DOCUMENTO OCASIONAL

RECENT TRENDS IN CORPORATE AND HOUSEHOLD BALANCE SHEETS IN SPAIN: MACROECONOMIC IMPLICATIONS

Occasional Paper nº 0402

José Luis Malo de Molina
and Fernando Restoy

BANCO DE ESPAÑA
SERVICIO DE ESTUDIOS

RECENT TRENDS IN CORPORATE AND HOUSEHOLD BALANCE SHEETS IN SPAIN: MACROECONOMIC IMPLICATIONS

Occasional Paper nº 0402

José Luis Malo de Molina
and Fernando Restoy (*)

(*) We are grateful to J. Ayuso, J. M. Bonilla, O. Bover, J. Peñalosa and A. del Río for useful comments and, especially, to A. Estrada, I. Hernando, C. Martínez, L. A. Maza and F. Nieto for their help with model simulations and data. An earlier version of this paper was presented at the Workshop of Central Bank Chief Economists (London, 23-25 February 2004).

BANCO DE ESPAÑA
SERVICIO DE ESTUDIOS

The Occasional Paper Series seeks to disseminate work conducted at the Banco de España in the performance of its functions that may be of general interest.

The opinions and analyses in the Occasional Paper Series are the responsibility of the authors and, therefore, do not necessarily coincide with those of the Banco de España or the Eurosystem.

The Banco de España disseminates its main reports and most of its publications via the INTERNET at the following website: http://www.bde.es

ISSN: 1696-2222 (print)
ISSN: 1696-2230 (online)
Depósito legal:
Imprenta del Banco de España

Abstract

This paper analyses the trends in corporate and household wealth in Spain over the past decade. It is found that the non-financial private sector has increased its exposure to changes in interest rates and in financial asset prices, which suggests significant changes in the monetary policy transmission mechanism. Nonetheless, it is documented that these effects are insufficiently reflected in the conventional macroeconometric models used by central banks and public- and private-sector analysts. This starting point is taken to reflect on the role to be played, in general, by the analysis of financial developments in evaluating the macroeconomic situation underpinning monetary policy decisions and the implications of financial imbalances for the conduct of economic authorities in the euro area countries.

1. INTRODUCTION

The Spanish economy has undergone far-reaching changes in recent decades. Such changes have altered its position in the world economy owing both to the relative size and to the degree of modernisation Spain has attained. Not many years back Spain was still considered a developing economy, according to the terminology then used. At present it is among the ten biggest nations on the world stage belonging to the group of industrialised countries, which are in turn the most highly developed economies.

The process has been driven by many factors. But there are, above all, three that have shaped some of the key features of the Spanish economy's current structure. First, isolation has been overcome by growing external openness culminating in EMU membership and full insertion into the global dynamics of the international economy. Second, the interventionist tradition and regulatory rigidity - which accompanied Spain's delayed modernisation - have been abandoned as a result of the firm resolve to extensively liberalise the factor, goods and services markets and refashion the public intervention mechanisms in the economy. And finally, a framework of macroeconomic stability has become firmly rooted after a hazardous course of successes and failures involving convergence and integration into EMU, constituting a vital basis for sustainable growth.

The changes have been especially marked in the financial system, which plays a pivotal role in the efficient use of saving, and therefore in the determination of growth potential, and - of most relevance to the content of this article - in the workings of macroeconomic policies, particularly monetary policy.

In recent decades the Spanish financial system has been transformed. From a situation where practically all financial activities were tightly corseted by numerous restrictions on price-setting and on investment and financing operations, and by rigid cross-border capital controls, it has become an essentially liberalised system. This is the case for prices, instruments, operations and institutions, and is reflected in the full freedom to conduct financial operations abroad. The regulatory framework has been re-oriented and no longer seeks to route financial flows towards specific end-purposes and

to protect certain sectors and activities of the domestic economy, but to promote the flexible and efficient working of markets with the necessary safeguards for stability.

Increased competition acted as the main engine of change, heightening pressure on financial institutions' margins and obliging them to improve their efficiency in favour of the intermediation of saving. Inevitably, the pressure exerted by this process, in an economy subject to major convulsions, saw the emergence of certain financial crises. These severely affected the banking system in the first half of the eighties to the point of prompting significant systemic risks which highlighted the inadequacy of the safety nets in place until then. It was thus necessary to modernise and strengthen the prudential supervision structures for institutions and markets and, as a result, the lines of the financial system map were radically redrawn.

In parallel, the stimuli unleashed as a result of the growing freedom in financial practices helped spur stability-oriented macroeconomic policies, since the markets act as a powerful deterrent against divergent or insufficiently stable policies. For the same reason, financial modernisation provided for orthodox and efficient public-sector financing, strengthening budgetary discipline mechanisms.

These liberalisation-based transformations have changed the institutional framework underpinning agents' economic and financial decisions, helping improve resource allocation in such a way that the greater efficiency of this process enables agents to have access to greater levels of welfare. At the same time, agents have adapted their behaviour to an environment in which the range of available options has increased enormously. Accordingly, the structure of private-sector balance sheets and the characteristics of the instruments therein have changed profoundly, altering many of the constituent parts on which economic policies act and on whose functioning hinge many aspects of the transmission of policy impulses and their final results on the economy.

The aim of this article is, taking the Spanish experience, to address the influence of the changes in the financial system - against the background of the far-reaching liberalisation and modernisation of the economy - on the monetary policy transmission mechanism, so as to draw policy implications. The following section therefore attempts to summarise the most significant changes in the Spanish private sector's financial

position in the past decade. The third section tackles the implications of these changes for the transmission of monetary impulses. And the final section sets out the economic policy consequences that may be drawn from the Spanish case.

2. CHANGES IN THE PRIVATE-SECTOR FINANCIAL POSITION

The depth of change in the financial system, in parallel with the increase in per capita income, has led the balance sheets of households and non-financial corporations - the relevant sector when considering the impact of financial conditions on consumption and investment.

