Demographic trends and the price of financial assets: the tail winds are dying down

Analyses attempting to explain the movement of financial asset prices based on factors such as the economic situation, actions taken by central banks, corporate news or geopolitical events are in great supply and therefore come as no surprise. But those focusing on demographic trends are less frequent and can be startling. The short-sightedness of a large number of investors leads them to ignore this variable whose impact is as slow over time as it is powerful in effect. In fact, theory suggests and historical evidence shows that demographic trends influence the two fundamental components of asset prices: the real risk-free rate of return and risk premia.

In a previous Dossier[1] we looked at the basic conclusion proposed by economic theory regarding the impact on interest rates: a larger proportion of the adult population close to retirement entails a lower real equilibrium interest rate. This conceptual framework is based on the life-cycle hypothesis which states that people's income, consumption and savings patterns change with age: they get into debt when they are young (mainly to acquire housing), save during their adult lives (to repay this debt and prepare for old age) and spend their savings in retirement. As a whole, an increase in the share of adult population (for instance 40-65 years of age) would result in higher savings which, all things being equal, would push the interest rate down. On the other hand, as soon as a large enough mass of people reaches retirement age, the overall size of savings decreases, pushing the equilibrium interest rate up. This essential conclusion still features in the many different models proposed to enhance the analysis, incorporating variations related to interactions between the different overlapping generations, the presence of Social Security, inheritance, uncertainty, etc.

Trends in the data have been in line with this theoretical pattern. In fact, the singular demographic phenomenon of the baby boomers (those born after the Second World War) is turning out to be a natural paradigmatic experiment, at least to date. According to a recent report,[2] the demographic transition (the passing of the large number of baby boomers through adult life until reaching retirement age) has effectively resulted in a drop in the real equilibrium interest rate of close to 2 pps in the last three decades.

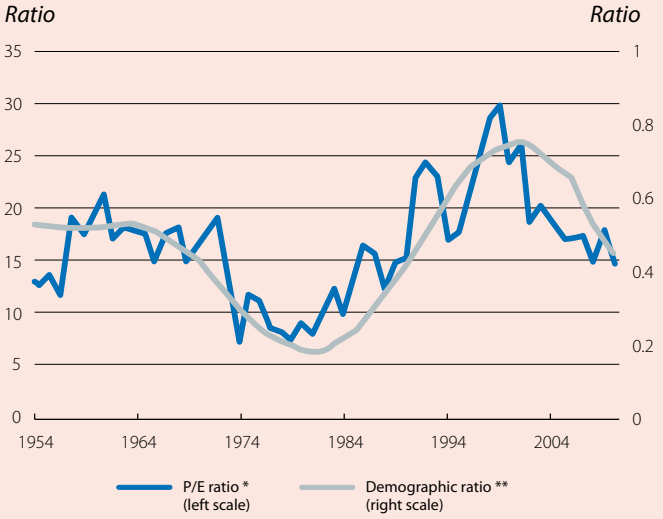
As more and more people in this generation retire, the interest rate should rise particularly quickly: by 1 pps in five years and 2.25 pps in 10 years. Consequently, in the not-too-distant 2025, the real interest rate would have returned to its historical equilibrium level, namely 2.5%-3.0%, as a result of a spectacular drop in global savings estimated at 25% (around 6 pps of global GDP). These figures highlight the powerful effect demographic trends could have on the foundations of financial markets, although there are several reasons why they should be interpreted with due caution. Firstly, such estimates aim to calibrate the effect of demographic trends on the interest rate via the savings supply, considering that demand for savings (to meet real investment) moves in line with the interest rate or at least to a much smaller extent than supply, so that the real interest rate is determined by changes in the latter. Secondly, there is no great confidence in the savings figures projected for emerging countries, not only because demographic projections *per se* are questionable but also because there are no historical references on people's savings patterns within similar contexts of radical economic transformation. Two countries will be key: India and China (whose incredibly high savings rate gave rise to the expression «global savings glut»).

