging on household

TABLE 3.1

Estimates of Determinants of Household and Private Saving Rates: Panel Regression Results

	Complete sample		Eastern European and former Soviet countries		Non–Eastern European and former Soviet countries	
	Household saving rate (fixed effect)	Private saving rate (fixed effect)	Household saving rate (fixed effect)	Private saving rate (fixed effect)	Household saving rate (fixed effect)	Private saving rate (fixed effect)
Constant	−0.476*	0.207	−0.357	0.037	−0.351	0.417*
	−(2.290)	(1.610)	−(0.880)	(0.160)	−(1.540)	(2.040)
Foreign savings	−0.088	−0.543**	−0.400	−0.672**	0.158	0.054
	−(0.520)	−(5.220)	−(1.060)	−(3.060)	(0.940)	(0.360)
GDP growth	0.003	0.005**	0.006	0.005*/	0.005*/	0.000
	(1.290)	(3.230)	(1.140)	(1.780)	(1.760)	(0.150)
GDP per capita ($, PPP)	6.4 (10^{-6})**	4.3 (10^{-6})**	5.8 (10^{-6})	1.9 (10^{-6})	8.4 (10^{-6})**	7.5 (10^{-6})**
	(3.230)	(3.520)	(0.860)	(0.490)	(4.680)	(4.710)
CPI inflation	0.001*	0.000	0.001	0.000	0.004	−0.005*
	(2.280)	(0.700)	(0.790)	−(0.030)	(1.350)	−(2.010)
Young-age dependency rate	−0.286	−0.530**	−0.491	−0.448*/	−0.127	−0.219
	−(1.590)	−(4.750)	−(1.070)	−(1.670)	−(0.820)	−(1.580)
Old-age dependency rate	−1.032**	−1.160**	−2.670*	−2.107**	−0.465	−1.042**
	−(3.120)	−(5.650)	−(2.210)	−(2.980)	−(1.570)	−(3.940)
Urbanization rate	2.6 (10^{-4})	6.1 (10^{-4})	0.001	0.004*	0.001	0.001
	(0.420)	(1.560)	(0.320)	(1.970)	(1.330)	(1.480)
Terms of trade	0.007**	0.003**	0.010**	0.005**	0.004*/	0.000
	(4.840)	(3.390)	(3.700)	(3.140)	(1.900)	−(0.160)
Government savings	−0.773**	−0.767**	−0.375	−0.663*	−1.332**	−0.272
	−(2.910)	−(4.640)	−(0.790)	−(2.390)	−(4.820)	−(1.100)
Real interest rate	0.002*	0.000	0.001	0.000	0.001	−0.001
	(2.160)	(0.070)	(0.770)	−(0.530)	(0.690)	−(0.530)
Eastern European and former Soviet Union dummy	−0.026	0.001	n.a.	n.a.	n.a.	n.a.
	−(0.970)	(0.060)	n.a.	n.a.	n.a.	n.a.
Number of observations	85	85	40	40	45	45
	F(14, 70)		F(13, 26)		F(13, 31)	
F-stat	9.22	23.74	3.82	11.44	8.63	15.78
Prob > F =	0.0000	0.0000	0.0018	0.0000	0.0000	0.0000
Adjusted R^2	0.5781	0.7912	0.4846	0.7768	0.6926	0.8136

Source: World Bank staff calculations.

Note: T-stats in parentheses; (*, **, and */ indicate statistical significance at the 1, 5, and 10 percent confidence levels, respectively; n.a. = not applicable; PPP = purchasing power parity; CPI = consumer price index.)

and private savings is similar when the model is estimated for regional countries alone. Given that household savings constitute only a small portion of private savings in the region, this finding suggests that aging also has some effect on savings in the corporate and financial sectors, albeit for reasons that are not well understood. Third, aging seems to affect private and household savings to a larger extent than would have been expected from the rule of thumb put forward by

Loayza, Schmidt-Hebbel, and Servén (2000). In the full sample, a one percentage point increase in the elderly dependency rate implies a 1.16 percent decline in private savings (compared with the estimate proposed by Loayza, Schmidt-Hebbel, and Servén [2000] of at least 0.6 percent). Equally striking, when the regression is run on regional countries only, the sensitivity of savings to aging is even greater, with an estimated decline of 2.1 percent.

It is tempting to use the regression results to estimate the impact of the projected demographic changes on household and private savings in Eastern Europe and the former Soviet Union. Given the large projected increases in old-age dependency rates in a number of countries, the analysis implies very large declines in private savings in those countries—when holding the other regressors constant. In particular, when assuming that the other variables do not change, the regression results imply that private savings will decline substantially in countries where particularly large increases in old-age dependency rates are projected (for example, the Czech Republic and Poland).

However, this type of analysis can be seriously misleading because it rests on a number of assumptions that are clearly not appropriate for all countries of the region. First, it assumes that relationships between variables observed in the past (that is, the estimated coefficients) are good predictors of future relationships between the same variables. All regression analysis using time-series data is vulnerable to this critique, but in the countries that have just gone through transition, the assumption is particularly questionable. Second, and more important, demographic change is only one determinant of savings. It makes little sense to discuss the impact of a demographic change, holding the other determinants constant, when it should be assumed that these variables will change significantly. In the case of reasonably stable, industrial countries that are functioning at close to their long-term potential growth rate, an inconspicuous assumption usually is that the other determinants remain unchanged. But the assumption makes little sense for the countries in Eastern Europe and the former Soviet Union.

Third, the regression does not capture factors such as the desire of households and firms to replenish depleted assets or the expected reforms that will deepen capital markets. Although the importance is difficult to quantify, these factors are likely to be important drivers of savings in the region in the coming decades. Regarding the desire to replenish depleted assets, it seems likely that current low saving rates in the region are repressed because of the continuing economic transition. This suggests that saving rates will eventually increase (beyond what standard determinants would suggest), as households and firms try to replenish depleted household assets and firm capital stock,

respectively. Given the poor quality of the data, it is difficult to quantify this potential effect.

The data that are available provide some support for the argument that households and firms may currently be saving less than they desire and eventually will want to increase their savings beyond the level suggested by their usual determinants. First, the average saving rate for a number of countries in the region declined in the late 1990s and early 2000s, averaging only 15 percent for the region as a whole, down from 18 percent (in a sample with different starting points, ranging from 1980 to 1990) (annex 3.A). The average saving rate was 24 percent during the same period for the 15 countries that were members of the European Union at that time.[13] Second, the composition of savings in Eastern European and former Soviet countries has an unusually low share of both household and corporate savings compared with those shares in OECD countries (tables 3.2 and 3.3).