The accelerated development of the economy has been accompanied by a substantial increase in the wealth of households and non-financial corporations. While much of this increase has been in real assets, given the increased propensity of Spanish households to invest in housing, the financial accounts reflect substantial growth in holdings of financial assets. As can be seen in Chart 2.1, as a proportion of GDP this aggregate sector's financial assets climbed from slightly over 200% in the early nineties to levels hovering, and highly influenced by the ups and downs of capital market prices, at around 350% in the opening years of the new millennium. The phase of fastest growth was in the second half of the nineties. Then, the convergence criteria for joining EMU were met and agents could take decisions under the certainty provided by a sustainable environment of macroeconomic stability and sheltered from the turbulence accompanying the difficult exercise of monetary sovereignty without the necessary tradition of discipline. The revaluation of equities also contributed to these increases in asset holdings.

The higher levels of income and wealth have placed the sector in a position to resort to a greater extent to borrowed funds, taking advantage of the facilities provided by rapid financial innovation and the incentives arising from a sustainable scenario of low-cost debt compared with what had traditionally been the case. Indeed, as can also be seen in Chart 2.1, the sector's debt as a proportion of GDP has grown practically in line with its assets.

The expansion of the overall balance sheet of households and non-financial corporations has run parallel to its internationalisation, in step with the opening up of

markets and growing financial integration. The relative weight of external assets has more than tripled. From scarcely 5% of total financial assets at the outset of the nineties it climbed to almost 18%, with a sizable jump apparent late in the decade as a result of the international expansion of Spanish companies, mainly in Latin America, and the momentum of the international diversification of portfolios further to the adoption of the single currency. The share of foreign financing in total liabilities has also increased, but the change has been less marked, from around 12% to 15%. This asymmetry reflects both the obstacles posed by the structure of the capital controls in force until the early nineties to investment abroad and the secular tendency of the Spanish economy to depend on foreign saving.

A significant aspect when assessing the role of the financial system in the transmission of monetary impulses is the degree of intermediation reflected by the presence on corporate and household balance sheets of asset or liability positions vis-à-vis credit institutions. From this standpoint, developments have been very different on the sector's asset side than on its liabilities side. The presence of instruments issued by credit institutions in the corporate and household asset portfolio has diminished continuously, stabilising at around 25% after having accounted for almost 45% of the total, which no doubt means a rapid advance in the financial disintermediation process. By contrast, liabilities to credit institutions have dipped by scarcely a few percentage points from the level of around 40% prevailing at the start of the reference period. That may be interpreted as the persistence of a model characterised by the significant presence of banks in respect of private-sector financing, in step with the tradition prevailing in continental Europe. Both phenomena are illustrated in the lower panel of Chart 2.1.

To move beyond these general aspects, a distinction should be drawn between households, on one hand, and non-financial corporations, on the other, since their behaviour and their respective roles in the monetary policy transmission process differ considerably.

2.1 Households

The changes in the financial behaviour of households during the period relate to a macroeconomic setting highly favourable to household spending decisions as a result

of the effects induced by EMU entry. Among other things, these involved improvements in expected income, cheaper financing costs and an increase in wealth. The sector's saving ratio, defined as the ratio of gross saving to gross disposable income, was therefore on a declining trend during the second half of the nineties, dipping to a low of slightly over 9% during 2001, when it began to pick up slightly. The movement is more marked if the trajectory of net financial saving (the change in financial assets minus the change in financial liabilities) as a proportion of gross disposable income is taken. In this case the decline runs over a longer period and no clear turnaround is observable yet (Chart 2.2). Indeed, the modest reduction in the saving ratio is manifest in the financial accounts as the virtual disappearance of net household financial saving, meaning that, in recent years, households' lending capacity to the other sectors has been reduced to a minimum.

One of the most salient features, and one with the most potential implications for the transmission process, has been the rapid pace at which households have incurred debt. Household debt in proportion to household gross disposable income has increased from a level of 45% in the early nineties to 90% on the latest available data. Given the doubling of this ratio, Spanish households, which started with a far lower degree of debt than that of the average for the euro area countries, have now reached and overtaken them in a very short time, in response to what has been perceived as a permanent change in the cost of financing. However, the figures for Spain are still considerably lower than those for the United States and the United Kingdom (second panel of Chart 2.2).

From the standpoint of the composition of liabilities, it should be stressed that the driving force of growing debt has been the strong expansion of financing for house purchases. As Chart 2.2 shows, most of the growing trend of the debt ratio is attributable to loans tied to the increase in the sector's real assets, normally mortgages increasingly taken out at floating interest rates. As a result, floating rate loans have come to dominate household financing instruments.[1]

[1] Although there are no data on the characteristics of loans granted to the household sector, according to financial statements by credit institutions, floating rate loans, having accounted in the early nineties for somewhat more than 20% of total loans extended to the other resident sectors (which are the best proxy for households under this sectorisation), now exceed 60%.

In parallel, there has been a sizable increase in household wealth both in real assets, through the purchase and rising value of housing, and in financial assets. The high increase in household financial wealth has been accompanied by changes in its composition which are significant for the subject tackled in this article[2]. The most stylised features of these changes can be seen in the bottom panel of Chart 2.2, which reflects the relative loss of significance of cash and bank deposits and an increase in tradeable instruments. In particular, households have significantly increased their holdings of shares and other equity, of shares in mutual funds and, to a lesser extent, of technical insurance reserves. Such a change means that, directly or indirectly, the relative weight of equity instruments in the household portfolio has doubled, moving onto an equivalent footing to the share of cash and fixed-income instruments.

As a result of the changes to the asset side of the balance sheet of households, their capital incomes may be said to have become less influenced by changes in interest rates. Moreover, as net saving of the household sector has fallen to virtually zero in the last few years and debt has increased significantly, the influence of interest rate changes on household income should normally have weakened considerably (the *income effect*)., Against this, as the sector's direct exposure to changes in asset values has risen substantially, the *wealth effect* of interest rate movements has become more relevant.

2.2 Non-financial corporations

The balance sheet of non-financial corporations has increased along similar lines to that of households, but at a slightly higher rate. As a proportion of GDP, the sector's liabilities have risen from 150% at the start of the period to around 280% on the latest data. Non-financial corporations' debt as a proportion of the gross operating surplus has climbed from a level of less than 250% in the mid-nineties, which was below that of the euro area average, to close to 450% at the end of the period, exceeding the euro area reference (Chart 2.3). Nonetheless, in terms of equities valued at market prices, the corporate debt ratio remains in Spain below that in the euro area throughout the period, reflecting a lesser degree of financial leverage.

