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ABSTRACT

In this paper, the role of the financial position of private agents in the transmission of monetary policy (the balance-sheet channel) is explored. To the extent that official interest rates are able to affect the market value and the income flows of certain categories of financial instruments and that these changes in financial wealth and interest income have an effect on aggregate expenditure, output and prices, supplementary transmission mechanisms arise in addition to those related to the substitution between current and future (or between domestic and foreign) demand. However, the pass-through from official interest rates to market rates and asset prices and the sensitivity of demand to wealth and interest income are not dealt with in the current exercise. By focusing mainly on analysing the financial position of private agents in two countries (Germany and Spain), the scope is substantially more limited. Evidence provided points towards relatively small differences in the potential extent of the balance-sheet channel in both countries, although its potency seems to be larger in the case of Germany, particularly as far as non-financial enterprises are concerned.

1. INTRODUCTION.

Monetary policy is able to modify the financial conditions of an economy in a way that affects the rate of price increases and, in the short run, possibly also the rate at which real activity expands. In recent decades, the consensus on the role that monetary policy should play has strengthened: any temptation to use monetary policy in the short-run in a countercyclical fashion in order to stabilize activity at the expense of rising inflation should be avoided. Rather, central banks should direct their policy actions towards the achievement of price stability over the long-run as a pre-requisite for sustainable economic growth.

However, while there is no dispute about the role monetary policy should play, knowledge about the precise mechanisms through which monetary impulses are transmitted to the economy is still limited. Until recently, this incomplete knowledge about the timing and extent of monetary policy effects on the final variables could be substituted to a satisfactory extent by concentrating on guiding the growth rate of monetary aggregates towards a previously decided path deemed consistent with the ultimate target of price stability. Nonetheless, in a number of countries, a progressive deterioration of the formerly stable relationships linking the policy instruments available to the central bank to the growth of money and the latter to the final targeted variables might have increased the need to improve central bankers' knowledge of the contents of the monetary policy black box.

Relevant as they currently are for individual European countries, these difficulties in assessing the relative importance of the various channels through which monetary stimuli operate and the size and precise timing of their final effects are most likely to play an enhanced role after the start of the third stage of European monetary union. Should significant differences exist in the monetary policy transmission processes of the countries joining the single currency from its inception, the conduct of the single monetary policy may be complicated through the divergent impact of any decision on official interest rates on output and price developments across the single currency area, even assuming that policy priorities and cyclical positions do not diverge across countries.

The implications of this uneven transmission of monetary impulses are amplified by the reduced room for manoeuvre for fiscal policies, given the disequilibria accumulated in the past and the adoption of the Stability and Growth Pact.

Divergent preferences and financial and labour market structures and institutions underlie these differences in transmission mechanisms. They are partly the heritage of historical developments, possibly related to the monetary policy track record of each country. However, in that a significant nominal convergence has been attained by a number of European countries and that a growing degree of financial globalisation has emerged in recent decades, a certain development towards an autonomous harmonisation of financial structures and hence, transmission mechanisms, should have been expected in recent years.

This note firstly reviews in section 2 the main channels through which monetary policy operates, without attempting to make any judgment on their relative significance. Next, it concentrates on one of those channels, namely, that operating through the structure of the balance sheets of the private non-financial agents of the economy. In section 4, an attempt is made to assess the likely differences in the workings of this channel in two European countries (Germany and Spain). The note concludes with some final remarks, summarising the main similarities and divergences and highlighting the limitations of the current exercise.

2. THE TRANSMISSION CHANNELS OF MONETARY POLICY[1].

Traditionally, the transmission of monetary impulses to the final variables had been regarded in a context which implicitly assumed a smooth functioning of financial markets. In such a framework, monetary policy works by inducing changes in the prices of alternative financial assets which, in turn, give rise to shifts in expenditure among different

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[1]   This section draws heavily on Bernanke and Gertler (1995), Gertler (1988) and Mishkin (1996).

periods or countries. In the first place, to the extent that monetary policy can affect the interest rates associated with the relevant assets and liabilities, an intertemporal substitution of expenditure will take place. Secondly, interest rate movements will be reflected in changes of the value of the national currency and, consequently, in the relative price of foreign versus domestic goods, thus causing an interspatial substitution of expenditure.

Considerations related to financial structures and institutions give rise to a number of mechanisms through which monetary impulses are deemed to be transmitted. These mechanisms should not be viewed as an alternative to the traditional channels. Rather, they should be understood as elements that tend to amplify the conventional effects. Attention to these issues, which dates back several decades (see, for instance, Brainard and Tobin (1963)), has revived more recently. Two of these linkages among actions taken by the monetary authorities and their effects on the final variables are described here. The first is the balance-sheet channel, which involves the impact of monetary impulses on the final variables through variations in the net financial income perceived by agents (income effect) and on their net wealth (wealth effect). These changes in agents' wealth and income will affect the willingness of households and firms to spend and, through imperfections in financial markets, the willingness of financial institutions to lend. The second channel (the bank lending channel) considers the possibility that banks may alter their offer of loanable funds in the wake of monetary policy impulses because of a reduction in the availability of bank reserves.