Although differences exist both within the region and between industrial countries, two features of the composition of saving data are particularly distinctive. First, foreign savings are crucial as a source of funds in most Eastern European and former Soviet countries, whereas they are largely unimportant in the industrial countries.[14] Second, household savings play a much bigger role as a source of funds in most industrial countries than in these countries. Moreover, in some countries of the region—Bulgaria being the starkest example—household savings have been negative for the past couple of years, suggesting that households consume by depleting their assets. Most likely, this unusual composition of savings in the region reflects an incomplete

TABLE 3.2

Uses and Sources of Funds, Selected Industrial Countries, Selected Years

	France			Germany			Japan		
Uses and sources	1980–89	1990–99	2000–02	1980–89	1991–99	2000–02	1980–89	1990–99	2000–02
Uses									
Investment	100	91	93	—	97	89	92	94	93
Current account surplus	0	7	7	—	3	10	6	5	4
Government deficits	0	2	0	—	0	1	0	0	2
Other	0	0	0	—	0	0	1	1	1
Sources									
Household savings	43	45	48	—	49	50	43	38	33
Nonfinancial savings	34	42	37	—	36	36	38	40	54
Government surplus	7	3	7	—	3	3	16	15	0
Foreign savings	6	1	0	—	0	0	0	0	0
Other	10	9	9	—	11	12	3	7	12

Source: United Nations System of National Accounts database.

Note: — = not available.

TABLE 3.3

Uses and Sources of Funds, Selected Eastern European and Former Soviet Countries, Selected Years

Uses and sources	Czech Republic 1995–2001	Poland 1995–2001	Bulgaria 1999–2002	Estonia 1995–2002	Kazakhstan 1990–99	Kazakhstan 2000–02
Uses						
Investment	100	96	59	97	73	86
Current account surplus	0	1	0	0	2	9
Government deficits	0	0	0	0	15	0
Other	0	3	41	3	10	4
Sources						
Household savings	18	40	0	13	3	0
Nonfinancial savings	45	26	60	28	60	57
Government surplus	15	8	18	22	4	23
Foreign savings	11	—	20	24	17	1
Other	12	9	3	na	16	18

Source: United Nations System of National Accounts database.

Note: — = not available.

economic transition. Eventually, households and firms can be expected to stop running down assets and to want to replenish their stocks for retirement and precautionary motives.

Finally, decision making about savings by households and firms is closely tied to the financial instruments at their disposal. Even the most industrial countries in the region still have relatively small financial sectors compared with their Western European neighbors. Thus, as these markets deepen, both firms and households are likely to find it more attractive to put aside more savings than they currently do. These issues pertaining to financial markets are discussed in the next section.

Although it is difficult to estimate the exact magnitude of these offsetting factors, it is possible to group Eastern European and former Soviet countries by whether their likely impact on savings will be small, medium, or large (table 3.4). For instance, Serbia has a GDP per capita adjusted for purchasing power parity (PPP) of only

TABLE 3.4

Benefit to Eastern European and Former Soviet Countries from Offsetting Factors

Country group	Little impact	Medium impact	High impact
New EU members	X		
Bulgaria and Romania		X	
Southeastern Europe			X
Middle-income CIS		X	
Low-income CIS			X

Source: World Bank staff assessments.

Note: Offsetting factors include income convergence, capital market deepening, and higher-than-anticipated savings driven by desire to replenish depleted assets. CIS = Commonwealth of Independent States.

US$2,620, very low (in fact, suspiciously negative) domestic savings, and a virtually nonexistent financial sector. It is likely to benefit much more from these offsetting factors than, say, the Czech Republic or Slovenia. The bad news is that the countries facing the worst demographic shock are also the countries that are least likely to benefit a lot from these offsetting factors. In particular, the relatively richer countries in the region—those with less of an income gap relative to Western Europe, more developed capital markets, higher saving rates, and more complete economic transitions than the rest of the region—are facing the highest increases in their dependency rates.

The concern about a possibly serious negative impact of aging on savings, then, should not hold regionwide. It will be particularly relevant for the Czech Republic, Hungary, Poland, the Slovak Republic, Slovenia, and possibly the three Baltic states. Thus, without active policy measures (discussed later), these countries are likely to face declining domestic saving rates.

However, declining domestic saving rates do not necessarily dictate declining economic growth. Savings are important because they finance investment, which, in turn, is a key determinant of growth. However, in economies that have liberalized capital accounts, investors do not have to rely exclusively on domestic savings. Indeed, as table 3.3 shows, the Eastern European and former Soviet countries already rely heavily on foreign savings to help finance their domestic investment needs. Thus, the countries most likely to face declining domestic savings could, within limits, continue to tap international capital markets to finance domestic investments. An important point from a policy perspective is that the limits to this source of finance are determined partly by exogenous factors such as foreigners' appetite for risk and other countries' demographic profiles and partly by factors that help enhance a country's credibility (such as sound macroeconomic policies, transparency, and good governance) and the ease of doing business there (box 3.3). These factors are within the countries' control.

Aging and Financial Markets

Although the aging of the population in a number of countries in the region mirrors that in many nontransition OECD countries, the state of financial markets does not. Bank deposits dominate over other financial instruments the capitalization of stock exchanges (where they exist) is low (figure 3.5) and trading volume is dwarfed by capitalization, indicating largely inactive concentrated markets. Private debt markets do not exist in much of the region.

BOX 3.3

What Role Does Cross-Border Capital Mobility Have in Financial Markets?

Cross-border capital movement is influenced by both current demographic characteristics and expected demographic changes (Lührmann 2003). Other things being equal, countries with high youth and old-age dependency rates are expected to run current account deficits, while countries where the middle-age population is large should have surpluses. Interestingly, the models based on this insight do not explain the large current account deficits accrued by industrial countries when their middle-age population was large, youth dependency was low, and old-age dependency not yet very high. According to this logic, the current account deficit of the United States should move toward a surplus or at least become smaller. In practice, however, the deficit keeps growing, meaning that the models fail to capture some important factors of international capital flows.

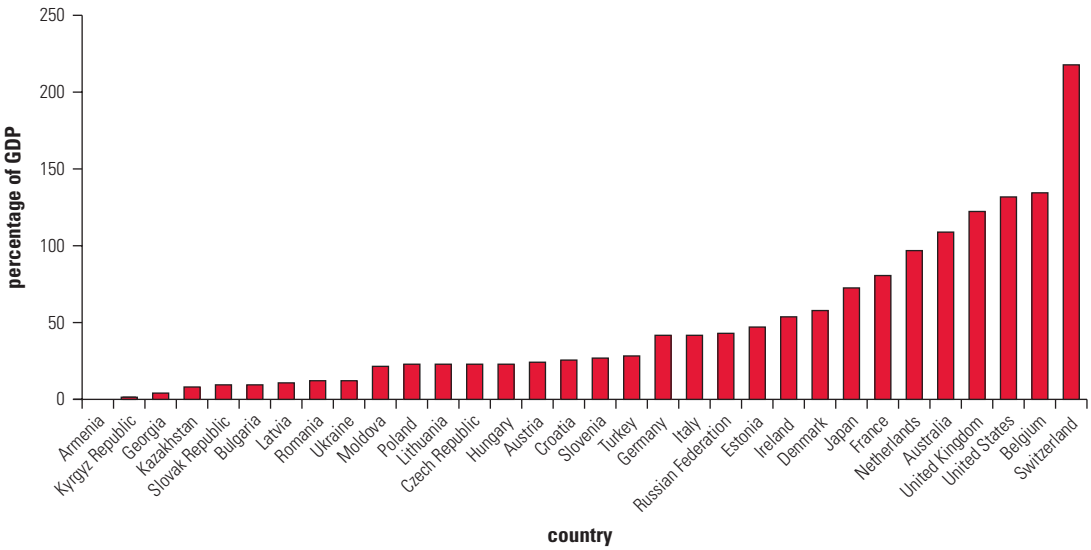
International capital movement should also depend on the openness of the country in question: the more open an economy is, the less closely domestic investments should track changes in domestic saving rates. Interestingly, this proposition is not borne out by historic data—savings and investments correlate closely in OECD countries, which are quite open, though the correlation has been getting weaker over time (see Feldstein and Horioka 1980). Possible reasons for imperfect capital mobility include transaction risks and costs, real and perceived information asymmetry leading to "home bias," explicit portfolio regulations, and implicit portfolio constraints imposed by exchange rate policies.