[2] A detailed description and thorough assessment of some of the related consequences can be found in Maza and Sanchís (2003)

The composition of liabilities, though naturally affected by the valuation effects prompted by stock market swings, has held relatively stable. Companies have resorted more to the markets to increase their capital through share issues, but external borrowing has continued to reside predominantly on credit, with the exiguous role played by bond issues even diminishing in importance. The relative significance of trade credits has declined somewhat and the share of residents' loans has diminished in favour of greater resort to foreign credit (third panel of Chart 2.3).

The increasing internationalisation of corporations that can be seen in the increased resort to borrowed funds is particularly visible in the rise in foreign assets on the balance sheet. These have climbed from somewhat over 5% of total assets to a level exceeding 25%, reflecting the forceful investment drive by Spanish firms abroad (fourth panel of Chart 2.3). Between 1997 and 2000, Spanish foreign direct investment position as a proportion of GDP increased threefold from around 10% to over 30%.

All these changes considerably heighten the sensitivity of the financial position of companies, and therefore of their decisions, to movements in interest rates and to international events that are transmitted through exchange rate movements, external financial conditions and the capital markets on which the companies are present.

3. IMPLICATIONS FOR THE MONETARY POLICY TRANSMISSION MECHANISM

The development of the Spanish financial system and the changes in the institutional environment have contributed to relaxing some of the restrictions that limited the ability of households and non-financial firms to distribute their spending decisions over time. This should have made consumption and investment less dependent on current income and more sensitive to their respective opportunity costs and, therefore, to changes in interest rates. Moreover, as seen in the previous section, changes in the balance sheets of households and firms and, in particular, their increased indebtedness may have also contributed to strengthening the transmission of monetary policy impulses to private expenditure.

In frictionless economies, changes in agents' net financial position only affect their spending decisions insofar as they are associated with future income flows. However, in the presence of restrictions on the supply of credit, changes in net worth

may change the availability of financing to agents and thereby affect their patterns of consumption and investment. The literature on the "financial accelerator"[3] has highlighted the empirical relevance of the transmission channel that runs through private-sector balance sheets. In the case of Spain, the changes seen in the level of debt and in the composition of the assets of corporations and, in particular, of households, might be expected to have reinforced the response of the economy's consumption and investment to changes in interest rates and in the prices of real and financial assets.

3.1 Macroeconomic evidence

A direct way of analysing the changes in the transmission mechanism is to analyse the stability of the parameters in the econometric specifications of the consumption and investment functions. Using the quarterly model of the Spanish economy (see Estrada et al. 2004) it is possible to analyse the effects on domestic spending of changes in the relevant monetary and financial conditions. This model does not have a well-developed financial block, but it does incorporate financial and housing wealth in the consumption function and a cash-flow variable in the investment function, as well as obviously including the effect of interest rates on the opportunity cost of both types of spending decision.

In general, the parameters of the long-term relationships show no sign of instability. Nor is it easy to formally reject the hypothesis that the short-term parameters of the equations are stable. However, it is likely that those tests had little power to identify recent changes in the sensitivity of consumption and investment to certain relevant financial variables. To analyse this possibility it is useful to compare recursive and rolling estimations of the macroeconometric model.

Chart 3.1 shows the results of annual recursive estimation of the short-term coefficients of the private consumption equation corresponding to the interest rate and to the financial and non-financial wealth of agents[4] for the period 1990-2002. For this purpose a complete estimation of the model is made in each year using only the

[3] See, for example, Bernanke et al. (1999) or Gertler et al. (2001).
[4] According to the relevant equation of the Banco de España's quarterly model of the Spanish economy (see Estrada, et al. 2004)

quarterly observations corresponding to that year and the previous years. The same chart also shows the estimation of these elasticities with rolling samples. This technique differs from the previous one in that, for each new annual estimation, the earliest four quarterly observations are removed.

In the recursive estimations, the evidence of instability in the parameters is very weak. However, when rolling regressions are used, the estimations, although not very precise, suggest an increase in the sensitivity of consumption to interest rates and to both types of wealth in the second half of the sample period. Thus, the relative stability of the parameters of the recursive estimation appears to be due essentially to the greater weight of the first half of the sample in relation to that of the latest observations, which are those that might reflect relevant changes in agents' patterns of behaviour.

Chart 3.2 depicts the findings of a similar exercise conducted with the private productive investment equation of the quarterly model. Once again, the recursive estimations of the short-term coefficients for user cost and cash-flow show great stability. At the same time, the rolling estimations suggest an increase in the investment response to both variables over the course of the nineties, when it is systematically above that estimated with the recursive procedure.

To assess the macroeconomic impact of changes in the coefficients estimated with rolling samples, the effects of an increase in interest rates can be compared taking as a basis the estimations and value of the variables relating to 1990 and 2002. Table 3.1 shows the results of this comparison when an increase of 2 pp in short and long-term rates over a period of three years[5] is simulated. As can be seen, the rise in interest rates in 1990 would, over three years, entail a GDP level 1.2 pp lower than that of the base scenario. The same shock would, in 2002, have an effect of 1.8 pp on the economy's output. The greater sensitivity to the change in interest rates arising in this latter simulation can mostly be explained by the estimated increase in the wealth effects -generated by the impact of the interest-rate rise on real and stock market prices- and, to a lesser extent, by the increase in the substitution effect on consumption and by the greater impact of the increase in the user cost on investment.

[5] In both cases the average of the estimated parameters relating to the two years before and after each date is taken.

The evidence presented therefore points to a likely increase in the sensitivity of spending to interest rates and wealth in recent years with potentially relevant effects on the monetary policy transmission mechanism. However, the same evidence suggests that these changes are not readily detectable by conventional econometric models. This is because such models do not, at least for the moment, offer conclusive statistical proof of instability, probably as the result of the absence of sufficient observations relating to the new investment and financing pattern which the Spanish economy now appears to be following.

3.2 Aggregation problems and non-linear effects

As seen, while macroeconometric models may provide some useful leads, they are, in general, imperfect tools for identifying relevant changes in the monetary policy transmission mechanism. Adding to the above-mentioned statistical shortcomings is the difficulty of measuring, using aggregate variables, changes in agents' financial position that are of relevance for their spending decisions.