2.1. Traditional transmission channels

The most conventional view about how monetary policy works involves the direct impact of monetary impulses on intertemporal spending decisions in the standard closed-economy IS-LM framework. Whenever a move -say, an increase- in official interest rates is able to affect short-term real interest rates (through short-term price rigidities) and, in turn, these are able to affect long-term real interest rates (provided that the expectations hypothesis of the term structure of the yield curve holds), current expenditure on investment, housing and consumer

durable goods -which is assumed to depend on long-term interest rates- will reduce and, thus, also aggregate demand and output. More generally, if the rise in official interest rates comes along with a general increase in real interest rates in the different markets and maturities, the incentives to postpone expenditure will increase, because borrowing to increase current expenditure becomes more expensive and saving in order to increase future expenditure becomes more attractive.

The foregoing mechanism focuses on a closed economy in which just money and interest-yielding assets exist. When foreign exchange is introduced as an additional asset, a new channel of transmission arises. A restrictive monetary impulse, by increasing interest rates on financial instruments denominated in the domestic currency in relation to those denominated in foreign currency, gives rise to a relative increase in the demand for the former, which puts upward pressure on the national currency exchange rate. As a consequence, demand for domestic goods decreases, since they become relatively more expensive.

Since this channel, as well as the one involving changes in the yields on interest-bearing assets denominated in the national currency, entails a substitution of aggregate demand (intertemporal, in the first case, and between domestic and foreign-produced goods, in the second one), we name both substitution effects of a monetary impulse.

2.2. Transmission channels related to financial structures and institutions

Considerations about the interrelatedness among the financial position of agents or the structure of the financial system and real variables have been absent from standard economic thinking over a long period of time. According to the traditional channels, the transmission of monetary impulses can be explained solely by the effects on spending and saving decisions of changes in the relative prices of financial assets induced by interest rate movements. In this way, any issues concerning financial structures are ignored, which implicitly is equivalent to assuming that financial markets are fully efficient, in the vein of the proposition from Modigliani and Miller (1958), which stated that, in a context of perfect

markets, real economic decisions will be independent of considerations relating to the financial structure. However, allowing imperfections in financial markets to exist, new channels for monetary policy transmission arise (such as the balance-sheet channel and the bank lending channel), which help to explain the power of this policy instrument.

As far as the first of these mechanisms is concerned, in that monetary policy is able to affect the market value and the returns (costs) on the private non-financial sector's assets (liabilities), the net wealth and current income of those agents will move accordingly. We name, respectively, as income and wealth effects, the impact on the final variables of changes in net financial income and net wealth associated with a monetary policy impulse.

The ways in which this balance-sheet channel operates are twofold. On the one hand, if monetary policy can alter the agents' current income and net wealth -in a way which will be dependent on the size and composition of households and firms' assets and liabilities-, their willingness to spend will be affected. Accordingly, an increase in official interest rates may either weaken or strengthen the private agents' financial position and thus will be reflected in aggregate demand and, ultimately, in output and prices.

On the other hand, monetary policy effects on the soundness and composition of the private non-financial sector balance-sheet and on its cash-flow can affect the willingness of credit institutions to lend to those agents, as well as -for reasons unrelated to the substitution effects earlier described- the conditions under which credit is provided. This mechanism emphasises the role of asymmetric information in financial markets, since borrowers have an informational advantage over lenders concerning their quality as agents demanding loanable funds. If we assume that a monetary contraction results in a reduction in net wealth and current income of would-be borrowers, lending would become more risky and, as a result, the global amount of loans might be reduced. The increased riskiness of borrowing would take place on two accounts.

Firstly, because of a rise in adverse selection problems[2]. If the lenders use their perception about the average financial position of the borrowers (in terms of their balance-sheet and their income) as an indicator of the quality of the average borrower, and they find out that this indicator tends to deteriorate, the global amount of loanable funds will diminish. The reason is that a worse financial position will mean that the average borrower will find herself in a worse position to honour her debt -for instance, because her collateral will be less valuable or because the costs of servicing the debt in relation to disposable income will have risen-. Secondly, because of an increase in moral hazard problems: since, for instance, lower collateral will be available to the borrowers as a result of the worsening of their financial position, they may, before loan contracts are signed, undertake riskier expenditure projects and, after loan contracts have been signed, be more likely to default, since the cost of doing so is small.

In any event, if either of the two elements are at play, a weaker balance-sheet and/or reduced cash-flow means that a debtor has fewer resources available to either self-finance projects or to offer them as collateral. This will be reflected in a larger cost and a reduced availability of external financing, since the informational risk faced by lenders is greater. Less credit will result in a reduction of expenditure and output,

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[2]   These problems are analogous to those described by Akerlof (1970) for the used-car market. Since the sellers of second-hand cars know better about their quality than the buyers, the single market price will not be able to distinguish among the different qualities of the cars being sold, but rather will reflect their average quality. The seller of a good car will be incurring in a negative premium to the benefit of the seller of a bad one (a "lemon"). As a result, the overall size of the market may drop both because the owners of good cars may decide to leave the market and because of the reluctance of purchasers to buy the remaining cars. In the same fashion, interest rates in the credit market will tend to reflect the weighted probabilities of the borrower being either a "lemon" or a good-quality one. The global amount of loanable funds will be lower than in the absence of the informational problem, both because higher interest rates compared to a perfect information scenario will drive the good-quality borrowers out of the market and -perhaps, more importantly- because the fact that just the worst of them remain in the market will make the lenders reluctant to lend.