It is generally assumed that greater trade and openness will enhance the chances of older and richer countries to invest in younger, emerging economies. But there are competing arguments regarding the effectiveness of such capital flows as an instrument for managing demographic risks. The countries that have the capacity to absorb an excess supply of capital are the ones with younger populations. Yet increased flows of capital to young countries are problematic, because such countries are typically poorer, in great need of domestic investments, and hardly have the surplus liquidity to absorb any excess supply of financial instruments. Furthermore, capital mobility is not costless, and the increased political, economic, transaction, and other risks may discourage rich countries' investors.

The development and present significance of financial markets differs across the region. To illustrate this variation, table 3.5 organizes regional countries according to equity, public and private debt capitalization, and total financial savings that could be placed in instruments other than bank deposits. These indicators are expressed in relative terms (as a percentage of GDP), which indicate how embedded the domestic financial markets are in the national economy and, in absolute dollar values, suggest the presence of the country in the global financial system. The underlying data, shown in annex 3.B,

FIGURE 3.5

Stock Market Capitalization as a Percentage of GDP, Selected Eastern European and Former Soviet Countries and Selected OECD Countries, 2004



Source: World Bank Financial Structure dataset, 2006.

TABLE 3.5

Classification of Eastern European and Former Soviet Countries According to the Relative and Absolute Significance of Their Financial Markets

	Relative criteria (% of GDP)		
Size of financial market	Under 50% of GDP (insignificant)	Between 50% and 150% of GDP (small)	Above 150% of GDP (significant)
Under US$0.1 billion (insignificant)	Central Asia, Western Balkans, Belarus, Bulgaria, Latvia, Lithuania, Romania, Ukraine,	Croatia, Estonia, Slovak Republic, Slovenia	—
Between US$0.1 and US$1.0 billion (small)	—	Czech Republic, Hungary, Poland, Turkey	—
Above US$1.0 billion (significant)	—	Russian Federation	—

Source: World Bank Financial Structure dataset 2006.

Note: — = not available.

reveal the huge differences across the region. The former Soviet countries (except the Russian Federation) and the western Balkan countries all have very small financial markets in both relative and absolute terms. In relative terms, financial markets are most significant in some—though not all—Central and Eastern European countries. Annex table 3.B.1 also includes some industrial countries, to show that their financial markets are far more developed than those of even the most advanced countries of the region.

The Evolution of Financial Markets in the Region

Before the transition, strict control of earnings and access to credit meant that what little savings there were financed the consumption of durables and the purchase of property (where allowed). Additional savings could be accumulated in bank deposits or in pillowcases. Hyperinflationary periods during the early years of the transition devalued monetized savings, and the early 1990s saw real wages drop in most countries, if only temporarily. As a result of privatization, corporate restructuring, and the inflow of new technologies, unemployment increased. For job losers older than age 40, layoffs typically led to long-term unemployment and often exit from the labor market.

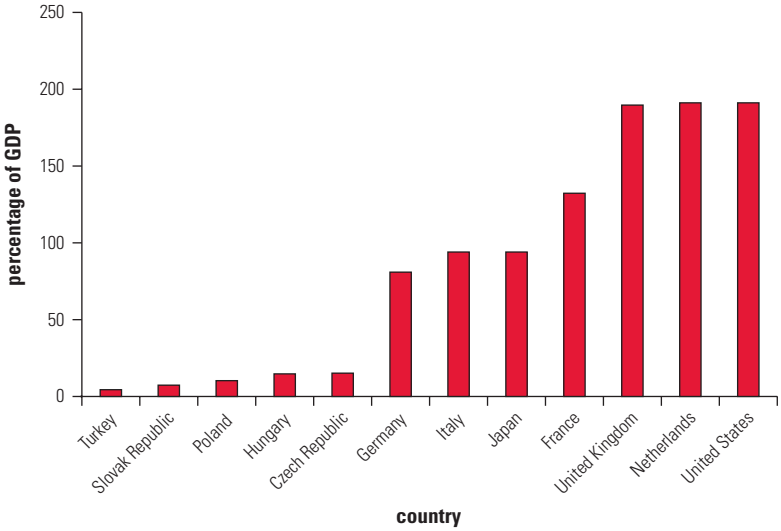
These developments contributed to a situation in which people who were older than 40 in the 1990s and who are now approaching retirement have, for the most part, not yet accumulated significant financial savings or investments. This situation is genuinely different from circumstances in other European countries, Japan, or the United States. Even in transition countries where structural pension reforms introduced defined-contribution pension schemes, people older than age 40 were discouraged from joining the new systems. Thus, the forced savings of mandatory private pension plans have not changed their portfolios either. The most important—and often only—asset for people older than age 40 is their owner-occupied real estate. Limited population mobility, shallow real estate markets, and a lack of financial instruments (such as reverse mortgages) that would help liquidate these assets while maintaining the utility of occupation means that aging is unlikely to lead to supply shocks on either financial or real estate markets in the coming decade.

Bank deposits are the dominant saving instrument but still represent only a small percentage of GDP, exceeding 50 percent only in Croatia, the Czech Republic, and the Slovak Republic. This situation is attributable to the combined effect of low savings and lack of trust in financial intermediaries and products in general. In a very few countries, such as Hungary or Poland, it is also attributable to the availability of trustworthy alternatives to bank deposits. In most countries of the region, however, the income effect (that is, very low savings) dominates all other factors. Because the economies of Eastern European and former Soviet countries are small and foreign portfolio investment is limited to a few blue-chip issues, their underdeveloped financial markets mean that their influence on global capital markets is negligible on the aggregate demand and supply sides.

According to financial sector assessments conducted in these countries by the World Bank and the IMF, the necessary regulatory framework is usually in place, at least as far the legal norms are concerned.

FIGURE 3.6

Financial Assets of Institutional Investors as a Percentage of GDP, Selected Eastern European and Former Soviet Countries and Selected OECD Countries, 2004



Source: World Bank Financial Structure data set, 2006.

In terms of enforcement capacity, however, the picture is mixed. With the exception of the new EU members of Central Europe, the development of nonbank financial institutions in the region is slow and often limited to microfinance agencies subsidized by the budget or by donors. All these factors contribute to the reality that institutional investors are much less important in Eastern European and former Soviet countries than in countries that have developed capital markets (figure 3.6).