The problem lies in the asymmetry characterising the distribution of the impact of a specific change in agents' net worth on their propensity to consume or invest. For instance, a household's spending might be expected to fall significantly in the face of a shock that places it in a fragile wealth position. However, if it is in a sufficiently comfortable position, its response will naturally be a lesser one. Hence, behind the aggregate indicators of a wealth position there may be widely differing distributions entailing differentiated responses by private spending to the same types of shocks. Against this background, the use of microeconometric data and models may prove highly useful.

Unfortunately, in Spain we do not yet have individual databases of income and wealth for households allowing us to supplement the evidence found with macroeconomic models. Nonetheless, it is not difficult to detect signs that there may have been a significant increase in the likelihood of the wealth position of a segment of the sector significantly conditioning its spending decisions in the event of specific shocks arising.

Pointing along these lines, for example, is the evaluation of household saving. Along with the household gross saving ratio in recent years, Chart 3.3 offers an indicator reflecting the portion of saving not earmarked for debt service. This is constructed as the difference between gross saving and an estimation of repayments of principal on the debt incurred by households (see del Río, 2002). The results show how non- committed saving, which accounted in 1996 for 8% of disposable income, was below 1% in 2002, rebounding slightly thereafter. The low level of this indicator suggests that the household sector has a scant savings buffer to withstand significant interest-rate rises. Conceivably, were such rises to occur a significant number of households, facing restrictions on reducing their asset holdings or resorting to fresh credit, might have to adjust their consumption - beyond what a simple substitution effect might explain - so as to meet their financial obligations.

The presence of these financial constraints may lead to an increase in the sensitivity of consumption to the interest rate which will hardly be reflected in the estimated elasticities of the aggregate consumption function. This is because it is in response to a situation - saving and debt as at present but with higher interest rates - for which there is no observation in the sample available and which affects the various income and wealth strata of the population differently.

In the event of potential changes in asset prices, the effect may also be expected to be more marked in those households whose balance sheets may be more affected. Once again, although the sector as a whole maintains a very comfortable financial position where liabilities account for less than 10% of total assets, with the increase in debt and in the weight of assets sensitive to market reactions, the number of households that has moved to a less robust financial position is likely to have increased in recent years.

Unfortunately, there is not enough information to address this issue rigorously. With the sole purpose of illustrating its significance, an attempt may be made to bound the maximum shock to the price of real and financial tradeable assets that households could withstand without their net wealth falling below a certain critical level. To do that, however, we must introduce a series of simplifying assumptions which add considerable margins of uncertainty.

We define a *fragile* balance-sheet position as one in which the sum of cash, deposits, fixed-income securities and equities, 80% of real-estate assets and 50% of insurance technical reserves is lower than debt. That critical level is meant to approximate to the wealth position of a household which, having exhausted all holdings of cash and tradeable securities, might eventually face difficulties raising additional bank financing due to a lack of sufficient collateral. This would make this agent vulnerable to any adverse shock.

Chart 3.4 provides the results of a simple exercise. It presents for the period 1990-2003 the loss of value (in %) of the set of tradeable assets -excluding cash and deposits- that would be needed for households' wealth to reach the previously defined fragility threshold. The exercise is performed for that case in which the balance sheet is identical to the average for the sector, and for those in which the same asset structure is maintained but the net wealth position (assets minus debt) represents 50%, 10% or 5% of the average. It is thus sought to illustrate the position of households which maintain a less comfortable financial position than the average and which, given the habitual distribution of wealth in most countries, make up a large proportion of the sector. In the case of average wealth, results show that the fragility threshold would not be reached at any time, not even if the financial and real assets were to lose their entire value. A similar situation occurs when wealth is 50% of the average. For a household whose net worth is only 10% of the average, the loss of capital that would have placed it below the fragility threshold would have fallen from 60% in 1990 to somewhat over 30% in 2003. The decline is more pronounced for households whose wealth is assumed to be equal to 5% of the average. In this case, the decline in the value of the tradeable assets portfolio that would take wealth to the fragility threshold falls from 40% in 1990 to virtually zero in 2002.

In the most vulnerable position of those considered, there will naturally only be a minority of households, although the size of this population segment may be non-negligible. In that regard, it is worth noting that, although there could be significant cross-country differences, both in the U.S. and the U.K, a net worth equivalent to 5% of the average would be between the 25th and 50th percentile of the wealth distribution across households. (see Aizcorbe et al., 2003 and ISER, 2003).

Naturally, the exercise is only a simplification of reality. In particular, the assumption that the distribution of assets is invariant across households and the definition employed of the fragility threshold may logically influence the ability of the exercise to describe real situations. The most important conclusion is, therefore, a methodological one. Once again, the adjustments in the spending patterns to which households with a weaker wealth position should conform in the event of adverse shocks in asset prices do have macroeconomic effects that are likely to have become more relevant in the recent past. And it is difficult for these to be captured by conventional econometric models estimated with time series of macroeconomic variables.

In the case of non-financial enterprises, we fortunately have microeconomic data and studies enabling analysis of the sensitivity of their activity to their specific financial conditions to be further refined[6]. According to these studies, indicators of the interest burden, debt and the profitability of non-financial corporations significantly affect the demand for employment and capital. These types of effects, which are rarely detected in equations estimated with aggregate data, appear to exert a non-linear impact. Accordingly, faced with a similar increase in financial pressure (in the form of higher financial costs or lower profits) the most vulnerable companies restrict their investment spending and their hiring decisions by a greater proportion than do companies which maintain a more comfortable position.

This evidence suggests that in the event of an interest-rate rise occurring, the interest burden for companies would not only increase to a greater extent in a situation such as the present, as opposed to the past, given that companies are more indebted, but that the effect of this increase on investment and employment would be more pronounced. This is because there would be an increase too in the number of companies belonging to the segment with the highest elasticity of investment and employment to the financial pressure indicator.

Chart 3.5 simulates the effects of a 2 pp rise in interest rates on the interest burden (measured as the ratio of the cost of debt to the gross operating surplus) for companies reporting to the Banco de España Central Balance Sheet Data Office in the

[6] See Benito and Hernando (2002), Benito et al. (2003) and Hernando and Martínez Carrascal (2003).