at least to the extent that the problem shows up uniformly in any financing source.[3]

The bank lending channel also stresses frictions in the credit markets. It relies more heavily on the special role that financial intermediaries play when they solve (at least partially) through risk diversification the aforementioned problems of asymmetric information. When monetary authorities impart a contractive impulse, which reduces bank reserves, bank deposits also contract, and thus so does the amount of loanable funds available. For the lending channel to operate, two more conditions are required: there must be no perfect sustitutability of bank deposits with other bank liabilities, so that the supply of bank loanable funds is affected and, additionally, there must be no perfect sustitutability among bank credit and other sources of finance. The bank lending channel is unlikely to apply to large firms, whose access to the capital markets will be relatively easier. In the absence of information asymmetries, all borrowers with the same creditworthiness would be able to obtain funds under the same conditions. Nevertheless, the access to other sources of funds might be difficult not only for households, who do not have any direct access to financial markets, but also for small and young firms, due to the fact that lenders have better knowledge about the characteristics of mature and large firms[4]. Consequently, with limited alternative sources of finance, aggregate demand will be affected and, subsequently, output and prices, although it has been argued that this channel could be weakening, since increasing disintermediation may be offering a wider range of financing opportunities to borrowers other than the access to the

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[3]   Note that asymmetric information may not only underlie an underprovision of intermediated funds, but also of those directly raised in the capital markets. For instance, a healthy firm may retrench from issuing shares when, due to imperfect information about its financial position, the price it can obtain when selling the shares is lower than the one it could otherwise obtain in the absence of informational problems.

[4]   Alternatively, while this class of borrowers might not be absolutely barred from bank lending, they might have to incur the costs of finding a new lender and, possibly, of higher interest rates, since the new lender does not have any information on the borrower's quality as such.

bank credit.

The next section will focus more closely on the income and wealth effects on the financial position of private agents stemming from the impact of changes in interest rates on assets and liabilities and in asset prices. However, we will abstain from considerations related to the first step of the transmission process -the pass-through of changes in official interest rates to those relevant to the income and wealth effects-, as well as the final step: the impact of changes in current income and wealth on expenditure decisions, output and inflation.

3. THE BALANCE-SHEET CHANNEL.

The importance attributed to the balance-sheet channel in the transmission of monetary policy has increased in the recent past. On the one hand, this is the result of academic developments (such as those reviewed in the previous section) stressing the implications of asymmetric information between lenders and borrowers for the functioning of financial markets. More recently, the relevance of the channel operating through the agents' balance-sheets has been moved to the fore of monetary policy transmission discussions as the result of the perception that the financial position of private agents is likely to have played an important role in explaining the recession at the beginning of the current decade, with the explosion of the asset price bubble in a number of countries, particularly in the Anglo-Saxon economies, but also in Japan and the Scandinavian countries. A tightening of monetary policy intended to offset inflationary pressures resulted in a sudden collapse of asset prices, which had formerly risen sharply in the wake of financial deregulation during the eighties. The financial position of the private agents worsened, as a result of the deterioration in balance-sheets following the drop in asset prices and the fall in cash-flow arising from factors such as the increase in variable-rate mortgage-related interest payments compounded with the previous over-indebtedness ensuing from financial deregulation. This worsened financial position contributed in all likelihood to sharpening the resulting recession in the early years of the current decade.

In fact, deregulation and other changes in financial markets suggest that the importance of the balance-sheet channel has probably increased in recent decades. For instance, disposable income of private agents must have become more sensitive to monetary policy since the deregulation of interest rates. This greater sensitivity of income should have induced a greater interest sensitivity of their expenditure, particularly if agents are liquidity-constrained, so that their current income plays a greater role in determining their spending decisions. Another reason would, in the case of households, be the increase in the share of variable-rate mortgages which would tend to provoke a reduction in spending whenever interest rates rise.

To assess the relevance of the balance-sheet channel it is worth noting that the income effect arises through the impact of official interest rate movements on the returns and costs on financial assets and liabilities denominated in national currency, but also through its impact on the exchange rate, so that when an increase (reduction) in official interest rates tends to put appreciating (depreciating) pressure on the national currency, the return and cost in domestic currency associated, respectively, with the assets and liabilities denominated in foreign currency will reduce (increase). Likewise, the wealth effect refers not only to the impact of monetary impulses on the market value of certain financial assets denominated in national currency (and also of real assets, such as housing), but also to its impact on the domestic currency market value of all foreign-currency-denominated financial assets and liabilities (which will reduce -increase- with the appreciation -depreciation- of the national currency).

For a given response of market interest rates to official rates, the size of the income effect will depend, for financial instruments denominated in national currency, on the net interest-bearing asset position of agents, the composition of their assets and liabilities (in particular, the shares of instruments remunerated at fixed and variable rates and with short and long maturities) and, finally, agents' propensity to spend out of interest income. The latter factor, together with the level of assets and liabilities held by the private sector in foreign currency, will determine the size of the income effect derived from the impact of interest rate changes on the

exchange rate. In the same vein, the size of the wealth effect associated with those assets denominated in national currency will depend on their level and composition and the propensity to spend out of changes in net wealth. This second factor will also determine the wealth effect arising from financial instruments denominated in foreign currency, as well as the level of these assets and liabilities. Naturally, income and wealth effects will also rely on the extent to which lenders' reluctance to lend is affected by developments in the financial position of the borrowers.