Admittedly, some changes are occurring. In the 1990s, the insurance markets of Central European countries were opened up to foreigners through privatization and through the licensing of new insurers. Life and other insurance markets in Bulgaria, Croatia, the Czech Republic, Estonia, Hungary, Poland, Romania, the Slovak Republic, and Slovenia are now dominated by large international financial groups such as AIG, Allianz, and ING. But many other countries in Central Asia and the Caucasus still have state-owned insurance monopolies. Where insurance markets have opened up, local affiliates of the large international groups are registered as local companies with separate capitalization, portfolio, risk provisioning, accounting, and other rules. Risks are underwritten by the local companies; the extent to which these companies are following independent investment strategies dictated by their local liabilities is not known. This issue is particularly important for life insurers that offer annuity products in pension-reforming countries.

Integration with international capital markets is asymmetrical: domestic investors do not invest in overseas instruments, but foreign investors occasionally venture into portfolio investments in countries of the region. Very few domestic investors have savings sufficiently large and liquid to enable them to consider international diversification, because of the fixed costs of investment intelligence and transaction and other fees. A further reason for little international diversification is that high public debt and its systematic domestic securitization has often made the least risky investment yield the highest returns; thus, domestic public debt instruments have crowded out all other asset classes, including foreign stocks and bonds. Households rarely invest directly in capital markets; it is institutional investors—primarily insurance companies and a few asset managers servicing insurers and corporate treasuries—that are active.

Pension Funds

Quasi-forced savings—legally not mandated but politically strongly encouraged—were a common phenomenon in Central and Eastern Europe in the late 1940s and the 1950s, to dampen demand for consumption goods and to help finance post–World War II reconstruction and industrialization. Later, credit constraints required high down payments or cash purchases of high-value durables for much the same reason. These savings appeared as specialized, nontradable quasi-securities and as bank deposits, but they lost their importance by the 1980s. Recently, however, pension reforms have introduced true forced savings in the form of mandatory contributions to privately managed, fully funded pension schemes.

Pension systems in Eastern Europe and the former Soviet Union underwent repeated adjustments even before the transition or the beginning of large-scale structural reforms. These changes, discussed in detail in chapter 4, were implemented to improve fiscal sustainability through better system dependency rates and to reduce the average replacement rate over time. One of the consequences of the economic shocks and the reforms to the public pension system has been that younger cohorts attempt to opt out of the public scheme and seek alternative solutions for providing their own old-age income security. One of the very few positive effects of this attempt is that these cohorts reach their saving-intensive years at a time when both their income levels and the available instruments make it easier to save and invest for old age. They should thus face better outcomes than those facing the many people who are currently approaching retirement without savings.

In such countries as Estonia, Hungary, and Poland, private pension schemes were introduced into an otherwise functioning market of capital flows and financial intermediation (box 3.4). In other countries—such as Bulgaria, Croatia, and the Slovak Republic—the financial sector was mostly limited to banks and mandatory nonlife insurance, so pension funds were the first major institutional investors that sought to establish diversified financial portfolios. In still other countries, the financial sector is genuinely underdeveloped and cannot provide investment managers with even the most basic services, such as custodianship, depository and settlement services,

BOX 3.4

Key Pension Fund Concepts

Defined-Benefit Plans

The most common version of these plans defines benefits as a percentage of the beneficiary's final salary or average salary over a legally defined period (typically including the highest-earning period). Because benefits are determined and cannot be adjusted later in response to available resources, the sponsor of a defined-benefit scheme who underwrites the pension promise has to make sure that the plan's revenues and accrued assets can finance its liabilities. Defined-benefit pension schemes pool economic and demographic risks and therefore can function best with large groups of insured individuals.

Defined-Contribution Plans

These schemes function as individual investment accounts. They do not pool risk unless specific regulations introduce risk-pooling elements. Benefit levels depend on the annuity that can be purchased at the time of retirement from the accrued value of the individual account. If individuals are buying annuities or other defined-benefit products, both they and the annuity provider are subject to the benefits and risks of insurance products. If individuals take out their pension savings as a lump sum or a phased withdrawal, then the system is a pure defined-contribution one. In that case, however, regulators must ensure that the longevity risks are covered by other means.

Financing

Pension schemes can be fully funded or pay-as-you-go (PAYG). Defined-contribution schemes are, by definition, fully funded because the asset value of the scheme's fund defines its liabilities toward the members. Defined-benefit schemes can be fully funded—hence the importance

(*continued*)

BOX 3.4

(*continued*)

of the funding ratio, which compares the net present value of accrued liabilities with that of available resources, including future revenues—or unfunded. An unfunded defined-benefit scheme is unfunded by accident or by design. PAYG schemes are unfunded by design and have no accrued assets, or if they do, the assets can serve only as demographic buffer funds and are dwarfed by accrued liabilities.

Pension Funds in Financial Markets

Fully funded schemes invest most of their assets in securitized investments and therefore play an important role as institutional investors. Public PAYG defined-benefit schemes do not play a direct role in financial markets—although if they increase public debt (as a result of revenue shortfalls) and the debt is financed through markets, then the increased supply of government bonds affects asset prices and portfolio composition.

Management

Pension schemes can be publicly or privately managed, and there are defined-contribution and defined-benefit schemes in both categories. Because PAYG financing requires enforcement powers, such schemes function only under public (state) management.

Coverage

Pension schemes can have universal or partial coverage. If coverage is partial, participation may depend on geographic, income, occupational, or other factors. It is important that a pension system be universal even if particular pension schemes may provide only partial coverage (for example, for employees, civil servants, or farmers). The regulator just has to make sure that every person belongs to some pension scheme.

and enforcement. Despite these conditions, Kosovo already has a mandatory private pension scheme, and countries—such as Bosnia and Herzegovina and the Kyrgyz Republic—are considering similar reforms.

Can pension reform spur the development of financial markets? Reforms introducing mandatory, privately managed, fully funded pension schemes can change the financial sector landscape by creating a new type of institutional investor that will need the services of other financial intermediaries. However, unless pension reform artificially creates an enclave, the Central Asian republics (with the exception of Kazakhstan), the countries of the Caucasus, and some of the

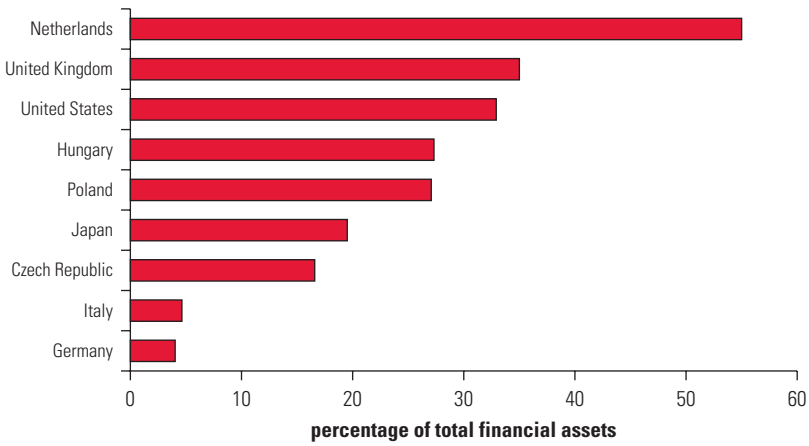
western Balkan economies (Bosnia and Herzegovina, Kosovo, and the former Yugoslav Republic of Macedonia) are unlikely to see the emergence of large and sufficiently deep and liquid domestic financial markets in the absence of major improvements in per capita income and economic management. Should an enclave be created, the pension fund industry would be the investor par excellence, and domestic aging patterns would have a pronounced effect on the demand for investment options. If pension funds are unable to follow their desired investment policies, the effects will be felt by their clients (pensioners) or, in the case of explicit rate-of-return guarantees, by the state.