The theoretical connection between demographic trends and the price of risky assets (such as shares) is also essentially based on simple relations. Firstly, a correspondence between the price of each asset and the total flows it generates in the future (dividends in the case of shares), discounted at a specific rate to obtain the present value. Consequently, a higher discount rate would imply a lower current price for an asset (and a lower price-to-earnings or P/E ratio). This rate is made up of the aforementioned real risk-free rate of return plus an equity premium. Secondly, the idea that a person's attitude towards risk changes throughout their life cycle; specifically, the risk tolerance inherent in the stock market is high in youth and adulthood but falls as people approach retirement. As a result of this and of their financial needs and possibilities, the composition of their portfolio gradually changes: the proportion of shares is relatively high at the beginning but low at the end. Demographic trends therefore end up affecting the risk premium required by the market: the ageing of investors pushes up the premium, encourages sell-offs to reduce the portfolio's proportion of equity and pushes down prices.

1. See «Low real interest rates and economic stability» in MR09/2014.
2. Gavin, M. (2015) «Equity Gilt Study», Barclays.

The data in this area also tend to support the outcomes predicted by the theory and, once again, the baby boomers take pride of place. In the last three decades developed stock markets have returned notably higher yields than in the preceding decades, coinciding with the baby boomers passing through the peak of equity accumulation, when they were aged between 35 and 55. Various empirical studies[3] have found a high correlation between age distribution and stock prices, most of these referring to the US stock market. The graph shows the close correlation between the P/E ratio for stock markets and the demographic ratio defined as the quotient between the population in the middle-age cohort (40-49 years) and the population in the cohort around retirement (60-69 years). This ratio seems be a particularly good reflection of what the theory proposes as it compares the two most significant cohorts that tip the balance, leaving aside the very young due to the limited relevance of their share portfolios and those who have been retired for some time. An increase in this ratio is associated with an increase in share prices.

Demographic trends and stock prices



Notes: ** P/E ratio (price/earnings) in the US stock market.*
*** The demographic ratio is defined as the quotient between the population in the middle-age cohort (40-49 years of age) and the population in the cohort around retirement (60-69 years of age) in the US.*
Source: *CaixaBank Research, based on Liu, Z. and Spiegel, M. (2011).*

According to these ratios, projections for the next two decades do not encourage investor optimism: the demographic trends in the emerging countries will increasingly resemble those of the developed countries, the world population will be increasingly older, the drop in savings will push up the real risk-free rate of return and the equity premium will also rise due to the larger proportion of people having passed retirement age or coming close to it. This will result in a higher discount rate than at present, which will tend to push share prices down. However, it is also worth pointing out some considerations that could qualify or even counteract these pessimistic projections. Firstly, the value of bond portfolios will fall as the rate of return rises but, once a new higher equilibrium level is reached, yields will become more attractive again. Moreover, the most recent figures indicate that retired people rebalance their portfolios more slowly than workers at the savings age, so the negative effect on equity could be smaller than the positive effect observed over the last three decades. Lastly, and to complete the scenario, stock prices will not only depend on the discount rate but also on the flow of dividends, profits and, ultimately, economic growth. This leads us to another very relevant factor within long-term analyses: technological innovation, which throughout history has helped to produce huge advances in productivity and income. This has now become the great hope to counteract the demographic winds which are no longer blowing in our favour.

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3. Favero, J., Gozluklu, M. and Tamoni, M. (2011) «Demographic trends, the dividend-price ratio and the predictability of long-run stock market returns», Journal of Financial and Quantitative Analysis; Liu, Z. and Spiegel, M. (2011) «Boomer Retirement; Headwinds for U. S. Equity Market» (2011-26), FRBSF Economic Letter; Geanakoplos, C., Magill, A. and Quinzii, A. (2004) «Demography and the Long Run Behaviour of the Stock Market», Brookings Papers on Economic Activities; Poterba, J. (2001) «Demographic Structure and Asset Returns», The Review of Economics and Statistics.