An important qualification to the extent of the income effect is the fact that the worsening interest flows from some agents should be counterbalanced by the improvements from others, since a financial asset is always the counterpart of another agent's financial liability. However, this redistribution of income does not preclude the existence of an income effect. This is most clear when either the holder or the issuer of the instrument does not belong to the private non-financial sector[5]. But even if both the issuer and the holder of a financial instrument belong to the non-financial private sector, a change in the interest income generated by that asset could generate an income effect (and hence impact on aggregate demand) provided that the propensities to spend out of interest income of both agents diverge or that lenders do not suffer credit constraints or do not have the same spending opportunities as the borrowers. In any event, these considerations will not apply to the wealth effects: whenever monetary policy is able to affect the prices of certain financial assets, their holders will consider this fact as a change in their wealth. However, the issuers' net wealth will be unaffected by price variations in the secondary market of the instruments they have

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[5]   Although even in this case, the redistribution of income could end up taking place inside the non-financial private sector. If a credit institution is the issuer or the holder of the instrument, the change in its remuneration may merely result in a change in the dividends it distributes to its shareholders. If the issuer is the public sector, changes in the interest income of private agents might still not trigger income effects if these agents associate the change in their current income with a counter-balancing change in future taxes, given the impact of changing interest payments on the public-sector balance.

previously issued[6]. Consequently, while conceivably a part of the income effects may amount to a zero-sum game -in the sense that the total income of the non-financial private sector could remain unaffected-, changes in the asset price level will always generate genuine net wealth effects.

The size and even the sign of the income and wealth effects arising in response to a change in the monetary policy stance diverge notably across the whole range of financial instruments. A description follows of the likely relevance of both effects for different categories of financial assets and liabilities held by the private non-financial sector. The classification is based on the categories usually contained in the national financial accounts. A summary is shown in table 1, where a + (-) sign represents, for a given category of financial instrument, an income or wealth effect which tends to strengthen (weaken) the transmission of monetary impulses. A 0 (zero) is associated with a non-significant income or wealth effect for the transmission process of monetary policy arising from that particular financial instrument.

As far as financial assets -from the point of view of their holders- are concerned, they are classified in the following eight categories:

(a) Cash and sight deposits. Cash is obviously a non-interest-bearing asset, while sight deposits almost share in principle that condition with it, since their interest yield is very low and typically responds very little to changes in monetary conditions (although possibly this is not so clear-cut in the case of Spain where sight deposits have strongly responded to changes in monetary conditions in recent years as a result of increased competition among financial intermediaries). Consequently, movements in official interest rates are assumed not to generate any income effects

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[6]   A different matter is the fact that, in a second round of effects, when monetary impulses will affect the inflation rate, the real value of those financial instruments will be altered as will thus their issuers' and holders' net wealth. Besides, an additional income effect would also appear through the impact of monetary policy on the general price level at least for those instruments with fixed returns and a long-term maturity (and even in the case of short-term instruments, provided that the movement in the price level is not anticipated).

related to this category of assets. Since their face value will also remain unaffected, no wealth effect will exist either.

(b) Other deposits and (c) Short-time securities. In so far that monetary policy can affect the remuneration of this category of assets, a rise in official interest rates will produce an increase in the income of those agents holding them, thus tending to impair the process of monetary transmission. This income effect running in the opposite direction to that desired by the central bank will be more relevant the shorter the average maturity of these types of instruments, so that contracts are reviewed more frequently. Since their nominal value will remain unaltered after a monetary shock, no wealth effect will be associated with these assets.

(d) Bonds. For fixed-rate bonds, while the income effect will tend to be zero -at least, in the short-run, as long as newly-issued bonds are not substituted for those maturing-, and more so, the longer the maturity of the securities concerned, the wealth effect will tend to run in the direction desired by the authorities, since increasing yields in the secondary market will be associated with decreasing prices.

(e) Shares. No income effect is expected to show up in the short-run since nominal dividend yields will only possibly be affected at a later stage, if the monetary move results in a change in firms' profits in the opposite direction. The wealth effect will run in the same direction as in the case of the bonds.

(f) Mutual fund certificates. The income and wealth effects arising from this type of asset may be seen to be dependent on the nature of the financial instruments in which the fund has invested its proceeds (money market assets versus longer-term securities, shares and real estate) and on the nature of the returns that holders obtain (accumulated capital gains or losses when certificates are sold versus more or less regular payments stemming from the fund portfolio's income and capital gains).

For those mutual funds in which earnings are reinvested (accumulation funds), no income effect will exist. As to the wealth effect, it will operate in the direction to reinforce the monetary transmission in the case of

capital-market and real-estate funds (since, along previous lines, the market value of securities and shares -and also real estate- will tend to decrease with increases in official interest rates) and will exert a counteracting effect -albeit rather limited- in the case of money market funds (whose asset yields will tend to increase). This interpretation of the income and wealth effects associated with money market funds of this type may be controversial. On the one hand, it hinges upon standard valuation rules: money market assets held by the fund are valued according to their acquisition price, while other assets are valued at their market prices. On the other hand, it can be argued that, since these certificates are very liquid assets (in the sense that they can be readily converted into cash at a low cost and without the risk of suffering capital losses), holders may understand a rise in the value of their certificates as an increase in income rather than as a capital gain. However, in the case of Spain (where the share of money market funds is very high) and, until June 1996, there were strong incentives to hold the certificates for a very long period of time to take full advantage of fiscal incentives.