In some of the more advanced countries in the region, where financial markets functioned somewhat before pension reform, the growth in demand for financial instruments would still be very slow if not for the newly created pension funds. Although pension funds started operating only seven years ago in Hungary and Poland, they already represent a large share of the total assets managed by institutional investors in these countries (figure 3.7). These two countries had well-regulated, relatively liquid capital markets; established systems of securitized and traded public debt; advanced privatization; and companies listed on their domestic markets. Still, mandatory pension funds grew quickly to almost one-third of the total assets under management and are set to continue on this path.

As demand for securities increases, pension funds may find it more difficult to place their investments. To what extent this difficulty will lead these funds to invest abroad depends on various factors. The

FIGURE 3.7

Pensions Funds as a Percentage of Total Financial Assets Held by Institutional Investors, Selected Eastern European and Former Soviet Countries and Selected OECD Countries, 2004



Source: World Bank Financial Structure data set, 2006.

growing appetite of pension funds can cater to growing securitized public debt, unless governments observe more restrictive fiscal policies. High public debt already drives pension funds in Bulgaria, Hungary, Latvia, and Poland to invest between two-thirds and three-fourths of their portfolios in domestic government bonds. Given that new government debt can be placed easily with pension funds, it will be tempting both for governments to issue and for pension funds to buy these instruments. It is easy to imagine a situation in which the presence of private pension schemes delays the onset of fiscal prudence and limits portfolio diversification. Another factor is whether corporations' financing needs will give rise to private debt issues as opposed to corporations relying solely on the banking sector.

To what extent could pension funds contribute to a diversified supply of domestic securities beyond government bonds? Portfolio composition is driven partly by regulations, but other factors also can constrain funds.[15] In such countries as Hungary, where government bonds still represent a large majority of pension fund portfolios and variations across funds are very small, it is unlikely that pension funds would play a role in the short term in diversifying portfolio structure. Although there is a very gradual shift away from public debt issues throughout the region, pension portfolios will not be restructured much before mandatory annuitization starts. It can be assumed that future annuity providers will not invest heavily in equity and other high-volatility instruments and that they would more likely contribute to the continuing domination of debt over other instruments.

EU membership is not likely to change much in terms of institutional investors' portfolio strategy. The constraints on capital movement are neither smaller nor greater than before, but converging European regulations and growing portfolios in the region afford investors significantly more overseas opportunities. Those Eastern European and former Soviet countries that are now members of the European Union and have demographic structures similar to those in Western Europe will not provide a model for managing demographically driven financial market pressures. The reason these countries—in particular, the ones that have reformed pension systems—are likely to present surplus demand eventually is their expected increases in incomes and savings.

Implications of Aging for Financial Markets

How can aging affect financial markets in the region? Clearly, that will depend on whether there is a domestic financial market in the first place. If no financial assets are traded, if local institutions do not invest

overseas, and if public expenditures do not incur debt other than soft loans provided by international financial institutions, then demographic trends will have no direct effect on financial market development. The extent to which aging has an impact on financial markets depends on various conditions. First, the country's population must have an income that allows for saving, beyond accumulating buffer funds for unexpected short-term needs.[16] Second, savings must appear in the financial system as bank deposits, insurance policies, or investment portfolios managed directly by the asset owners or by an institutional investor on their behalf. Third, a financial market must exist that is accessible to individual and institutional investors. Here, the standard should be the presence of a legal and institutional framework established by the state; both private and institutional investors; and a sufficiently large volume of listings, issues, and trading in standardized contracts to render the market deep, liquid, and a reliable source of information.

As this chapter has already emphasized, few countries in the region fully meet those conditions. As a result, aging can be expected to have very little impact on financial markets in most countries. However, the countries with the most pronounced aging trends are, in most cases, the ones where these conditions are closest to being met. To the extent that aging can affect financial markets, its impact will occur through three channels: on asset prices; on portfolio composition; and on financial portfolios.

Aging and Asset Prices

The life-cycle hypothesis suggests that an increase in the old-age dependency rate leads to a drop in asset prices.[17] Although the life-cycle framework is intellectually appealing, applying it to real-life observations has proven difficult. The proposition that aging will lead to falling asset prices relies on various assumptions—including a fixed saving rate for young cohorts, a fixed capital supply, and a lack of capital mobility—that may not be realistic (box 3.5). For example, younger workers are likely to adjust their saving rate as needed—for instance, for the potential loss of pension income.

Studies have found that the effect of demographic trends on asset prices varies depending on the assumptions made. For example, by releasing the fixed capital supply constraint, Lim and Weil (2003) show that demography has no impact on asset prices. A consequence of this lack of impact is that the more it costs to adjust the capital intensity of production, the greater the effect that aging will have on these prices. Although the actual numbers depend on the specifications of the model, the research demonstrates that flexible capital supply reduces the risk of demographically induced asset price shocks.

BOX 3.5

Aging and Asset Meltdown

Asset meltdown has been raised as a possible concern in countries where the size of the cohorts that tend to have positive net savings (typically between age 40 and retirement) is shrinking over time. Thus, when these cohorts decide to divest in order to finance their consumption in the years when they no longer have labor income, there is always a smaller cohort to purchase the assets that the older generation is selling. This situation results in lower demand and lower asset prices. If this process accelerates because of an unmanageable shock—such as the retirement of the baby boom generation—asset prices may fall significantly. It is often argued that the entry of this generation into their saving-intensive years fueled the lasting bull market of the 1990s and that, when the baby boomers start to retire, a similarly pronounced downward pressure on asset prices will lead to a crash. The literature mostly supports the possibility that some relationship exists between the aging of the labor force, the proportion of the elderly within the population, and asset prices. However, no model predicts a tectonic movement that would qualify as asset meltdown and would be comparable to any of the historic crashes (for example, those of 1929 and 1987).

International capital flows should also reduce the effect of local aging patterns. Their importance in hedging against this effect depends on how costly cross-country capital movements are and whether there are information asymmetries and efficient portfolio size limitations.