1995-2001 period. The chart shows that the ratio increases from 6 pp in 1995 to 8 pp in 2002. The effects on investment and employment, according to the elasticities estimated by Hernando and Martínez Carrascal (2003), are depicted in the same chart. As can be seen, the effect of the hike in interest rates on aggregate investment moves from scarcely 0.1% in 1995 to 1.3% in 2001. Likewise, employment would fall in 2001 by more than 1.5%, when this decline was scarcely 0.3% in 1995.

These simulations therefore confirm that the effects of the rises in interest rates on investment and employment vary significantly depending on the financial position of companies, and that these effects may recently have increased considerably as a result of the increase in the sector's debt ratios.

4. SOME ECONOMIC POLICY IMPLICATIONS

The foregoing sections offer evidence that the changes in the wealth position of Spanish corporations and households may have altered the patterns governing consumption and investment and, therefore, the way in which macroeconomic policies - particularly monetary policy - act on the real sector.

These developments, mirrored to a greater or lesser extent in most of the industrialised economies, indicate the advisability of regular analysis of the financial determinants of domestic spending and, in general, of the stability of the private-sector financial position. That could improve the assessment of the economic outlook, and the calibration of the effects of alternative policies.

However, incorporating financial analysis into the regular macroeconomic forecasting exercises that underpin central bank conduct is a notably complex task. Often, medium and long-term forecasts are based, with a variable degree of flexibility, on macroeconometric models that are not very effective in reflecting relevant financial developments. As seen, the use of aggregate indicators makes it a painstaking task to capture the degree of financial pressure borne by agents and which determines their spending and debt decisions following typically non-linear patterns. At the same time, the macroeconometric models in use, estimated with time series, might not fully reflect the increase in the sensitivity of private spending to interest rates and to asset prices that has occurred in recent years.

This shortcoming may prove particularly telling when evaluating, in a setting such as that at present, the impact of interest rate increases. In most cases, the macroeconometric models are estimated with data samples that include no episode in which the current level of household and corporate exposure combines with significant increases in interest rates. Accordingly, the ability of the models to accurately calibrate the effects of a tightening of monetary policy can be questioned.

One potentially promising avenue to resolve the problems arising from a potential change of regime in the estimated equations is the use of micro-founded general equilibrium structural models in forecasting exercises[7]. However, it would be premature to evaluate the ability of these models to incorporate with sufficient realism the frictions that make trends in flows, stocks and financial asset prices relevant. Thus, at least at present, relevant financial developments will inevitably have to be monitored in parallel to the obtaining of projections through macroeconometric models, seeking flexible arrangements for the interaction of both types of analysis.

Financial analysis should be based on the exhaustive use of asset price data, flows of funds, individual information from the balance sheets of companies and - if possible - households, and microeconometric studies that allow more accurate evidence to be obtained, albeit in a partial equilibrium context, on how agents change their behaviour in the face of significant changes in their financial position. This type of analysis may prove a relevant input to the information set used by analysts and central banks to adopt projections that deviate from the forecasts produced by macroeconomic models. As we have seen, there are reasons to believe that this flexibility in the use of the different means of analytical approximation is warranted in order to tackle the difficulties posed by models in respect of reflecting the implications of changes in corporate and household balance sheets.

But just as important as the use of financial analysis for designing the scenario considered most likely is its role in describing the risks surrounding the forecasts. In this respect, it is often worthwhile making projections of relevant financial variables - such as wealth, debt or the interest burden - conditional upon the macroeconometric scenario chosen and detecting, in this way, potential tensions between the real and financial strands that may be used to pick up asymmetries in the probability distribution around

[7] See, for example, Christiano, Eichenbaun and Evans (2004) or Smets and Wouters. (2004).

the central forecasts. As a result of this procedure, central banks may, for example, identify the risks of certain potentially unsustainable developments - typically in the asset markets -.being corrected. These events, though considered relatively unlikely within the regular projection horizon, might be destabilising and must therefore feed explicitly or implicitly, into the assessment of the risks facing the economy.

In terms of monetary policy measures, developments in markets or financial flows affecting the evaluation of the future trajectory of activity and prices must evidently be taken into consideration. As seen, this probably entails, at present, an implicit gain in stature for financial developments within the central bank reaction function, irrespective of the technical difficulties of optimally integrating all the analytical parts.

Arousing greater controversy is the idea that the central bank should seek to prevent the emergence or limit the scope of imbalances with the potential to cause future crises. In the literature, this possibility has often been formalised discussing whether the deviation by financial asset prices from their fundamental or equilibrium value should be included in the central bank reaction function along with the habitual arguments: inflation and the output gap[8].

Moving beyond this excessive simplification, it should be conceded that there is no rule or conclusive finding that central bank decisions should be guided exclusively by their evaluation of the most likely scenario for output and prices. Conversely, the monetary authority could rightly heed less likely developments but ones that may ultimately generate disproportionately adverse real effects, especially if society shows a certain degree of risk aversion. Accordingly, in those specific episodes, it may be analytically justifiable to assign greater weight to financial imbalances than is given in normal periods, even though this could, in the most likely scenario, lead to somewhat lower-than-target growth rates for activity and prices.

This type of approach enjoys some empirical support, as there is evidence that episodes of financial crises are not completely unpredictable. The combination of various real and financial indicators (such as growth of investment, credit, liquidity and

[8] E.g. Bernanke and Gertler (2004). For a more general treatment, see Cecchetti et al. (2002) and Bean (2003).

asset prices) appears to contain some leading informative power on situations of financial instability[9].

However, the way in which this theoretical approach can be put into practice is far from obvious. It is clearly difficult to identify developments that may be described as unsustainable both in asset prices and in agents' balance sheets. On the other hand, the capacity of monetary policy to contain speculative spirals or widespread waves of optimism about the future course of profits or income is uncertain. Finally, a cost-benefit analysis of an early tightening of monetary policy in order to prevent possible future widespread crisis involves much complexity.

Yet however difficult the task of regulating monetary policy in the presence of financial or asset price imbalances is, economic policy prescriptions are evidently not more straightforward if such imbalances arise in specific national economies belonging to a monetary union.

