The impact of low interest rates on household financial behaviour

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Introduction

This article uses Belgian financial accounts for the full year 2010 to analyse recent financial transactions by individuals in an environment marked by low interest rates. We will first comment on the low level of interest rates before examining its influence on household financial decisions, and more specifically on the size and make-up of their new financial assets and liabilities.

The article includes four parts.

The first looks at the characteristics of interest rate levels. In addition to an analysis of the long-term trend in short- and long-term nominal and real interest rates, it pays particular attention to the shape of the yield curve, which can be an essential factor in a variety of financial decisions.

The second part deals with individuals' overall financial operations – their financial balance, their acquisition of assets, new commitments – and looks for real explanations for trends. It focuses chiefly on the impact of interest rates on the savings rate.

Section three studies recent financial asset formation by Belgian households and, more specifically, the role that interest rates play in the choice of savings and investment instruments: on the one hand, interest rate variables may make it possible to choose between short-term and long-term financial assets; on the other hand, they play a key role in determining savers' preferences among the range of savings formulas offered, depending on their duration.

Lastly, the fourth part focuses on the trend in new financial commitments undertaken by individuals in Belgium. With respect to the principal commitment – mortgage loans – interest rates may be responsible not only for the robust growth observed in recent years, but also borrowers' choice of formula among loan offerings.

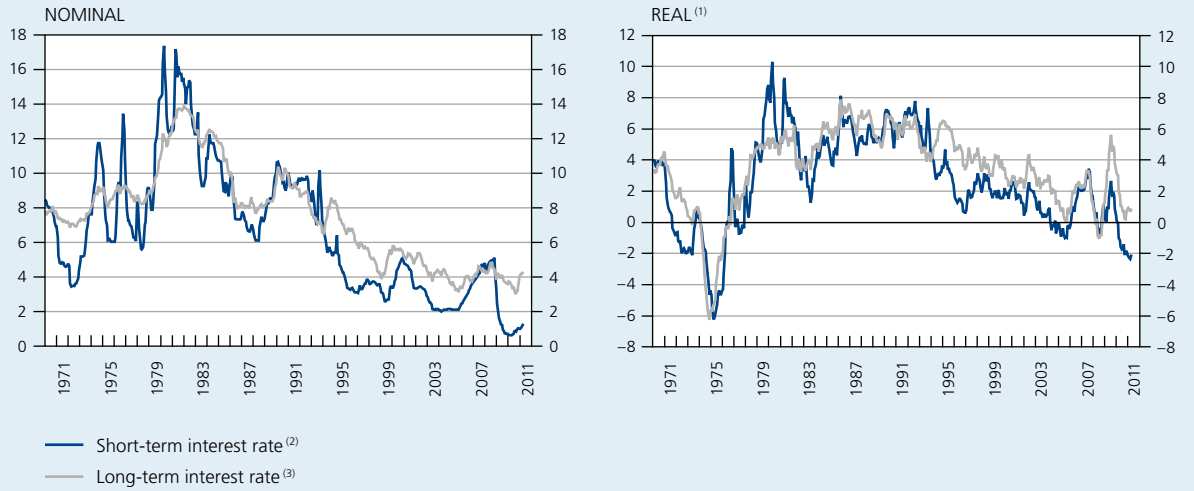
1. Characteristics of interest rate conditions

For most of 2010, short- and long-term nominal interest rates were exceptionally low in Belgium. Short-term rates reached a low of 0.64 % in April 2010, while long-term rates hit a historical low of 2.82 % in late August 2010. Whereas long-term interest rates then recovered fairly rapidly to above 4 % as a result of growing uncertainty regarding the sustainability of European sovereign debt, Belgian nominal interest rates remained very low on average in 2010.

Real interest rates, calculated in this article as the difference between the nominal interest rate and the percentage annual change in the national consumer price index[(1)], were also low in 2010. Real short-term interest rates were even negative, below –2 %. Long-term rates stayed in positive territory, but were clearly below their average level. Unlike nominal interest rates, real interest

(1) This is an *ex-post* real interest rate, which means the nominal interest rate minus the actual rate of inflation. Investors and savers, however, base their decisions on *ex-ante* real interest rates, by estimating future inflation trends. Given the difficulty of accurately measuring those inflation expectations, especially long-term expectations, we opted for this simple measure of real interest rates. However, it does have the drawback of being fairly volatile.

CHART 1 SHORT- AND LONG-TERM INTEREST RATES



Source : NBB.
(1) Nominal interest rates minus the percentage annual change in the national consumer price index.
(2) 3-month interest rate on the Belgian interbank market through December 1998 inclusive (Bibor). 3m Euribor from 1999.
(3) Yield on the benchmark 10-year Belgian government bond.

rates did not reach a historical low. In 1974, when inflation suddenly spiked following the first oil crisis, real interest rates dropped to around –6 %.

The weak interest rates observed in 2010 are chiefly attributable to the ECB's accommodative monetary policy. The ECB lowered its key interest rate in seven steps from 4.25 % to 1 % between October 2008 and May 2009. Furthermore, the ECB's efforts to inject liquidity caused easing on the interbank market, with interbank yields temporarily dropping even lower than central bank rates.

From a historical standpoint, the low interest rate levels are part of a downward trend that began in the early 1980s. The high nominal interest rates of that time were the result of high percentage inflation and the spike in inflation expectations following the oil crises of the 1970s. The downward trend that has taken shape since then is attributable to tamer inflation and better use of monetary policy to manage inflation expectations.

Extremely restrictive monetary policy in the first half of the 1980s, particularly in the US, where the policy was paired with an expansionist fiscal policy, initially resulted in higher interest rates around the world, and thus in Belgium. The policy paid off : inflation fell sharply and economic cycles became less volatile, giving rise to the period of the Great Moderation, which lasted approximately from 1987 to 2007 and was characterised by predictable economic policy, weak inflation, and modest cycles. These factors all likely contributed to lower interest rate levels. In the early 2000s, interest rates around the world were also likely driven downward by a global savings glut (Bernanke, 2005) due to the foreign currency reserves amassed by Asian and oil exporting countries. Until recently, the savings surplus made it easy to finance deficits, most notably the "twin deficits" – current account and budget deficits – of the US.

The low level of interest rates in 2010 was accompanied by a positive spread between long-term and short-term interest rates. Whereas the yield curve was nearly flat at the start of the financial crisis, with a small or even negative spread between long- and short-term interest rates, monetary policy easing from late 2008 led to a positive interest rate structure, with rates rising as a function of their duration. In 2010, the spread between long- and short-term interest rates reached around 3 percentage points, compared with an average spread of 0.9 percentage point since 1970.