Aging and Portfolio Composition

The portfolio restructuring hypothesis holds that people's risk aversion is a function of their age—that is, that the older they are, the less risk they are willing to take. Consequently, as people age, they are expected to shift away from risky assets, such as equity, and move toward instruments of lower volatility. In the United States, stock ownership is particularly high; according to the 2001 Survey of Consumer Finances, the likelihood of equity ownership increases until age 59 and then starts declining—but very slowly. At the same time, liquidation of stock positions is much less pronounced than expected: according to the survey, by age 75, consumers liquidated only 25 percent of their stocks.

For the most part, however, empirical evidence does not support the proposition that households shift markedly into cash and riskless assets at retirement. The two most important asset classes here are real estate and pension benefits from public or private schemes.[18] Growing life expectancy at retirement is not reflected in longer working lives; therefore, young retirees' risk aversion is not necessarily

greater than that of working-age people. In fact, because annuities underwritten by government, employers, or financial service providers are stable and secure (unlike wages), young retirees may be inclined to take more risk in terms of their financial portfolio than if they were not retired. If housing markets are liquid and values are relatively stable, real estate is also seen as a less risky and relatively liquid component of household portfolios.

The manner in which households react to aging, shifting away from risky assets long after retirement, if at all, crucially depends on how well the institutions that provide a stable retirement income flow—the state and private pension fund managers—meet their obligations. According to a report prepared for the Group of 10, analysts expect that, in the foreseeable future, the effect of aging on portfolio composition will be dominated by regulatory changes (Visco 2005). The share of stocks is still greater than 50 percent in the countries with the largest pension fund assets: Japan, the Netherlands, the United Kingdom, and the United States. If pension funds start shifting from stocks to bonds, equity prices may go down, and bond yield curves may also shift downward. The extent of such movements is debated; estimates vary between 1 percent and 15 percent for equity prices and from 10 to 150 points in terms of the yield curve (using U.S. data) (Visco 2005). Large-scale portfolio rebalancing looks unlikely, however, because pension fund managers need to make up for the funding gap and therefore need large equity positions. Even if gradual shifts are deemed desirable, it is more likely that adjustments will be made at the margin, when newly collected premiums are invested.

Aging and Portfolio Structure

As a consequence of the shift toward defined-contribution schemes, the share of fully funded defined-benefit obligations decreases. The total amount of these liabilities keeps increasing, however—and so does the expected maturity of these liabilities, as life expectancy at retirement increases. As asset-liability matching becomes more difficult, the availability of instruments with very long maturities (30 years and more) and inflation-linked issues (such as index bonds) is considered crucial. Today, the total supply of long-term bonds and index-linked bonds is 30 percent and 35 percent, respectively, of total pension fund assets (Visco 2005). Given that private issuers are reluctant to issue bonds that have such long maturities, public issues may need to be relied on if demand for these instruments is to be met. Future portfolio shifts by financial institutions that underwrite long-term defined-benefit obligations may be in the direction of investing in these instruments.

Other instruments—still in their experimental phase—include longevity bonds and macro swaps. The first, championed by the European Investment Bank, links payments over the bond's life span to the number of surviving elderly in a given cohort; the issuer shares the risk with commercial reinsurers. There are no experiences with this type of security; it was to be issued for the first time in 2006. Macro swaps are intended to make use of the complementary risks inherent in pension and health insurance in a way that ensures that unexpected increases in pension obligations are partially underwritten by health insurers, whose premiums increase in line with increased longevity. Such macro swaps do not seem to have been introduced as securitized instruments yet.

Policy Implications

The conventional wisdom is that aging economies will be constrained by savings that dry up as older populations save less, reducing the resources available for investment and growth. This fear has merits in mature industrial countries in which growth rates fluctuate only marginally around a long-term trend. However, for Eastern European and former Soviet countries, the relationship between aging and saving is more complicated. In the first place, aging is proceeding rapidly in virtually all EU15 countries, whereas the countries in Eastern Europe and the former Soviet Union are a more heterogeneous group. For a number of these countries, dependency rates are not projected to decline over the next two decades, so demographically driven concerns about declining saving rates are not relevant.

For the countries that are experiencing rising dependency rates, various factors could offset the pure demographic effect and help push up savings. These factors include expected higher levels of income, a likely desire on the part of households to replenish depleted assets, and institutional reforms that deepen financial reforms and increase the quality and availability of saving instruments. In most of the Eastern European and former Soviet countries that are at risk because of their dependency rates, these offsetting factors are likely to more than compensate for the negative impact of dependency rates. However, for the new EU member countries, which are more developed, these offsetting factors may not be enough. Domestic savings could, indeed, decline in these countries. In an open economy, these countries can borrow (that is, run a current account deficit) in international markets to finance domestic investments. Currently, none of the countries in the region have financial markets that are significantly integrated into international flows, so further opening up of domestic markets will be

needed. However, all countries cannot be borrowers at the same time. With most industrial countries experiencing similar demographic trends, the scope for aging countries in the region to rely on international borrowing to compensate for lower domestic savings may be limited, even if their markets become more internationally integrated.

Although the effects of aging on saving are more complicated than a demographically determined view suggests, aging can still present potentially serious macroeconomic risks if policy makers do not respond accordingly. If economic policies do not support productivity gains and aggregate growth, the expected income effects on savings will not materialize. The confidence of foreign investors will also suffer. Moreover, a favorable saving scenario depends on financial markets developing further as well as the pension reform agenda being completed (more on this in chapter 4).

The development of financial markets will be important. Currently, these markets are small and, outside the more advanced parts of Central and Eastern Europe, are limited essentially to bank deposits. In much of the region, income levels and distributions do not allow a sufficiently large demand for other financial products to develop. The impact of aging on these markets is unlikely to be a major factor in itself. Private pension schemes may subject pension-reforming countries with fledgling capital markets to price pressures caused by aging, but it is unlikely that aging as a trend will have a pronounced effect in the near future in Eastern Europe and the former Soviet Union. The shock of aging manifested by the retirement of the baby boom generation is not expected to bring about major upheavals in the region's more developed markets, and its effect is expected to be hardly noticeable in much of the region. Not all countries had a baby boom, and in those that did, the baby boom generation did not accumulate investments sufficient to affect financial markets significantly.

Portfolio structures are unlikely to change significantly as a result of aging because institutional investors and pension funds, which dominate the market where they exist, are already heavily invested in debt issues. Indeed, whereas governments in more developed markets need to support the emergence of long-term, specialized instruments suitable for matching the long-term liabilities of pension providers, governments in the Eastern European and former Soviet countries have a more urgent concern in ensuring a reasonable supply of domestic equity and private debt.