For those funds distributing earnings to the certificate holders ("distribution" funds) and which invest in money market instruments, the income and wealth effects mentioned for this type of instrument apply, that is, no wealth effect will exist and the income effect will run in the opposite direction to the one desired by the monetary policy authorities. For capital markets and real estate funds, if just interest income and dividends were to be distributed, no significant income effect would arise if the portfolio composition remained constant, since the assets would have been acquired before the change in the monetary policy stance; the wealth effect will be favourable to the transmission of monetary policy. Matters are probably more complicated since, as one might expect, the composition of the portfolio is subject to continuous changes. If, however, these funds also distribute possible capital gains (as seems to be the case in Germany, in a proportion which is determined by the managers of the fund), an additional income effect is to be expected. Its nature might well be asymmetric in the sense that sinking interest rates would lead to higher distributed capital gains which would reinforce the monetary impulse. However, rising interest rates would be associated with (undistributed) capital losses, so that no additional income effect would

arise. As to the wealth effects, they would consequently be reduced in the first case, and unaffected in the second, in comparison to those funds which do not distribute their earnings.

(g) Insurance reserves. In the case of households, insurance reserves are mainly composed of accumulated life insurance premia and contributions to retirement schemes, which do not yield any explicit regular returns. Consequently, no income effect is attached to this category of assets. However, since the portfolios of insurance and pension institutions will tend to be composed of shares and long-term securities, a significant wealth effect will exist, which will reinforce the monetary transmission process.

(h) Claims denominated in foreign currency. In this case, income and wealth effects are not related to the impact of domestic monetary impulses on interest income and asset prices in foreign currency of those assets denominated in these currencies (which will tend to be negligible), but to their impact on the value in national currency of those assets and their income flows through the variations of the exchange rate. To this extent, the maturity of the claims will be irrelevant. Both the income and wealth effects will strengthen the monetary transmission process since, for instance, an appreciation of the exchange rate in the wake of a contractive monetary impulse will result in lower interest income and wealth when measured in the national currency.

On the liabilities side of the balance-sheet, just income effects will be at play as previously mentioned, with the exception of wealth effects stemming from the liabilities in foreign currency.

(a) Short-term securities[7]. Income effects will tend to favour the process of monetary transmission, since higher (lower) interest payments will reduce (increase) the income of those agents issuing them.

(b) Bonds and (c) Shares. As was seen when the asset side of the

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[7]   Note that the categories of liabilities (a) to (c) are only issued by non-financial enterprises.

balance-sheet was reviewed, in principle no relevant income effects are associated with these instruments.

(d) Loans from financial institutions. Whenever official interest rates are able to affect the rates at which short-term loans are granted, debtors' interest payments will move in the same direction -and, consequently, their income, in the opposite one-, so that the transmission will be enhanced. However, these effects will be absent for longer-term loans, as long as they do not bear a variable rate.

(e) Credit granted by non-financial enterprises to households and other firms. Although the average maturity of this type of credit will tend to be rather short, it is far from clear that the size of the income effect - favourable anyway to the monetary transmission process- will be large, because it is likely that lenders will not fully adapt the terms of the credit they provide to the changes in official interest rates[8]. Information in this regard is typically scarce and precludes making any solid statements, but a faster adjustment of the rates at which credit is granted to households rather than to firms is conceivable, since the latter will be more based on long-term established commercial practices which are unlikely to be much affected in the short-run by monetary policy movements.

(f) Liabilities denominated in foreign currency. Contrary to the case of the claims, changes in the value of the national currency associated with monetary impulses will give rise to income and wealth effects that run against the authorities' intentions, since, for instance, an appreciating currency associated with a rise in official interest rates will reduce the national currency value of interest payments and debt liabilities denominated in foreign currency.

It is likely that the perception of the fluctuations in income flows and in the price of assets -and, consequently, the income and wealth effects themselves- differs according to the type of instrument. This fact is

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[8]   Implicitly, this assumes that, on the contrary, the pass-through to other sources of finance is complete (or, at least, significantly larger).

themselves- differs according to the type of instrument. This fact is probably more relevant as far as wealth effects are concerned. For instance, wealth effects associated with mutual fund certificates are likely to have particularly powerful effects on aggregate demand, since their holders receive regular information about the market value of their certificates. Information about the market value of shares is also typically very precise. However, in the case of bonds held directly by households, it is more unlikely that they will be equally conscious about the fluctuations in market prices. To some extent, this is possibly also the case for the accummulated contributions to retirement schemes.