This interest rate spread undoubtedly influences individuals' financial decisions. The shape of the yield curve can be considered a source of information on future macroeconomic trends, depending upon which theory one uses to explain the structure of interest rates :

– the Liquidity Premium theory:
  Tying up financial resources for longer periods of time implies a liquidity risk for which investors present in markets demand a premium. A steep yield curve is thus the normal state of the model;
– the Market Segmentation theory (or Preferred Habitat theory):
  Supply and demand on the short- and long-term segments are mostly independent of each other; the corresponding instruments are thus not interchangeable. A specific equilibrium interest rate is formed for each segment. It is assumed that a majority of investors have a decided preference for liquidity, with a robust demand (and a high price) for short-term instruments, which thus earn little return. Certain investors – insurance companies and pension funds, for example – may however need very long-term instruments (e.g. 30-year bonds) from time to time, and drive their yields downwards;
– the Interest Rate Expectations theory:
  According to this theory, instruments with different maturities are perfectly interchangeable; the yield on a long-term investment is the result of successive short-term investments. Long-term yields could thus be considered an average of current and future short-term yields.

Based on this last theory, a steep yield curve – as in 2010 – would indicate expectations of interest rate rises, whereas a flat yield curve would signal stable expectations, and an inverted yield curve (short-term yields higher than long-term yields) would imply expectations of a decline.

2. Overall financial operations of individuals in Belgium: trends and determining factors

Low yields, in both nominal and real terms, have not discouraged individuals from buying considerable amounts of new financial assets. In 2010, households formed € 34.2 billion of financial assets, a particularly high level close to the record set in 2009, when € 33.6 billion were raised. Financial liabilities rose by € 12.9 billion, an acceleration compared with the € 10 billion increase in 2009. These developments translated into a financial surplus, or net financial asset formation of € 21.3 billion in 2010, compared with € 23.6 billion in 2009.

Conceptually, net financial asset formation corresponds to the financing balance in the non-financial account of individuals, which results, on the one hand, from gross savings (gross disposable income minus consumption) and, on the other hand, gross capital formation, which includes principally household investment in building new housing or renovating existing housing. While the financing balance of households was not as positive in 2010 as it was in 2009, it was still close to the average of the past 10 years (4.2 %), which is principally attributable

TABLE 1 NON-FINANCIAL AND FINANCIAL ACCOUNTS OF INDIVIDUALS
(in % of GDP, gross data unless otherwise indicated)

	2006	2007	2008	2009	2010
Non-financial account					
1. Gross disposable income[1]	61.0	61.0	62.5	64.2	63.1
2. Consumption expenditure	51.3	51.0	51.9	52.4	52.4
3. Gross savings (1 – 2)[1]	9.7	10.0	10.6	11.7	10.7
p.m. Savings rate (in % of gross disposable income)	*15.9*	*16.4*	*17.0*	*18.3*	*16,9*
4. Gross capital formation	6.9	7.0	7.1	6.5	6.5
5. Financing balance (3 – 4)	**2.8**	**3.0**	**3.5**	**5.2**	**4.2**
Financial account					
1. Financial asset formation	5,9	7.1	6.6	9,9	9.7
2. New financial liabilities	3.8	4.3	4.0	2.9	3.7
3. Financial balance (1 – 2)[2]	**2.1**	**2.9**	**2.6**	**7.0**	**6.0**

Sources: NAI, NBB.
(1) Including the change in claims of individuals on occupational retirement institutions.
(2) The balance of the financial account of individuals does not correspond to the financing balance that appears in the non-financial account because operations are recorded at different times in the two accounts and because of different statistical adjustments, errors and omissions.

to individuals' strong propensity to save over the period 2009-2010. Furthermore, the financial balance of individuals was also supported by a reduction in their gross capital formation.

Net financial asset formation is thus closely linked with individuals' saving and investment behaviour. This article examines the role of interest rates in this respect. It could be expected that, all else being equal, a rise in interest rates would increase gross saving by increasing returns and slow gross capital formation by raising costs, which implies a positive relationship between interest rates and net financial asset formation. But a negative link was observed in the period 2009-2010, in the form of a downturn in interest rates and a strong expansion of net financial assets. This calls for more extensive analysis of the determinants of individuals' saving and investment behaviour during the recent period.

2.1 Gross savings

The economic literature gives interest rates – which are often specified in real terms – only a very modest role in determining savings volumes. There are two main reasons for this. First, the impact of interest rates on savings behaviour is ambiguous because theoretically opposing effects materialise. Second, saving behaviour is determined by a multitude of other factors.

The impact of (real) interest rates on savings volumes is unclear due to the existence, at least in theory, of various effects such as substitution effects, income effects and valuation effects, which can cancel each other out:

- A rise in interest rates may lead consumers seeking intertemporal consumption optimisation to delay purchases, and thus increase their savings, because waiting will enable them to boost their consumption at a later time. In other words, there is substitution over time, with interest rates having a positive impact on saving;
- Conversely, a rise in interest rates triggers an income effect, at least for households with a positive net financial worth, as is the case in Belgium for the sector as a whole. Higher interest rates boost income on assets, which reduces the savings needed to finance future consumption;
- Lastly, an increase in interest rates also leads to valuation effects: assets generating a fixed income and certain equity shares lose value, which may cause consumers to reduce their consumption and save more in order to rebuild their net worth.

With respect to other determinants of saving behaviour, there is first of all a positive link between disposable income and savings volume. Savings is, after all, the portion of income that is not consumed. Apart from current disposable income, income expectations also play a role. For example, according to the permanent income hypothesis (Friedman, 1957), consumers try to smooth out their spending to match their average, or "permanent", income over the course of their life, with savings playing the role of shock absorber. Income above the permanent level boosts saving, whereas a drop in income below the permanent level leads to dissaving. Given that income can vary significantly over the course of a person's life, demographic factors play a crucial role in determining savings in the life-cycle theory (Ando and Modigliani, 1963). Young households dissave in the early stages of their career because their income is relatively low and they must finance substantial expenditure related to housing and the acquisition of durable consumer goods. During their professional life, they form financial assets, which they will spend once they have retired.

Apart from interest rates and income, it is worth mentioning other factors that determine saving behaviour:

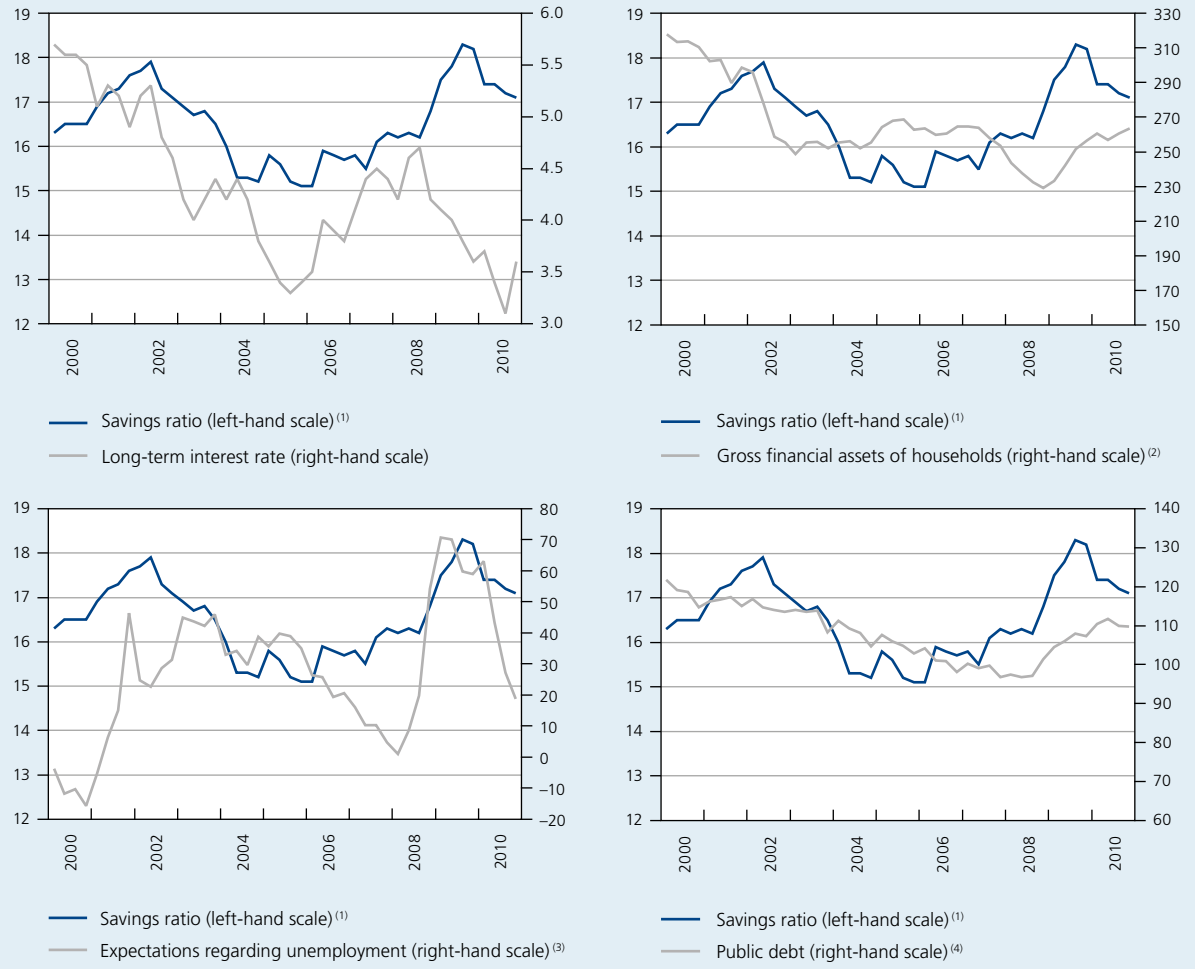
- Wealth effects: when the value of financial assets and real estate rise, there is less need to save a portion of wages to form similar assets;
- The quality of social security, and more specifically of retirement benefits. Doubts about the outlook for these provisions may encourage precautionary saving;
- Rational expectations regarding future tax pressure. Worsening public deficits cause households to fear future tax increases and lead individuals to save more. This is Ricardian equivalence (Barro, 1974), the theory that holds that changes in public sector saving trigger offsetting fluctuations in private sector saving;
- Financial liberalisation. Improved access to consumer credit and mortgage loans reduces savings due to the greater availability of financing options.

Most empirical studies show a positive but insignificant link between interest rates and saving behaviour[1]. Based on a simple correlation, we observe in Belgium a weakly positive link between (nominal) long-term interest rates and the savings rate. However, this relationship was suddenly disrupted by the financial crisis. The higher propensity to save observed in 2009 and 2010 arose in the context of a widespread decline in interest rates.

Interest rates appear to have been only one factor among many during the crisis in determining saving behaviour, including the decline in household net worth (wealth effect), increased uncertainty regarding the employment outlook (precautionary saving) and the deterioration of public finances (rational expectations).

(1) See Loayza, Schmidt-Hebbel and Servén (2000) for an overview.

CHART 2 SAVINGS RATE OF INDIVIDUALS AND DETERMINANTS



Source : NBB.
(1) As a percentage of gross disposable income. Gross data, four-quarter moving average.
(2) As a percentage of GDP.
(3) Percentage of consumers who expect an increase in unemployment minus the percentage who expect a drop in the monthly consumer confidence survey.
(4) Indebtedness based on national financial accounts, calculated as the sum of borrowings and securities other than stock issued by public authorities, as a percentage of GDP.

The strengthening of saving behaviour observed during the financial crisis appears to be primarily attributable to the change in households' financial position. As a result of the stock market correction and financial market tension, individuals saw their gross financial assets fall by € 71 billion between mid-2007 and end-2008, from € 860 billion to € 789 billion. At the same time, the savings rate increased, which indicates that individuals tried to compensate for the loss of wealth with a greater propensity to save. Owing notably to a rebound in equity prices and more effort devoted to saving, gross financial assets climbed back to € 918 billion at end-2010. Expressed as a percentage of GDP (260 %), this level is nearly where it was before the financial crisis. These capital gains may have led to a decline in the savings rate, and thus an increase in consumption.

The increased propensity to save observed since the financial crisis may also be attributable to greater economic uncertainty, in particular regarding the labour market situation. This relationship can be illustrated using the sub-indicator of the consumer confidence survey that gauges individuals' expectations regarding the trend in unemployment over the next 12 months. An increase in this indicator is a sign that individuals view their future income situation less favourably and will try to save more to offset the potential loss of income as much as they can. The decline in this indicator was accompanied by an

increase in the savings rate. In 2010, however, consumers' pessimism receded sharply, which may partly explain the decline in the savings rate.

In Belgium, we also observe a positive correlation between individuals' saving behaviour and the level of public debt. The higher the public debt, the greater individuals' propensity to save. When large budget deficits begin to build up, households take into account the fact that, eventually, taxes will have to be raised or social benefits cut. Individuals thus anticipate slower growth in their future disposable income, which leads them to limit their consumption and save more. The marked deterioration in public finances following the financial crisis thus also appears to have contributed to individuals' increased propensity to save.

In sum, interest rates have had only a limited influence on individuals' overall savings volume in Belgium over the recent period. The strengthening of individuals' saving behaviour and the related net formation of financial assets in 2009-2010 appears to be mostly attributable to the economic uncertainty stemming from the financial crisis.

2.2 Gross capital formation

Gross capital formation is generally supported by low interest rate levels (cf. the increase in mortgage loans analysed in section four of this article), which can lower the financing balance and, thus, reduce net financial asset formation. Here again, the impact of interest rates does not appear to have offset the uncertain economic conditions that prevailed during the financial crisis : despite the drop in interest rates, gross capital formation fell from 7.1 % of GDP in 2008 to 6.5 % in 2010, resulting in a favourable impact on the financing balance, which is reflected in individuals' financial account balance.