The most pressing issue is mandatory annuitization of private pension savings in countries that have already committed themselves to it. In this respect, very little has been done. Governments urgently need to consider the level of mandatory annuitization, bearing in mind the retirement income to be received from the remaining pay-as-you-go

TABLE 3.6

Reform Agenda for Aging Countries by Country Grouping

Country grouping	Reform priorities to help mobilize savings (both foreign and domestic)
EU countries	• Implement better financial information management. This includes capital inflows, saving rates, and remittances. National accounts data need an overhaul in most countries. • Aggressively attract foreign investment through a credible macro environment, transparent policies, and a friendly business environment. • Adjust quantitative regulations, guarantees, and benchmarks in the private pension sector in a manner that promotes greater diversification. • Continue lengthening the maturity of public debt instruments. • Define and regulate permissible annuity products to be purchased for mandatory pension savings. • Regulate access to overseas financial products in a manner that ensures low-cost, high-transparency transactions. • Explore the avenues of closer regional cooperation among concentrated markets.
Southeastern Europe and middle-income CIS	• Enhance credibility of macroeconomic policies through transparency and good governance (the Baltic states provide examples to follow). • Improve quality of regulations and supervision and promote the growth of the relative weight of nonbank financial institutions through public education, transparent and low-cost licensing, internationally accepted accounting, dissemination, and corporate governance rules. • Establish yield curves and regular and regulated trading systems for public debt, and continue enterprise restructuring and privatization. • Regulate access to financial products offered by foreign entities.
Low-income CIS	• Enhance credibility of macroeconomic policies through transparency and good governance (the Baltic states provide examples to follow). • Promote savings in financial instruments through improved bank and NBFI regulations. • Introduce preventive regulations to keep unregulated financial products away from nascent markets. • Promote the development of domestic debt and equity markets by improving accounting, disclosure, and corporate governance regulation by establishing and expanding public debt yield curves. • Limit the growth of public pension liabilities in order to create future room for private pensions.

Source: World Bank staff assessment.

Note: NBFI = nonbank financial institution; CIS = Commonwealth of Independent States.

schemes and the benefits of allowing flexible arrangements. Moreover, governments urgently need to regulate the type of institution that can offer annuity products; the technical specifications; regulatory and supervisory regimes pertaining to annuities; and the manner in which customers are protected against the risk of underfunding. Table 3.6 summarizes the policy options available to policy makers to mobilize savings in different groups of countries in the region.

Annex 3.A: Gross Domestic Savings in Eastern European and Former Soviet Countries

Annex table 3.A.1 shows the gross domestic saving rates for all countries of Eastern Europe and the former Soviet Union. The data are from the World Bank's World Development Indicators database.

TABLE 3.A.1

Gross Domestic Saving in Eastern European and Former Soviet Countries

Country	Sample length		Average gross domestic saving		
	Start	End	Full sample	Since 1995	GDP per capita ($, PPP)
Tajikistan	1985	2004	16.5	10.7	1,104
Moldova	1980	2004	11.0	−0.2	1,613
Uzbekistan	1987	2004	19.0	21.1	1,732
Kyrgyz Republic	1986	2004	8.6	8.2	1,785
Serbia and Montenegro	1993	2004	−2.5	−2.5	2,620
Georgia	1970	2004	12.5	1.6	2,756
Azerbaijan	1990	2004	15.6	16.2	3,864
Armenia	1990	2004	−2.9	−6.6	3,907
Albania	1980	2004	7.9	−0.8	4,579
Simple average (GDP per capita <$5,000, PPP-adjusted)			9.5	5.3	
Ukraine	1987	2004	25.6	22.1	5,847
Macedonia, FYR	1990	2004	8.3	6.9	6,074
Belarus	1990	2004	23.0	20.6	6,391
Turkmenistan	1987	2004	26.7	24.4	6,498
Bosnia and Herzegovina	1994	2004	n.a.	n.a.	6,571
Kazakhstan	1990	2004	22.0	22.6	6,936
Turkey	1970	2004	16.6	19.1	7,135
Bulgaria	1980	2004	22.1	13.4	7,410
Romania	1980	2004	19.4	14.8	7,721
Russian Federation	1989	2004	32.1	29.9	9,128
Simple average (GDP per capita $5,000–$9,999, PPP-adjusted)			21.8	19.3	
Latvia	1970	2004	27.7	16.5	11,148
Croatia	1990	2004	12.4	15.5	11,250
Poland	1990	2004	22.5	17.9	11,921
Lithuania	1990	2004	16.1	14.2	12,051
Estonia	1980	2004	23.0	21.7	12,773
Slovak Republic	1984	2004	25.4	23.8	13,437
Hungary	1970	2004	27.1	25.5	15,399
Czech Republic	1990	2004	27.0	26.3	17,937
Slovenia	1990	2004	23.7	23.7	19,251
Simple average (GDP per capita >$9,999, PPP-adjusted)			22.8	20.6	
Average			17.9	15.0	

Source: World Development Indicators database.

Note: GDP = gross domestic product; PPP = purchasing power parity.

Annex 3.B: Selected Financial Sector Indicators

Annex table 3.B.1 compares financial indicators for the countries of Eastern Europe and the former Soviet Union with those of selected nontransition OECD member countries. Even the most advanced countries of the region do not have financial markets as developed as the industrial OECD countries.

TABLE 3.B.1

Selected Financial Sector Indicators for Eastern European and Former Soviet and Selected Non–Eastern European and Former Soviet OECD Countries, 2004

	Financial system deposits		Stock market capitalization		Private bond market capitalization		Public bond market capitalization		Total		GDP
Country	as percentage of GDP	US$ (billion)	as percentage of GDP	US$ (billion)	as percentage of GDP	US$ (billion)	as percentage of GDP	US$ (billion)	as percentage of GDP	US$ (billion)	US$ (billion)
Kyrgyz Republic	7.3	0.66	1.5	0.13	—	—	—	—	8.8	0.79	9
Armenia	8.8	1.40	0.7	0.10	0.0	0.01	—	—	9.5	1.52	16
Georgia	7.7	1.24	3.8	0.62	—	—	—	—	11.6	1.85	16
Ukraine	—	—	12.3	39.35	—	—	—	—	12.3	39.35	319
Kazakhstan	16.0	21.24	7.8	10.43	—	—	—	—	23.8	31.67	133
Macedonia, FYR	26.9	4.31	—	—	—	—	—	—	26.9	4.31	16
Romania	20.4	38.14	11.9	22.23	—	—	—	—	32.3	60.37	187
Latvia	27.5	8.25	10.3	3.09	—	—	—	—	37.8	11.34	30
Moldova	22.7	2.27	21.0	2.10	—	—	—	—	43.7	4.37	10
Bulgaria	34.5	23.10	9.5	6.35	—	—	—	—	44.0	29.45	67
Albania	44.4	7.98	—	—	—	—	—	—	44.4	7.98	18
Lithuania	23.9	11.94	22.5	11.23	—	—	—	—	46.3	23.16	50
Russian Federation	24.6	378.23	43.1	663.93	0.0	—	3	40.82	70.4	1,082.97	1,539
Slovenia	49.8	20.93	26.2	11.02	—	—	—	—	76.1	31.96	42
Estonia	33.3	7.32	46.4	10.21	—	—	—	—	79.7	17.53	22
Croatia	59.5	32.13	25.0	13.52	—	—	—	—	84.5	45.65	54
Slovak Republic	53.9	46.34	8.8	7.55	0.0	—	27	23.36	89.8	77.26	86
Poland	34.9	171.10	22.4	109.85	0.0	—	34	164.42	90.9	445.37	490
Hungary	39.8	64.12	22.9	36.80	4.7	7.55	43	69.58	110.6	178.05	161
Turkey	38.6	213.38	27.7	153.29	0.0	—	52	285.61	118.0	652.28	553
Czech Republic	60.8	113.12	22.7	42.30	6.9	12.86	50	93.75	140.9	262.02	186
Ireland	80.7	110.62	54.4	74.49	22.2	30.40	21	29.36	178.7	244.87	137
Austria	83.1	224.26	24.3	65.58	39.1	105.45	36	95.87	181.9	491.16	270
Germany	96.7	2,371.79	42.2	1,034.73	39.1	959.27	41	1,010.10	219.1	5,375.89	2,454
Italy	52.6	868.96	42.3	698.29	48.0	793.01	86	1,417.74	228.8	3,778.00	1,651
Australia	73.0	468.78	108.4	695.95	38.3	245.67	15	94.06	234.3	1,504.45	642
France	67.1	1,221.77	80.9	1,473.92	44.5	811.35	55	1,011.19	248.0	4,518.22	1,822
United Kingdom	115.0	2,149.93	123.0	2,298.11	16.1	300.10	28	519.94	281.9	5,268.07	1,869
Denmark	51.1	92.95	57.8	105.13	130.2	236.99	46	83.18	284.8	518.25	182
Netherlands	105.5	529.64	96.8	485.97	62.9	315.59	48	240.32	313.1	1,571.52	502
United States	58.8	7,302.48	131.6	16,333.43	111.8	13,869.66	45	5,631.17	347.6	43,136.75	12,410
Belgium	94.8	312.84	134.1	442.63	37.6	124.14	95	312.71	361.3	1,192.31	330
Japan	120.5	4,699.04	73.2	2,853.25	43.7	1,704.33	138	5,380.13	375.3	14,636.75	3,900
Switzerland	148.2	391.23	217.6	574.35	36.2	95.66	31	82.91	433.4	1,144.15	264