In general, the balance sheets of households and non-financial enterprises diverge in a way that tends to reflect their different role in economic activity and their differing degree of access to alternative sources of finance. This determines the net asset position of both sectors, as well as the predominant types of instruments and the mix of maturities in which they show up. In this respect, households are net lenders, while firms are net debtors. The non-financial enterprise sector has access to a wider range of financing possibilities, which should support, at least during periods of monetary contraction, the possibility of a greater incidence of monetary policy on households than on firms, if a bank lending channel were to exist or, alternatively, if the balance-sheet channel which relies on lenders' desire to lend were to show up primarily in intermediated finance, so that households would be more exposed to the fluctuations in its availability.

4. A QUALITATIVE COMPARISON OF THE RELATIVE SIZE OF THE BALANCE-SHEET CHANNEL IN GERMANY AND SPAIN.

In this section, the composition of the sectoral balance sheets in both countries is compared, in order to point out those differences which are likely to have implications for the transmission of monetary policy. However, little attempt (if any) is made to explain how these differences might influence the behaviour of the different components of aggregate demand.

Real assets are not dealt with in depth. Indeed, the increase in the share of owner-occupied housing may constitute an important aspect in which the size of the wealth and income effects may have changed in recent years in the case of households. From the point of view of the financing of purchases through indebtedness, these changes are implicitly captured among variations in households' financial liabilities and interest payments. However, by leaving aside this important component of households' wealth, we miss an important aspect in which wealth effects are likely to operate. In any case, home ownership is much more widespread in Spain (78% of total dwellings) than in Germany (38%). Among 12 industrialised countries considered, Spain and Germany are, respectively, those with the highest and lowest rates, the divergence being probably due to a different fiscal treatment of the purchase of owner-occupied homes in both countries. However, according to data from Dolado, González-Páramo and Viñals (1997) and Tödter and Ziebarth (1997), the value of the stock of housing in terms of GDP is very similar in both countries (184% and 170% in Spain and Germany, respectively), so that if the potential size of wealth effects is proxied by that ratio, it should not differ significantly among both countries.

In order to obtain an approximation to the degree to which income and wealth effects are likely to operate, the main tools used are the financial accounts of the two countries. A comparison is made of aspects such as the overall level of net financial assets and gross financial assets and liabilities, the proportion of those assets whose market value is likely to be affected by monetary policy, the share of net interest-bearing assets and the proportion of interest receipts and payments in disposable income. Financial instruments included in the construction of these measures do not coincide precisely with those presumed to give rise to income and wealth effects in section 3, due to limitations in the information provided in the financial accounts and to the need to improve comparability between both countries. The annex provides details on the adjustments made to the raw data.

Some of the observed differences in the composition of private agents' portfolios can be attributed to factors such as differing preferences -possibly related to the inflation record of each country- or the incidence

of financial and fiscal regulations.

A good example of the influence of fiscal regulations on the financial structure is provided by the swift development in the nineties of accumulation fund certificates as a financial asset held by Spanish households, given the favourable treatment of their capital gains. In Spain, capital income in excess of 28,000 pesetas (around 325 DM) per household is added to other sources of income and the prevailing progressive tax scale is applied to total income. On the other hand, capital gains were taxed between 1991 and June 1996 at a rate -different for alternative categories of assets- which was lower anyway, and more so the longer the household held the asset. Those capital gains arising from mutual funds were absolutely tax-exempt after 15 years. No wonder, then, that accumulation money market mutual funds grew so briskly in the nineties, since they emerged as a formidable competitor for bank deposits (in particular, for long-term deposits) as a way of maintaining wealth not necessarily held for spending purposes, but shielded anyway from fluctuations in market prices. The same reasons explain why "distribution" funds have not developed in Spain, and why funds investing in shares and longer-term securities have developed more slowly (at least until 1996), since the risk of capital losses prevents them from adequately competing with bank deposits and other risk-free assets. The new fiscal regulations on capital gains in force since June 1996 scrapped the commensurate decrease in taxation with the number of years the asset was held and made taxes on capital gains unrelated to the level of income, by introducing a uniform tax rate of 20% provided that at least two years had elapsed between the purchase and sale of the asset. By eliminating the incentives to hold money market investment fund certificates for very long periods of time, their substitutability with bank deposits has even increased.

Former studies related to the present one are Borio (1995) and Kneeshaw (1995), for a sample of industrialised countries, and Peñalosa (1996), for the case of Spain. Muñoz de la Peña (1997) reviews the existing empirical evidence concerning the relative potency of monetary policy transmission mechanisms in different European countries. As far as the steps not dealt with in the current study are concerned, the

following points are noteworthy concerning Germany and Spain. Firstly, movements in money market rates appear to be translated to long-term rates more swiftly and completely in Spain then in Germany[9]. Secondly, consumption seems to be more responsive to long-term rates in Spain, the opposite being true in the case of investment[10]. Finally, moderately larger rigidities in Spain should favour greater real effects in this country and, correspondingly, should hinder more the transmission to prices. Overall, the transmission of monetary policy impulses seems to be more powerful in Spain than in Germany.

4.1. The financial position of households.

Households' economic decisions comprise consumption spending, investment in housing and financial saving. However, in the Spanish national accounts, individual firms are jointly considered with households for reasons related to the availability of information. This poses a potential problem when analysing the financial position of families, since their balance sheet will reflect, along with elements related purely to the above-mentioned decisions, others which will be closer related to decisions typically associated with non-financial enterprises.