3. Financial assets formation by individuals in Belgium

Individuals' portfolio choices result from trade-offs that they make between various possible financial assets. These trade-offs depend on available returns and risk aversion. These two basic criteria may be accompanied by other factors, such as the influence of taxation and regulatory characteristics. Furthermore, over time, individuals' behaviour can also change and adapt to innovation stemming from financial market deregulation, for example, or the rise of new communication methods, as well as the development of new financial products (investment funds and insurance policies, for example) (Artus et al., 1991 ; Ricart, 1994). Considering all of these factors, individuals will choose between fairly safe assets (notes and deposits, regulated savings deposits, money market investments and bonds) and risky assets (equities and equity funds, certain insurance products, foreign currency-denominated assets) or between short-term assets (notes and deposits, savings products, short-term deposits and securities) and long-term assets (long-term deposits and securities, equities, insurance products).

The goal of this section is to study – specifically using data from the financial accounts of Belgian individuals – the influence of interest rates on household portfolio choices, in particular during the recent period when interest rates were relatively low.

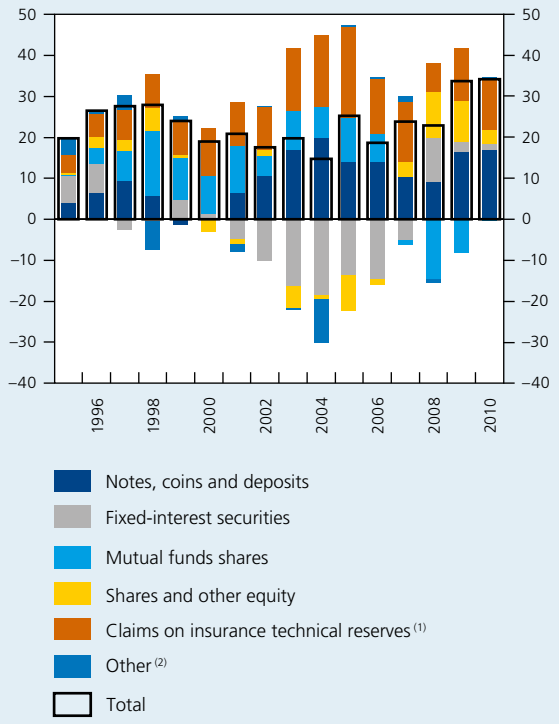
A breakdown, by instrument, of financial assets newly acquired by individuals over time allows us to highlight the trends that have marked the past few years. These trends can then be viewed against movements in the benchmark interest rate corresponding to the assets described, in order to detect any influence that these interest rates have over individuals' investment choices.

3.1 Financial asset formation : breakdown by instrument

Significant saving in the form of notes, coins and deposits was observed in the years 2009 and 2010. Individuals' embrace of savings deposits in particular is attributable to the advantages associated with this kind of instrument, namely liquidity – which is much prized during periods of uncertainty – exemption from the withholding tax, and deposit guarantees. These characteristics make savings deposits a virtually risk-free instrument. Furthermore, during the recent period, the success of savings deposits is also attributable to the decline in enthusiasm among individuals for long-term instruments, notably due to the low interest rates available on those kinds of investments. In 2010, individuals saved € 16.9 billion in the form of notes, coins and deposits, compared with € 16.3 billion in 2009. Savings deposits were the instrument of choice for households, offering them the flexibility they wanted as they waited for more profitable alternatives.

With respect to fixed-interest securities, investors began a lasting turn away from these instruments between 2001 and 2007, principally due to persistently low long-term yields on this type of investment, combined with a disinvestment in securities held abroad following changes to the way savings are taxed at the European level.

CHART 3 FINANCIAL ASSET FORMATION OF INDIVIDUALS
(in € billion)



Source: NBB.
(1) This category essentially comprises the net claims of households on life insurance technical reserves and pension funds or occupational pension institutions.
(2) Other accounts receivable in the sense of ESA 95, i.e. trade-related credits and various claims on public authorities and financial institutions, including, for example, accrued unpaid interest.

The acquisition of fixed-interest securities can take place during times when individuals are wary of equity markets. For example, in 2008, equity markets became very volatile, causing investors to retreat to instruments considered safe havens. This is a temporary movement, however, because when all investors participate, it causes prices to rise and yields to drop, making the instruments less attractive. In 2010, individuals were net purchasers of fixed-interest securities, but only in the amount of € 1.7 billion, after € 2.7 billion in 2009.

Movements involving investment fund units depend notably upon decisions in matters of taxation and trends in equity prices. In 2008 and 2009, individuals were net sellers of investment fund units due to the equity market correction and tax measures that specifically affected bond funds and certain mixed funds that capitalise their income. This trend weakened in 2010, when individuals sold a net € 0.4 billion of investment fund units, compared with € 8.1 billion in 2009.

In recent years, individuals have made net investments with insurance companies and pension funds. These types of savings thus now represent a large share of individuals' financial assets. Over the past two years, certain guaranteed-return products (those of class 21) have clearly profited from high contractual interest rates and thus set themselves apart from fixed-income securities, whose returns are in line with those of the market. In 2010, individuals increased their claims on insurance technical reserves by € 12.5 billion, an amount similar to the previous year, which was € 12.7 billion.

Of course, shares and other equity still represent an important part of individuals' asset portfolios. The financial accounts do not show transactions on secondary markets, but they do record new share issuance (mainly unlisted shares) and cross-border movements in the form of balance of payments data. Furthermore, given that interest rate movements do not appear to determine individuals' decisions to buy or sell equities (they are chiefly governed by equity prices and earnings expectations), the rest of this article will not comment further on transactions involving shares and other equity.

3.2 Impact of interest rates on asset formation

To determine the influence of interest rates on individuals' financial asset formation, we have reviewed the various instruments in the light of trends in corresponding interest rates. We will look successively at non-risky short- and long-term assets; the holding of fiduciary money and sight deposits; regulated savings deposits and term deposits; and, lastly, insurance products.