It should be borne in mind that in the euro area there may be non-coincident cyclical positions. Foreseeably, then, the common monetary policy will entail different real rates and, therefore, it will not exert the same stabilising effect in all the national economies. In the countries for which the monetary and financial conditions prove less restrictive, there may quite easily be a decline in saving, a rise in debt and an increase in the prices of assets which, like housing, are the end-use of most of the bank credit extended to households and are traded on markets which, by definition, cannot be integrated internationally. Moreover, the rise in real-estate prices tends to refuel the upward cycle by generating positive wealth effects on consumption and increasing the readiness of households to incur debt as the value of their available collateral becomes greater. Hence the absence of an autonomous monetary policy may heighten the probability, in certain countries, of expansionary bouts arising which involve an increase in the vulnerability of the private non-financial sector’s net wealth position.

To differing degrees, several Monetary Union Member States, such as Ireland, Portugal, the Netherlands, Greece and Spain, have already found themselves in this position. And the economic policy tools available to curtail the scope of this phenomenon are evidently limited. The impossibility of altering the cost of financing

[9] See, for example, Borio and Lowe (2002), and Detkan and Smets (2003).

through an interest-rate rise cannot be offset by the activist use of regulatory policy to artificially raise the cost of the supply of credit, as this would generate considerable competitive distortions.

Further, specific structural policies aimed at making markets more flexible may occasionally ease supply constraints, such as those conducive to the growth of real-estate prices, and generally help provide for a smoother adjustment to possible corrections of imbalances. However, competition and deregulation alone cannot prevent agents from restructuring their balance sheets in the manner they wish. On the contrary, the Spanish experience, and that of other countries, shows that the very liberalisation of financial markets and heightened competition between intermediaries may contribute to increasing credit to the private sector and, by this means, prompt the emergence of housing market booms.

In any event, the contribution of fiscal policy to the possible containment of macro-financial imbalances should not be underestimated. Although public finances cannot ordinarily be used as an effective tool for regulating cyclical fluctuations, fiscal laxity in expansionary periods evidently fuels financial and macroeconomic imbalances and increases the risk of their correction causing severe real effects. In this respect, Spanish fiscal policy conduct in recent years, which has been more disciplined than in other countries in similar positions, has helped restrict the size of imbalances. And if its restrictiveness is maintained, it will contribute to preserving economic stability.

In this regard, national central banks have a crucial mission to perform in the communication area. They are in the best possible position to provide clear and rigorous public analyses promoting a better evaluation of the risks associated with economic agents' investment and financing decisions.

References

Aizcorbe, A., A. Kennickel and K.B. Moore, 2003, "Recent changes in U.S. family finances: Evidence from the 1998 and 2001 Survey of Consumer Finances", *Federal Reserve Bulletin,* January.

Bean, C., 2003, "Asset prices, financial imbalances, and monetary policy: are inflation targets enough?", BIS Working Paper, 140.

Benito, A. and I. Hernando, 2002, "Extricate: Financial Pressure and Firm Behaviour in Spain", Banco de España. Working Paper 0227.

Benito, A., J. Delgado and J. Martínez-Pagés, 2003, A synthetic indicator of Spanish non-financial firms' fragility", mimeo, Banco de España.

Bernanke B. and M. Gertler, 2004, "Should central banks react to asset price movements?", *American Economic Review*. Papers and proceedings. Forthcoming.

Bernanke B., M. Gertler, and S. Gilchrist, 1999, "The financial accelerator in a Quantitative Business Cycle", in J.B. Taylor and M. Woodford (eds), *Handbook of Macroeconomics,* North Holland.

Borio, C. and P. Lowe, 2002, "Asset prices, monetary and financial stability': exploring the nexus", BIS Working Paper 114.

Cecchetti S., H. Genberg y S. Wadhwani, 2002: "Asset prices in a flexible inflation targeting framework", NBER, Working Paper 8970.Christiano L., M. Eichenbaum and C. Evans, 2001, "Nominal rigidities and the dynamic effects of a shock to monetary policy". *Journal of Political Economy*, forthcoming.

Detkan, C. and F. Smets, 2003, "Asset price booms and monetary policy", ECB, mimeo.

Estrada, A., J.L. Fernández, E. Moral and A.V. Regil, 2004, "A Quarterly Macroeconometric Model of the Spanish Economy", Banco de España, .Working Paper (forthcoming)

Gertler, M., S. Gilchrist and F.M. Natalucci, 2001, "External Constraints on Monetary Policy and the Financial Accelerator", mimeo, New York University.

Gilchrist, S., J.O. Hairault and H. Kempf, 2002, "Monetary policy and the financial accelerator in a monetary union", ECB, Working Paper 175.

Hernando, I. and C. Martínez-Carrascal, 2003, "The impact of financial variables on firms' real decisions: Evidence from Spanish firm-level data", Banco de España. Working Paper 0319.

Institute for Economic and Social Research (ISER), 2003, "The British Household Panel Survey", University of Essex.

Maza, L.A. and A. Sanchís, 2003, "La evolución de la composición de la cartera de activos financieros de las familias españolas", Banco de España. *Boletín Económico*, diciembre.

Nieto, F., 2003, "Determinantes del crecimiento del crédito en España", Banco de España, *Boletín económico*, abril.

Río, A. del, 2002, "El endeudamiento de los hogares españoles", Banco de España. Documento de Trabajo 0228.

Smets, F. and R. Wouters, 2003, "An estimated DGSE model for the euro area". *Journal of European Economic Association*. 1(5): 1123 – 1175, September.