Economic theory suggests that households make their spending and saving decisions according not to their current but to their permanent income. If this were so, the room for monetary policy to affect aggregate demand would be reduced. If people know that the monetary policy stance is somehow related to the short-run performance of the economy (it is oriented, say, to offset inflationary pressures when they arise or to smooth cyclical fluctuations in real activity), wealth and income effects would tend to cancel out in the course of economic cycles, so that they would not lead households to reassess their permanent income. Only

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[9]   Sastre (1996) finds an increase in the sensitivity of agents' assets and liabilities rates to monetary conditions in Spain in the current decade. This appears to be associated with the liberalisation of financial markets and the increased competition among financial intermediaries.

[10]   However, Estrada, Hernando and Vallés (1996) find a larger response by investment in Spain than former studies.

substitution-like effects would be operating when changes in official interest rates take place, to the extent that the relative price of current and future expenditure is affected. However, it is still likely that balance-sheet channels operate in the real world. First, consumer decisions may, at least partially, be based on current income if households misinterpret variations in current income and wealth as changes in permanent income, so that the balance-sheet channel operating through households' desire to spend would be in place. Secondly, there would always be room for the second type of balance-sheet channel -that working through the willingness of lenders (in this case mostly credit institutions) to lend- to operate: even if the fact that the effects of the monetary impulses will cancel out in the long-run may imply that the ability of the borrower to repay debt in the long-run may not be impaired, a worsening financial position in the time horizon of the maturity of the instrument will entail an increase in the likelihood of default. Consequently, households may find themselves liquidity-constrained whenever the value of the collateral they can offer is reduced or the burden of servicing the debt rises above a given share of current disposable income.

Household balance sheets are characterised by a high positive net financial wealth (as a percentage of GDP) in both countries (chart 1). Whereas in Spain it could be accepted, at first glance, that this ratio has been moving around an average in 1986-95, in Germany it seems to move along an increasing path, although these divergent developments are likely to be dependent on the short time-span considered. The level reached in both countries nearly coincides since 1989 and approached 90% in 1995. These similar levels of net financial wealth are the result of higher assets and liabilities in Germany (see chart 2), which could reflect a larger degree of financial development. On the other hand, the higher rate of owner-occupied homes in Spain should be expected to be associated with a larger gross indebtedness (provided that the flow of new owners is also higher). In any event, higher assets (as a proportion of GDP) in Germany indicate that households will tend to be less liquidity-constrained, since they can offer more collateral.

In both countries, the fluctuations in net wealth are driven by

movements in financial assets. This fact allows for several alternative interpretations. The most straightforward would be that some of the assets held by households are subject to changes in their market value, which is not the case for the liabilities (mainly, loans from financial institutions). Another possible interpretation is provided by Peñalosa (1996): this could highlight the fact that, whenever households modify their spending and saving decisions, they do so by adjusting their assets and not their liabilities (possibly because they try to circumvent possible liquidity constraints -induced by the lenders' desire not to increase their lending above a certain level- through the shedding of assets). While the first explanation relies on asset price changes (possibly as a result of monetary policy itself), the latter hinges upon quantity adjustments (as a result of agents' reaction to monetary policy).

Chart 3 tries to shed some light on this issue. The chart shows the variations in net assets together with those of gross assets and liabilities (all of them measured as the change in the ratio of the relevant stock variable to GDP)[11]. It is again confirmed that, in both countries, households' wealth adjustments take place mostly through variations in assets, but it seems difficult to use this information in order to evaluate the existence of borrowing constraints. If they were to exist, a negative variation in net assets to GDP in a given period (a reduction in net financial wealth) would tend to be translated to a reduction in the assets rather than an increase in the liabilities. The former seems to be observed, but it is difficult to explain why, in those periods, liabilities also tend to fall in Germany. On the other hand, in those periods in which the variation in net assets to GDP is positive, the variations in both assets and liabilities also tend to be positive, which might indicate that the increase in assets allows for more collateral to be used to engage in new liabilities.

In principle, a competing explanation for the reduction in assets when households decide to increase their net indebtedness, could be the

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[11]   An alternative could have been to present the flows scaled by GDP. Flows, unlike the variations in the stocks, are free from changes in the value of the financial instruments.

decision of households to finance spending out of existing assets on the grounds of their lower average return as compared to the cost of incurring new liabilities. However, this reasoning fails to explain why, when spending is low and thus households' net financial wealth tends to increase, they do not do so by reducing their liabilities instead of accumulating new assets (unless one is ready to accept that, in periods of interest rate increases, the transmission of monetary impulses to the interest rates on assets is more intense than that to those on liabilities or that there are costs associated with cancelling some liabilities -for instance, a mortgage-).

In what follows, no income and wealth effects associated with the positions in foreign currency are considered separately, but rather they are included under the headings "Other assets" and "Other liabilities". The reason is the small size of the assets and liabilities held by the households of both countries against the rest of the world -identified, in this paper, for reasons of data availability, with those instruments denominated in foreign currency-.

4.1.1. Wealth effects[12].

Examining the categories of domestic currency assets subject to wealth effects scaled by GDP (see table 2) suggests a quite larger potential size of the wealth effects in Germany than in Spain (75.7% and 37.3% in 1995, respectively). The difference remains large when the joint share of assets subject to wealth effects in total households' assets is considered, which can probably be attributed, at least partially, to the German stability record, which leads borrowers and lenders to engage more actively in long-term financing relationships. It is also worth underlining that the proportions have been steadily increasing in both countries in recent years, which points towards a strengthening of the balance-sheet channel of monetary transmission.