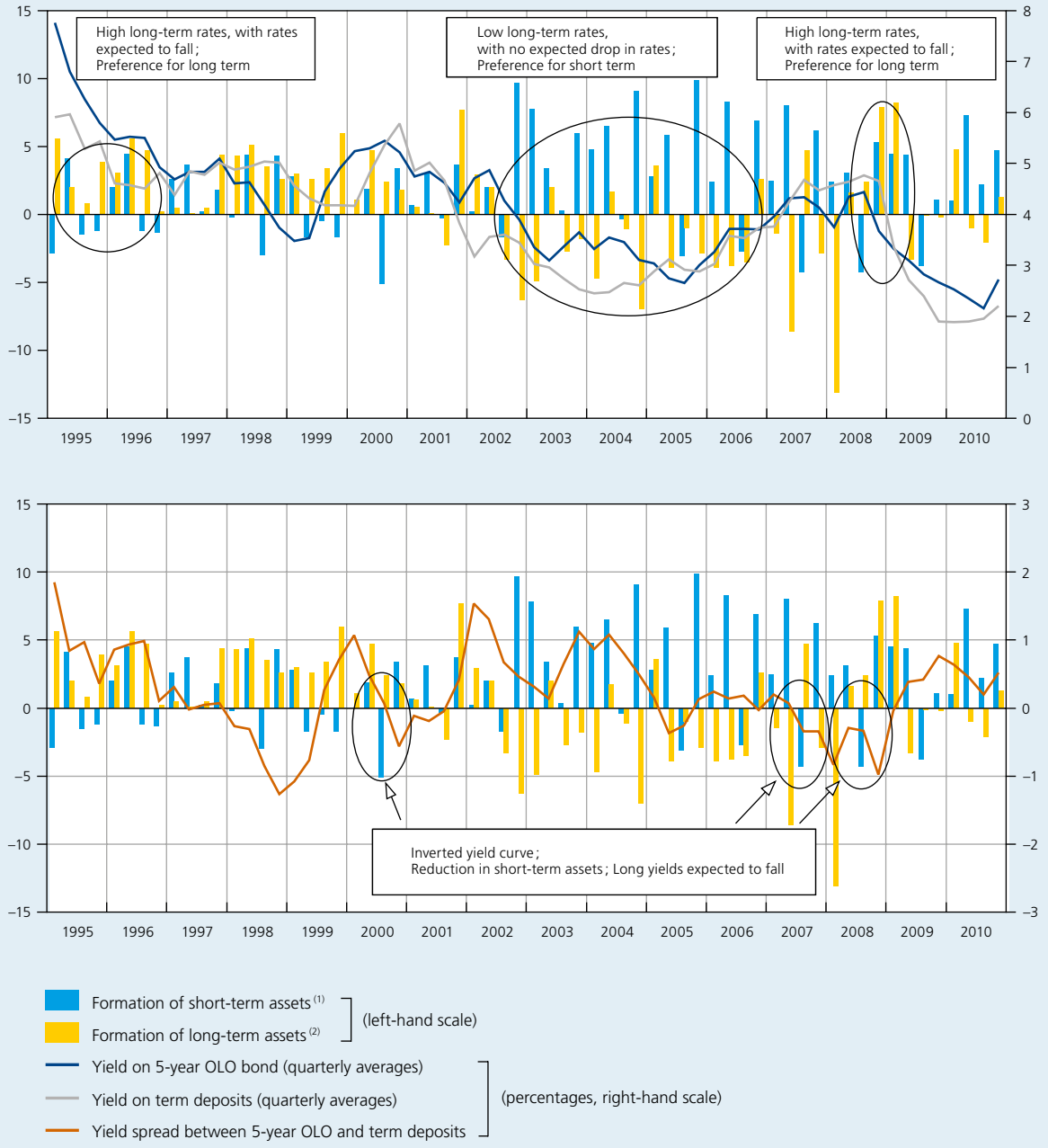
3.2.1 Non-risky short- and long-term assets

Whether individuals decide to buy short- or long-term assets appears partially linked to interest rate movements. The acquisition of long-term, fixed-income financial assets appears primarily influenced by the level of long-term interest rates: net purchases are more significant in periods when long-term interest rates are relatively high, or when the interest rate cycle has begun a downward phase. For example, in 1995 and 1996, individuals invested chiefly in long-term assets. This situation repeated itself in late 2008 and early 2009.

By contrast, during periods of low long-term interest rates and no expectations of interest rate cuts, there is a marked preference for short-term assets. For example, the years 2002-2006 were characterised by a disinvestment in long-term assets, though this was also partly attributable to tax considerations (see above).

CHART 4 FORMATION OF NON-RISKY ASSETS BY INDIVIDUALS, AND SHORT- AND LONG-TERM INTEREST RATES

(in € billion, unless otherwise indicated)



Source: NBB.

(1) Non-risky short-term assets include investments in cash, deposits and securities of less than one year and in money market funds.

(2) Non-risky long-term assets include investments in deposits and securities of more than one year and in units of investment funds other than money market funds.

The yield curve can have a complementary influence. For example, individuals tended to diminish their holdings of short-term assets during periods characterised by a relatively flat or inverted yield curve because they expected long-term yields to decline. This was the case in 2000, 2007 and 2008. Subsequently, once these expectations had come to pass, there was a transition to a situation of low yields with no expectation of interest rates falling further, which is a favourable environment for short-term investments.

3.2.2 Holding fiduciary money and sight deposits

In theory, the decision to hold notes, coins and sight deposits should depend on the spread between the yield on short-term (three-month) deposits and that on sight deposits. This spread reflects the opportunity cost of funds held in sight deposits that do not earn a return (fiduciary money) or earn a small, administered return that does not really follow market interest rates. The wider and more positive this spread is, the less incentive individuals have to hold financial assets in the form of notes, coins and sight deposits.

While there does not appear to be a strong relationship between the two variables, we note that individuals have a greater tendency to hold notes, coins and sight deposits when the spread between the yields on three-month term deposits and sight deposits is weak : such was notably the case between 2003 and 2010.

In 2010, saving by individuals in the form of sight deposits and fiduciary money increased by € 2.7 billion compared with € 5 billion in 2009.

3.2.3 Regulated savings deposits and term deposits

The available data indicate that individuals' choice between regulated savings deposits and term deposits is more sensitive to interest rates.

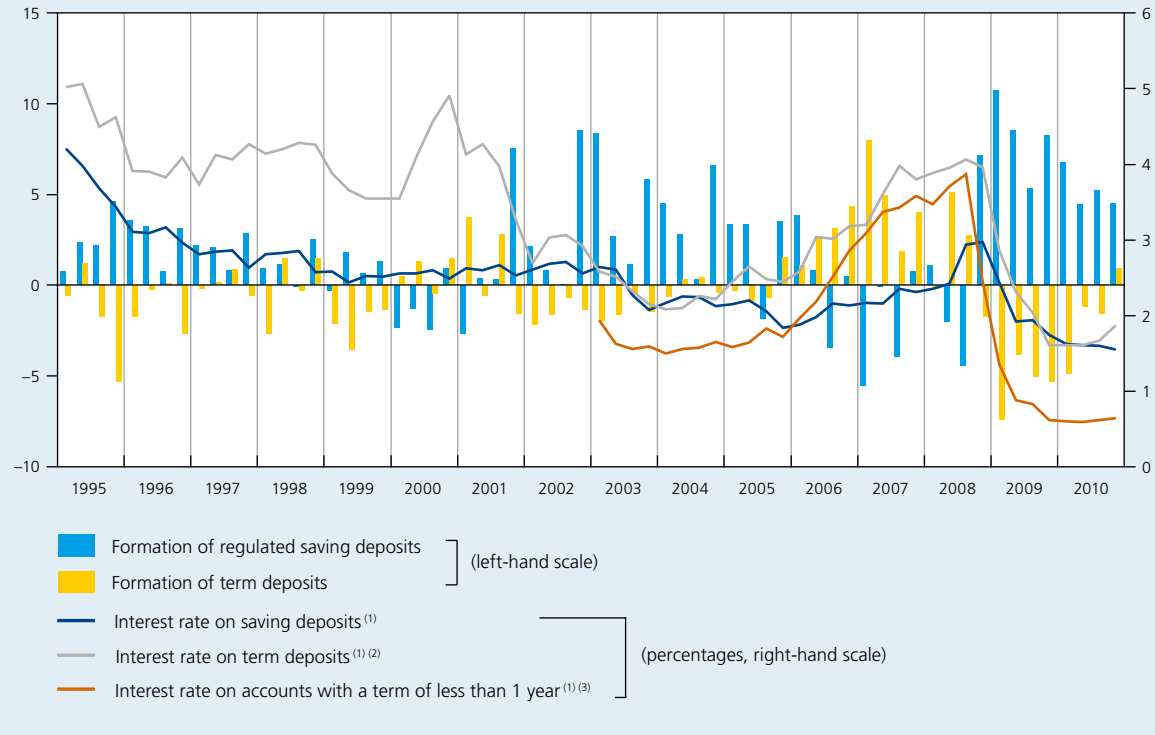
The amounts deposited by individuals in regulated savings accounts have increased significantly since late 2008. In 2009 and 2010, individuals' regulated savings deposits saw inflows of respectively € 32.9 billion and € 20.9 billion, bringing amounts outstanding to a historically high level. Over the same period, term deposits experienced net disinvestments of respectively € 21.6 billion and € 6.7 billion in 2009 and 2010.