Table 3.1

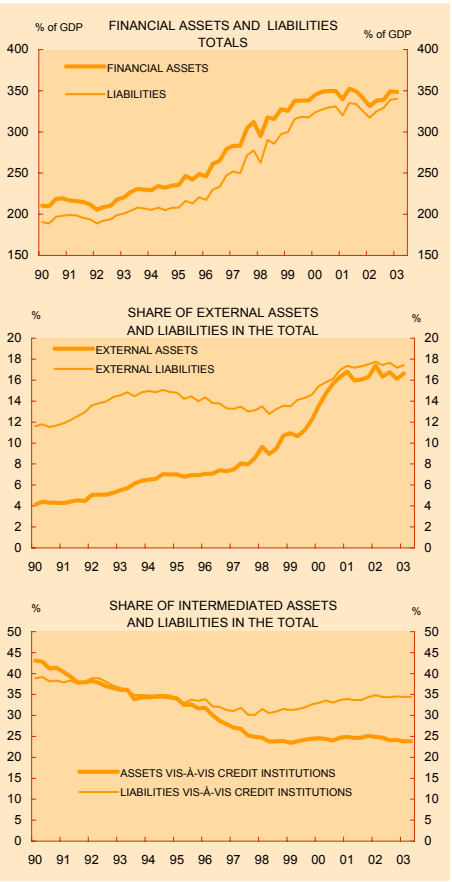
EFFECTS ON ACTIVITY OF A 2 PP RISE IN INTEREST RATES(*)

	Year 1			Year 2			Year 3		
	1990	2000	Diff. 2000-1990	1990	2000	Diff. 2000-1990	1990	2000	Diff. 2000-1990
GDP	-.41	-.58	-.17	-1.05	-1.62	-.57	-1.20	-1.83	-.63
of which:									
User cost effects on investment	-.28	-.32	-.04	-.50	-.56	-.06	-.56	-.64	-.08
Substitution effects on consumption	-.04	-.07	-.03	-.19	-.32	-.13	-.23	-.39	-.09
Income/cash-flow effect	-.03	-.03	-	-.13	-.13	-	-.14	-.16	-.02
Wealth effect	-.06	-.16	-.10	-.25	-.64	-.39	-.29	-.67	-.38

(*) Changes over the base scenario (as a %) after an increase for three years in short and long-term rates.

CHART 2.1

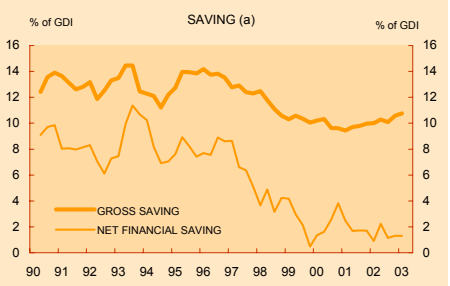
Households and non-financial corporations

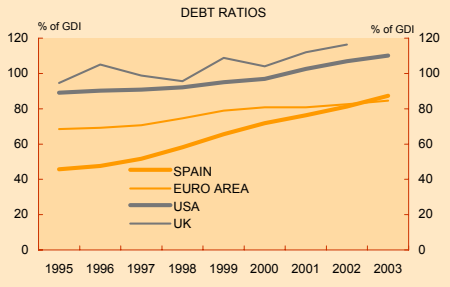


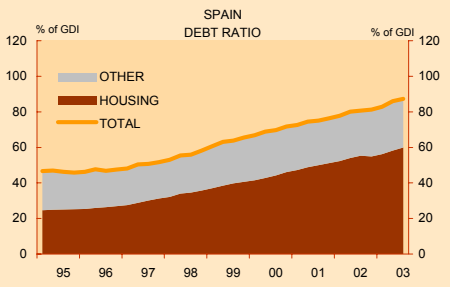
Source: Banco de España.

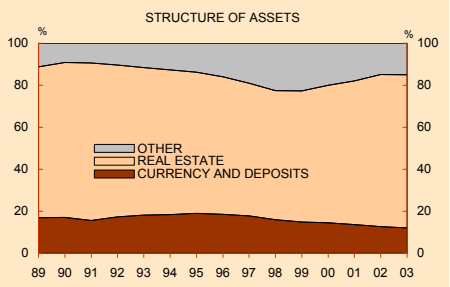
CHART 2.2

Households





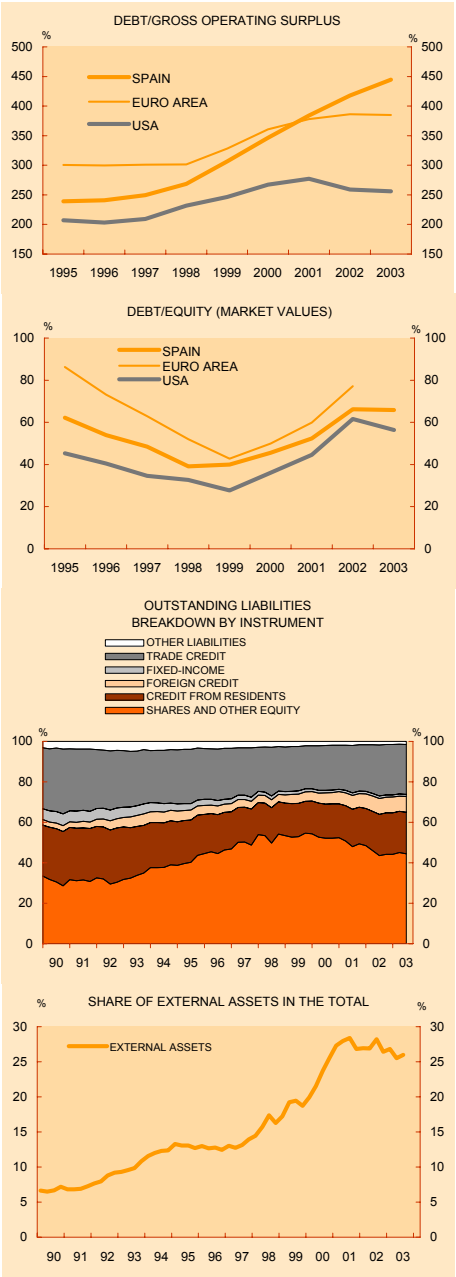




Sources: Federal Reserve, Eurostat, ECB and Banco de España.
(a) Cumulative four-quarter percentages.