Source: World Bank Financial Structure dataset 2006.

Note: GDP = gross domestic product; — = not available.

Notes

1. These figures are based on data from the 2001 Survey of Consumer Finances, available at https://www.federalreserve.gov/pubs/oss/oss2/scfindex.html.
2. It is also important to note that longevity correlates positively with lifetime income and wealth. Thus, the wealthy elderly will live longer on average and may consider decumulation later than the average elderly, if at all. If investment income is sufficient to cover expenses (including health), and if no major investments in physical capital or cash transfers to younger generations are necessary, then aging provides no compelling reason to liquidate investments or particular asset holdings.
3. Unfortunately, the data cannot be shown for individuals age 65 or older—a more appropriate threshold for these countries because it better approximates retirement age.
4. See Poterba (2004) for a discussion of these effects.
5. As will be discussed in later chapters, unless current policies change aging will result in larger fiscal deficits (that is, negative government savings). Although the extent to which households increase their savings in response to deteriorating fiscal situations (that is, whether Ricardian equivalence holds) is still hotly debated by economists, households will inevitably increase their savings in anticipation of future increases in taxes or greater uncertainty about their government's ability to deliver on promises such as pensions and health care services. See Romer (1996) for a discussion.
6. Loayza, Schmidt-Hebbel, and Servén (2000) and Faruqee (2002), respectively, have done literature reviews of the two approaches.
7. Since Modigliani's seminal work on the life-cycle hypothesis in the 1950s (Modigliani and Brumberg 1954), a large empirical literature has explored the impact of aging and, more generally, demographic changes on savings. See Loayza, Schmidt-Hebbel, and Servén (2000) for a review.
8. They find that in developing countries, other things being equal, a doubling of income per capita will raise the private saving rate by 10 percentage points of disposable income.
9. As a result of those weaknesses, very little empirical work has been done on saving behavior in Eastern European and former Soviet countries.
10. For instance, in the Kyrgyz Republic, even though data on savings by institution have been available since 1990, the sum of the institutions (that is, total savings) is not large enough to explain the high observed investment in the early 1990s (see figure 3.5). Therefore, the early years are dropped from the empirical analysis.
11. In the World Development Indicators database, the real interest rates for Kazakhstan, Portugal, and Romania were missing for a number of years. Therefore, the real interest rates were constructed using nominal interest rates and inflation rates from the IMF's International Financial Statistics database. For Kazakhstan, the discount/bank rate was used as the nominal interest rate, and for Romania, the base rate was used. For Portugal, Eurostat data on "loans to enterprises up to 1 year" were used as the nominal interest rate. The real interest rate was calculated as the nominal interest rate minus current-period inflation. Government

savings do not constitute the budget balance, as is commonly used in private saving regression. Instead, the national accounts concept of government savings from the UN database is used.

12. The region's sample is unbalanced in the years covered: Belarus (2000, 2001), Bulgaria (1998–2001), the Czech Republic (1998–2001), Estonia (1998–2001), Kazakhstan (1998, 2001), the Kyrgyz Republic (1998–2001), Latvia (1998–2001), Lithuania (1998–2001), Poland (1998–2001), Romania (1998–2001), and Ukraine (1998–2001). For all the other countries, data are available from 1998 to 2001: Belgium, Colombia, Finland, France, Greece, Italy, Japan, Mexico, the Netherlands, Portugal, Spain, and Sweden.
13. If longer time-series data were available, it would have been possible to estimate more robust saving and consumption equations and examine whether, indeed, current savings (consumption) are lower (higher) than what is expected from the determinants. An implication of this hypothesis is that future savings (consumption) should be more (less) than the usual determinants.
14. The oil-producing countries in the region are the exception to the rule.
15. These factors include the availability of domestic securities other than public debt; efficient portfolio-size limitations; performance benchmarks that give more weight to domestic capital market indicators; high-yield domestic public debt issues generated by the government's financing needs; home bias, driven by information asymmetry and other factors; and limited competition among pension funds, driven by insufficient disclosure regulations and limits on fund members' movement.
16. Corporate savings and investments are interesting from an aging aspect only if the corporation's financial position is directly affected by aging and if corporations channel their savings through financial markets.
17. In a two-period model, workers work for one period and retire in the second. If the saving rate of the working cohort is fixed and so is the supply of capital goods, an increase in the young cohort's population pushes asset prices up. If a large worker cohort retires and is followed by a smaller one, asset prices will drop. The decline will be smooth if driven by the slowly moving trend of aging and can be disruptive if caused by a trough following a baby boom generation.
18. The Survey of Health, Aging, and Retirement in Europe (SHARE), available at http://www.share-project.org, studied wealth in households headed by people older than 50 in selected EU countries to establish the importance of various asset categories in old-age wealth. The survey found that financial asset levels vary much more than net worth. This phenomenon is driven by the different weight of real estate in the portfolio of people close to retirement. The survey also found that in countries where home ownership is high, financial savings are lower and vice versa. Although this finding may be intuitive, it has important implications in terms of old-age income: real estate can contribute to old-age income security only if adequate financial instruments—such as reverse mortgages—are developed. The same study also claims that financial literacy and sophistication have an impact on portfolio composition: in countries where people spend more time managing their finances—taken as a proxy for financial sophistication—individuals tend to invest a higher share of their financial assets in more risky financial assets.