One important reason for these movements is the drop in the opportunity cost of investing in savings deposits. The yield spread between term deposits [1] and savings

(1) Here, we look at the interest rate on new term deposits by households as indicated by MIR surveys. The implied interest rate is calculated based on all term deposits, including those of non-financial companies. Thus, it is not as relevant for our analysis.

CHART 5 REGULATED SAVINGS, TERM DEPOSITS AND INTEREST RATE TRENDS

(quarterly data, in € billion, unless otherwise mentioned)



Source : NBB.
(1) Implied interest rate based on credit institutions' profit and loss accounts.
(2) After deduction of the 15 % withholding tax.
(3) Interest rate on new deposits by households according to MIR surveys.

deposits, which was 1.3 % in 2008, began to narrow considerably from the end of that same year. Because the interest rate offered on term deposits is more closely linked to the market interest rate than that applied to savings deposits, it more quickly followed the downward movement in the central key interest rate of the Eurosystem and interbank rates. From late 2008, the yield spread of term deposits – after deducting the 15 % withholding tax – relative to savings deposits not subject to the tax turned negative. In March 2011 it was still –81 basis points. Under these conditions, regulated savings deposits took full advantage of their high level of liquidity, which investors prefer at times of great uncertainty.

3.2.4 Investment in insurance products

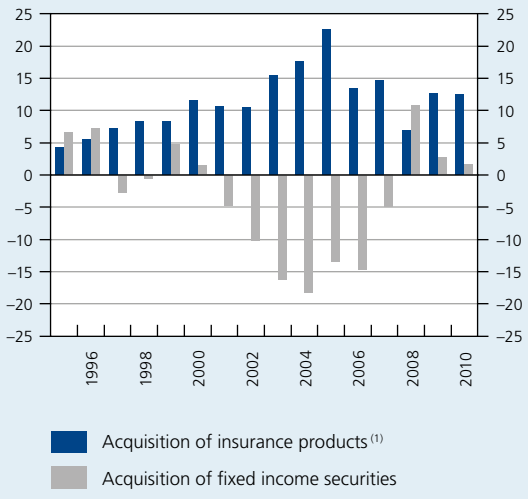
A trend clearly emerges from the changes in individuals' financial assets broken down by counterparty sector: still limited during the 1990s, the market share of insurance companies and pension funds among savings inflows has steadily improved over the past 15 years. By the end of 2010, the assets held in reserve with these institutions represented a quarter of the portfolio of financial assets of Belgian households, compared with one tenth in 1995.

In 2009 and 2010, household savings in the form of insurance products amounted to close to € 13 billion annually. Much of these products, particularly branch 21 defined benefit products, benefited from contractual yields set in the past, which were higher than present day long-term yields (see paragraph 3.2.2 of the 2010 NBB annual report). They distinguished themselves from fixed income securities whose yields followed those of the market. This difference partly explains the success of these products in recent years.

In recent years, individuals thus appear to have made a trade-off between holding insurance products and fixed income securities. Whereas new investments in insurance products, which offer contractually set attractive returns, increased steadily, individuals were net sellers of fixed income securities, whose yields followed market trends.

CHART 6 ACQUISITION OF FIXED INCOME AND INSURANCE PRODUCTS

(in € billion)



Source: NBB.

(1) Basically, households' net claims on life insurance technical reserves and on pension funds and occupational pension institutions.

4. New financial liabilities of individuals in Belgium

Mortgage loans account for the vast majority of households' financial liabilities and have experienced strong growth since 2005. The size of other borrowings – notably consumer credit – is comparatively limited, so the analysis of interest rates' impact on household debt will focus on home loans. It appears that interest rates are one of the principal determinants of the overall trend in mortgage credit. The interest rate level is also a crucial factor in which type of credit borrowers choose. These two influences are dealt one after the other in this section.

To highlight these relationships, we use statistics from the Professional Lenders' Union (PLU). These monthly data cover the volume, number and average amount of new loans, broken down by the purpose of the loan (e.g. homebuying, construction) and the type of interest rate applied to the loan (fixed or floating). In addition to their level of detail, these statistics offer a second advantage over data from Belgian financial accounts: they are limited to the gross flow of new loans issued, without deducting accompanying repayment flows.

4.1 Overall trend

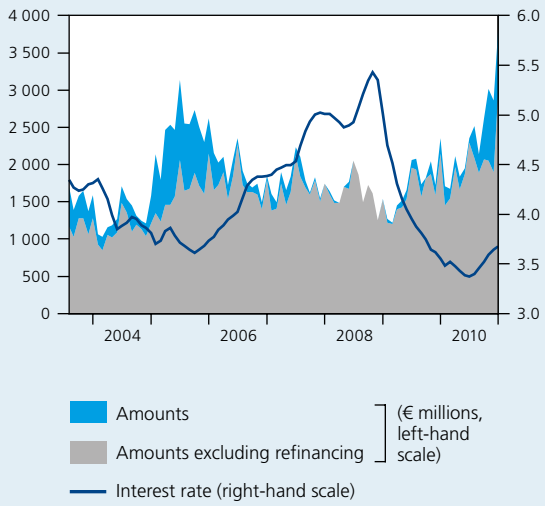
The interest rate level affects home loans both directly and indirectly.

4.1.1 Direct effect

It is easy to isolate the mechanism for refinancing, which is merely a renewal of existing credits on more advantageous terms. They are inherently very sensitive to interest rate movements. And yet, the historically low level of

CHART 7 RECENT NEW MORTGAGE LOAN PRODUCTION

(monthly averages)



Sources: PLU, NBB.

(1) Average of rates applied to the principal categories of mortgage loans, weighted by the amounts of the new loans issued in each category.

interest rates observed throughout 2010 did not generate an exceptional level of refinancing: a portion of existing mortgage loans had already been renegotiated. For example, in 2005, there was a huge amount of refinancing of pre-existing credit, stimulated by already very low interest rates on home loans.