CHART 2.3

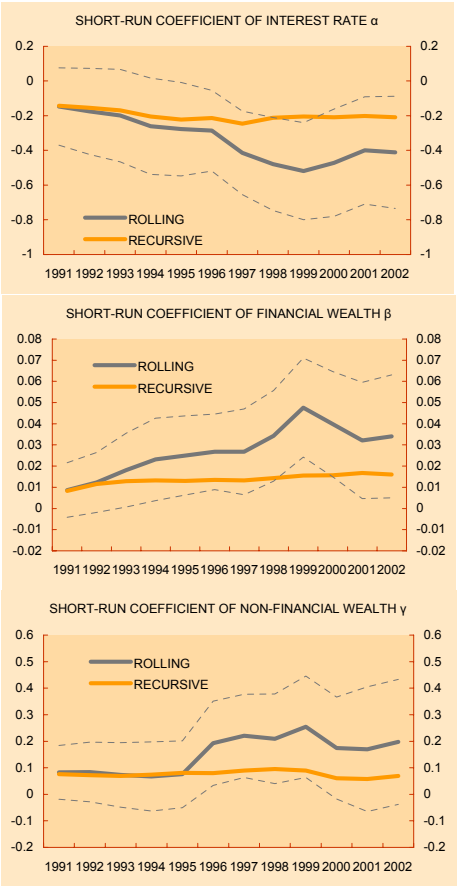
Non-financial corporations



Sources: Federal Reserve, Eurostat, ECB and Banco de España.

CHART 3.1

Consumption function (a)



Source: Banco de España.

(a) Specification of consumption function:

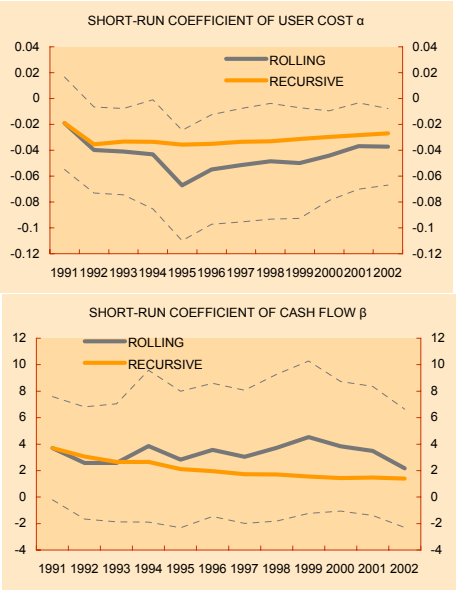
$$\Delta pc = 0.00 + 0.35\Delta pc_{-2} + 0.27\Delta hdy + 0.11\Delta hdy_{-1} + \beta\Delta fw_{-2} + \gamma\Delta nfw_{-2} - \alpha\left(\Delta RR_{-2} + \Delta RR_{-3}\right) - 0.11\left(pc - pc^{*}\right)_{-1}$$

pc= Private consumption.
hdy= Household disposable income.
fw= Financial wealth.
nfw= Non-financial wealth.
RR= Real interest rate.

The dotted lines define the 95% confidence interval of the estimation with rolling samples.

CHART 3.2

Private productive investment function (a)



Source: Banco de España.

(a) Specification of private productive investment function:

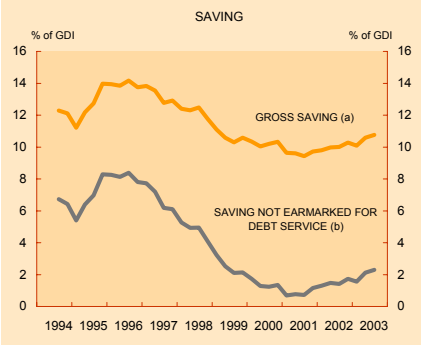
$$\Delta pi = -0.24 + 1.06\left(\Delta pye_{-1} + \Delta pye_{-2}\right) - \alpha\Delta puc + \beta CF_{-1} - 0.05\left(pi - pi^{*}\right)_{-1}$$

pi= Private productive investment.
pye= Production of goods and services.
puc= User cost.
CF= Cash-flow.

The dotted lines define the 95% confidence interval of the estimation with rolling samples.

CHART 3.3

Households



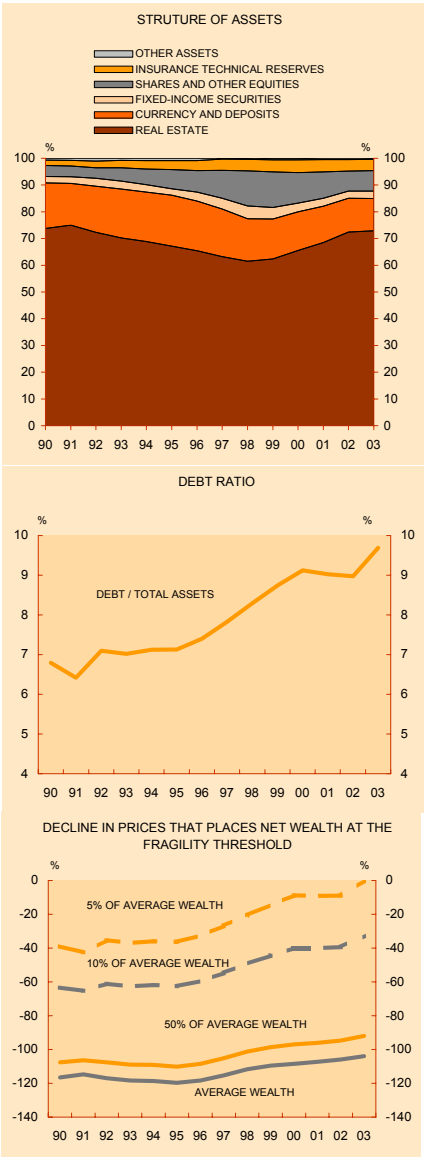
Source: Banco de España.

(a) Outstanding balance of household use of disposable income account.

(b) Gross saving less estimated debt repayments.

CHART 3.4

Households

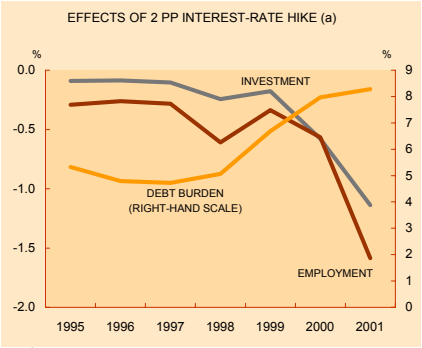


Source: Banco de España.

(a) Required decline in the overall value of tradeable securities and real-estate assets. The fragility threshold is defined as Fixed income + equities + 0.8 real estate assets + 0.5 insurance technical reserves < debt - currency and deposits.

CHART 3.5

Non-financial corporations



Source: Banco de España.
(a) Change over base-line.