While refinancing activity notably influences new loan production, it has no effect on the level of household debt. The next part of the analysis thus focuses on new loans, excluding refinancing. Once these operations are removed from the equation, the overall volume of new loans remains sensitive to interest rate trends. Quarterly data indicate a negative correlation (–0.24 over the period since mid-2003) between the interest rate level and the total amount of new loans issued over the course of the month. This relationship results from the combined action of interest rates on two factors: the number of loans issued and their average amount.

Of the two factors, it is the number of new loans issued that determines most of the fluctuations in overall volume. The interest rate level influences the number of new loans in two ways:

a) First of all, low interest rates make buying a home more attractive relative to renting. Households decide whether to rent or buy their housing by comparing rent payments with the costs associated with buying. These costs include notably the interest charges calculated on the amount borrowed to acquire the asset. When interest charges decline, the proportion of households preferring to buy rather than rent increases.

b) Reduced borrowing costs also allow homeowners to earn a better return on their investment, increasing the attractiveness of real estate investments relative to financial investments. The mortgage loan is thus used as a complement to the investor's down payment.

These two mechanisms, which act in the same direction, are confirmed by empirical analysis: the data indicate a negative correlation between the average interest rate on mortgage loans and the number of loans issued (–0.45 over the period since mid-2003).

Apart from the effect on the number of new loans issued, the interest rate level also potentially influences the average amount borrowed. In this case, two mechanisms operate in opposite directions:

a) A low interest rate leads households to borrow a larger sum while keeping their monthly payment unchanged, which allows them to reduce their down payment or buy a more expensive home.

b) However, as loans become more accessible, they notably become available to borrowers purchasing properties that do not require large loans; this tends to reduce the average amount borrowed.

Analysis of the data suggests, however, that the second effect dominates the first, because the correlation between the average interest rate and the average loan

TABLE 2 VOLUME, NUMBER AND AVERAGE AMOUNT OF LOANS ISSUED

(observed trend between 2003 and 2010 regarding quarterly date, seasonally adjusted)

	Volume	Number	Average amount
Correlation coefficient[1] against interest rate[2]	–0.24	–0.45	0.44
Change in granting of loans (in %)	+134	+86	+26

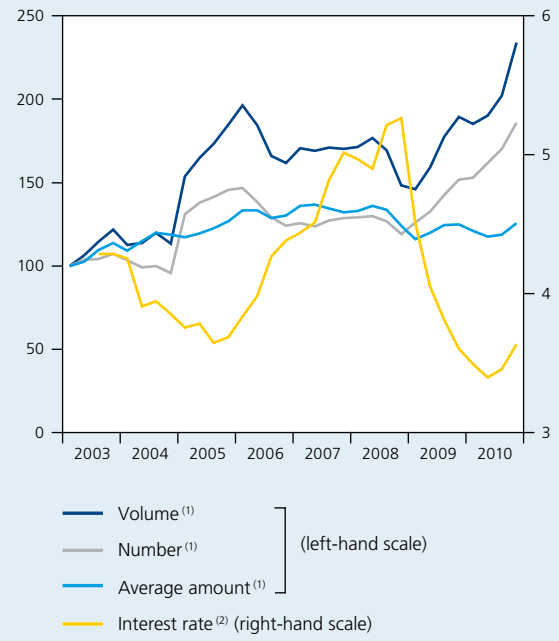
Sources: PLU, NBB.

(1) Calculated over the period between mid-2003 and end-2010.

(2) Average of rates applied to the main categories of mortgage loans, weighted by the amounts of the new loans issued in each category.

CHART 8 BREAKDOWN OF TRENDS IN NEW MORTGAGE LOAN VOLUMES

(quarterly averages; Q1 2003 = 100, except for the interest rate)



Sources: PLU, NBB.
(1) Seasonally adjusted data.
(2) The average of interest rates applied to the principal mortgage loan categories, weighted by the amounts of new loans issued in each category.

amount is positive (0.44 over the period since mid-2003, and 0.10 if we limit the analysis to only loans taken to finance a purchase).

Households can have different reasons for taking out a mortgage loan: new construction, buying an existing property, financing renovations, buying land, etc. Loans issued to finance the purchase of a home on the resale market are principally responsible for the increase in the overall volume of loans observed over the past few years. Their amounts nearly doubled between 2003 and 2010. These loans typically finance transactions between two individuals, and so necessarily give rise to the formation of financial assets of an equivalent amount with the seller. All in all, the overall financial position of the individuals is barely affected by these transactions.

The nominal interest rate level is not always borne entirely by the borrower. Taxation, for example, may influence the interest rate that borrowers effectively pay. While certain borrowers take advantage of tax benefits to obtain a low-cost loan, others would have been unable to carry out the transaction without the public assistance.

For example, one explanation of the strong increase in home loans in 2005 may be the more advantageous tax treatment applied to loans issued from that year forward. The previous, complicated system of deducting interest charges and reducing taxes for repayment of principal and insurance was at that time replaced by a simple standard deduction per person, regardless of the amount of the loan or the value of the property acquired.

Furthermore, from 2009, the introduction of green loans with interest rate subsidies undeniably bolstered mortgage loans used for renovation, a type of loan that had a huge influence on the growth in the number of loans issued over the past two years. The government now subsidises 1.5 percentage points of the interest rate on loans used to finance investments in making housing more energy efficient. Furthermore, 40 % of the remaining interest charges on these loans are tax deductible. According to the PLU, 60 000 loans benefited from this scheme in 2010, representing around € 1 billion, in the form of either consumer loans or mortgages.

4.1.2 Indirect effects

Interest rate movements also have indirect effects on the supply and demand of credit.

The indirect effect of a drop in interest rates on the demand for credit happens in three stages:

1) Lower interest rates give households greater access to credit, via the direct mechanisms describe above.

2) This clearly has repercussions on housing demand, where we see more potential buyers. The market reaches equilibrium through an increase in house prices.

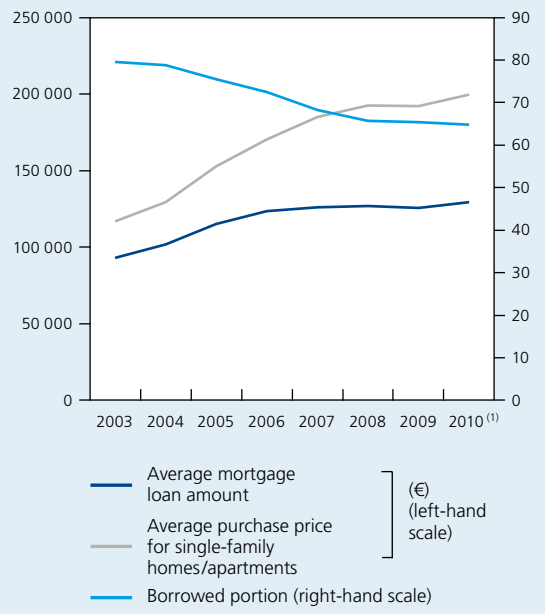
3) In its turn, this increase risks stimulating more mortgage lending. To the extent that the borrowers' down payment remains unchanged, the amount borrowed must necessarily increase to finance the purchase of a more expensive property.

This process thus generates a spiral capable of giving rise to a real estate bubble if lending institutions go with the trend and continue to issue mortgage loans, ignoring borrowers' ability to repay them. This is the type of mechanism that touched off the subprime crisis in the US. Fortunately, this vicious circle can be interrupted if banks are prudent in issuing credit.

In Belgium, the spike in residential property prices observed in the second half of the past decade did not give

CHART 9 BORROWED PORTION OF REAL ESTATE PURCHASES

(in % of purchase price, unless otherwise mentioned)



Sources: FPS Economy, SMEs, Self-employed and Energy, PLU.
(1) Estimate.

rise to a proportional increase in the average amount borrowed for home purchases. The borrowed portion, i.e. the amount borrowed as a percentage of the purchase price, fell over the period, reflecting limitations on the supply of credit.

Limiting the borrowable portion of home purchases is one of the ways banks moderate loan issuance. In general, the supply of credit is determined by the ability and willingness of banks to approve loans. If banks adopt a more conservative attitude to issuing loans, they can halt the upward cycle of prices resulting from increased demand for credit.

Let us take a concrete look at how the trend in interest rates since 2005 has affected mortgage loan (for house purchase) issuance in Belgium:

1) Extremely low interest rates encouraged the purchase of real estate assets, driving demand for credit to a very high level in 2005. At the same time, banks continued to ease their lending conditions, issuing a significant volume of loans.

2) This brisk activity drove up housing prices. During 2006, however, the rise in interest rates slowed the demand for credit. Even so, real estate prices continued to climb at a fast pace, supported by a series of other factors. Notably, the one-off tax discharge statement (DLU/EBA) led Belgian households to repatriate funds, some of which were obviously then invested in real estate. In addition, the financial crisis drove certain households to favour real-estate investment, thought to be very safe. These factors were responsible for the significant increase in down payments observed in recent years for individuals buying real estate.

3) Whereas the number of new loans decreased, their average amount continued to rise. Banks then began to tighten their lending conditions for mortgage loans, stabilising the average amount of new loans. Moreover, real estate prices fell between 2008 and 2009. It was not until 2010, under the impetus of a further drop in interest rates throughout 2009, that the number of loans issued began to climb again.

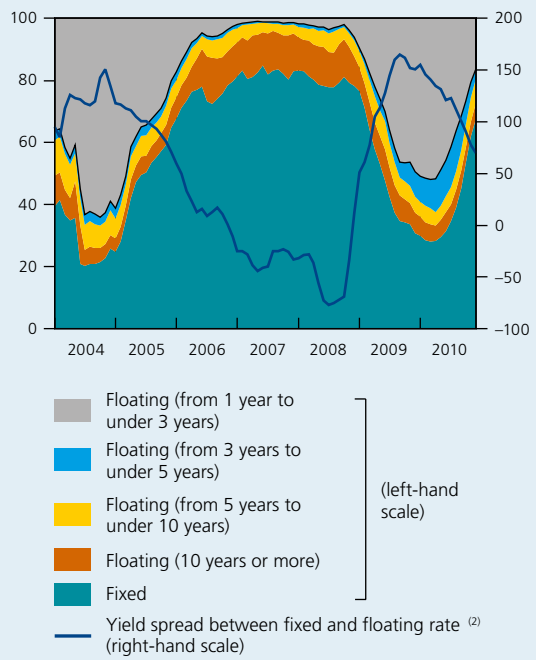
4.2 Choice of mortgage loan type

Whereas the average interest rate level has an effect on new loan volumes, the shape of the yield curve influences the choice of formula used to set the interest rate applied to the loan.

The general rise in interest rates observed from end-2005 onwards was proportionally greater for floating rate loans than for fixed rate loans. From end-2006, the spread between long yields and short yields, which is typically positive in the context of a "normal" yield curve, actually inverted, making fixed-rate formulas significantly more appealing. As a result, in 2007 and 2008, households exhibited a marked preference for these products. In behaving this way, borrowers were not taking into account certain expectations of a decline, which could result from the structure of interest rates at that moment. In 2009, notably because of low short-term interest rates and the resulting decline in annual floating interest rates, the market share of new loans at annual floating interest rates rose spectacularly. Since then, the trend has reversed itself yet again: the renewed rise in annual floating interest rates has led borrowers to fear further rises in benchmark indices in the short/medium term and encouraged them to opt for the security of fixed interest rates.

CHART 10 YIELD SPREAD AND BREAKDOWN OF NEW MORTGAGE LOAN CONTRACTS ACCORDING TO RATE TYPE (1)

(monthly data; in % of total number of loans, unless otherwise mentioned)



Sources: PLU, NBB.

(1) For floating rates, the term cited corresponds to the initial interest rate reset period.

(2) Difference in basis points between, on the one hand, the interest rate on new loans issued to households whose rate is initially set for a period of more than 10 years and, on the other hand, the interest rate on new loans whose rate is initially set for a period of one year.

5. Conclusion

It is possible to analyse Belgian households' recent financial behaviour by using Belgian financial accounts for the full year 2010. Their financial decisions were taken in conditions characterised by low interest rates.

For most of 2010, short- and long-term interest rates were exceptionally low in Belgium. Nominal interest rates fell to historical lows. In real terms, only the low point of 1974 was lower. The yield curve was relatively steep.

We initially examined whether the low level of interest rates had an impact on individuals' overall financial transactions. Recently, interest rates' influence in the real economy has been limited with respect to the overall volume of savings by individuals in Belgium. The reinforcement of individuals' saving behaviour and the related net formation of financial assets over the period 2009-2010 appears largely attributable to economic uncertainty stemming from the financial crisis.

By contrast, interest rates play a certain role in individuals' selection of savings and investment instruments. Such is the case when they must choose between short-term and long-term instruments: there is a clear preference for long-term investments during periods of high long-term yields or when the interest rate cycle has begun a downward phase. During the few periods characterised by a relatively flat or inverted yield curve, individuals reduced their short-term assets because they expected a decline in long-term yields.

It is chiefly in choosing between short-term savings instruments that interest rates exert the most influence, as is evident in individuals' decisions whether to invest in term deposits or regulated savings deposits; the recent contraction in short-term yields clearly favoured the latter.

The formation of claims on life insurance technical reserves and pension funds is spurred by the current level of interest rates, given that certain existing contracts offer a guaranteed return higher than the current market interest rate.

Lastly, interest rates have some influence over the liabilities undertaken by individuals, chiefly mortgage borrowings. Most notably, the number of mortgage loans increases considerably when interest rates are low. Furthermore, the low interest rate level can also result in higher residential property market prices, leading to increased use of mortgage credit. However, credit does not perfectly follow the trend in real estate prices, notably because of more restrictive lending policies on the part of banks.

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