Among the individual categories of assets, the quite different role

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[12] In section 2 of the annex it is explained which categories of assets are considered to be subject to these effects.

played by bond holdings in the portfolios of German and Spanish households (chart 4) is remarkable. While in the first case they have remained stable during the period considered at around 15% of their total financial assets (which represents an increasing proportion of GDP until rising above 21% in 1995), Spanish households hold an ever-decreasing proportion of this type of assets (in 1995, 2.5% of total assets or 3.2% of GDP compared to 7.3 and 8.4%, respectively, in 1986). To the extent that rising short term interest rates are transmitted to the longer end of the yield curve and result in market price declines in these assets (and subsequently in a reduction of households' wealth), this provides a source for a reinforced transmission of monetary policy impulses in Germany compared to Spain.[13]

Another component where a sizeable difference can be observed is insurance reserves (in 1995, 27.5% of total household assets in Germany compared to 11.7% in Spain). The high level in Germany might seem surprising given that the coverage of public pension schemes should be at least as large as in Spain. However, while the share has remained very stable in Germany, Spain is very rapidly catching up (these assets were below 3% of total assets in 1986).

Differences are smaller concerning shares and mutual fund certificates held. Their participation in total assets is, in both cases, larger in Spain. This may reflect, in the first case, the much-quoted traditional reluctance of German households to invest in shares and, in the second one, the favourable treatment of capital gains derived from mutual fund certificates in Spain[14].

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[13] Note also that, given that the increasing integration of world capital markets has led, in recent years, to an increased correlation in bond prices across different markets, the larger proportion of bonds in the portfolios of German households tends to make this component of their wealth more sensitive to external shocks, which are not under the control of the national monetary authorities. On the other hand, it is also true that Spanish bond markets are likely to be more sensitive to such shocks than German ones.

[14] However, note that money market funds -assumed either not to be subject to wealth effects or to give rise to wealth effects with an opposite sign- are included in charts 4 and 5 with all other mutual funds. This

4.1.2. Income effects.

In what follows, an attempt is made to approximate the potential for these effects. Several indicators are used for this purpose: the proportions in GDP and in household portfolios of those assets and liabilities whose returns are likely to respond to movements in official rates, the interest receipts and payments made and the implicit interest rates on the assets and liabilities which give rise to the income effects.

Section 3 of the annex provides details on the precise choice of instruments used in the construction of these measures. In particular, since it is not possible to approximate those short-term instruments potentially subject to income effects in the Spanish case, a broader measure including longer-term interest-bearing assets and liabilities is also provided.

Net interest-bearing assets broadly defined have trended upwards in the case of Germany, as a share of GDP, since 1986 (25.5%) to represent about 31% in 1995 (table 3). As in the case of total assets and liabilities, this upward trend results more from the expansion of interest-bearing assets than from a reduction of the corresponding liabilities. In Spain, results are quite different: while net interest-bearing assets amounted to 45.1% of GDP in 1986, they were just 26.6% in 1995. These developments might be partially driven by two main forces: the booming investment in housing in the second half of the eighties, which pushed up the demand for loans from financial institutions, and the strong expansion of mutual funds previously analysed, which do not distribute any yields to their holders.

Under the narrower definition of financial instruments potentially

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class of fund is particularly relevant in Spain (55% of the portfolio of all mutual funds in 1995). In Germany, where they were first introduced in 1994, they accounted in 1995 for about 13% of the value of all participations in those funds in which individual investors can acquire certificates ("Publikumsfonds"). Furthermore, assets of real estate funds -negligible in Spain- amounted in Germany at the end of 1995 to about 24% of total assets of investment funds.

subject to income effects developed in the annex, interest-bearing assets as a percentage of GDP reached quite similar levels in 1995 in both countries (54.7% in Spain and 47.9% in Germany, in both cases declining from 60% and 54.5%, respectively, in 1986). Net interest-bearing assets (that is, the above defined interest-bearing assets less short-term loans from financial institutions) can be calculated just for Germany. They stood in 1995 at 44.8% of GDP (down from 50.8% in 1986).

These indicators point towards a strong potential for income effects - although somewhat diminishing-, which would run in the opposite direction to that desired by monetary authorities: that is, given that monetary policy can affect the interest rates associated with the financial assets and liabilities held by the households and that it does so to a uniform extent across the whole range of these instruments, an increase in official interest rates would lead to higher interest income and expenditure by these agents.

A rough measure of the size of the income effect can be established by assuming that the pass-through from official rates to the conditions in which interest-bearing assets and liabilities are remunerated is complete and instantaneous (so that a change in the former is translated in its entirety to the latter). If this were so, the change in households' income when the broader measure is used (which seems to be less correct, but allows for a comparison between both countries), would be 0.47% and 0.38% in terms of households' disposable income in 1995, respectively, for Germany and Spain, for a 1 p.p. change in interest rates. So, the difference among both countries would be small. The range in which these figures have moved between 1986 and 1995 is not very large, reflecting the relative stability of net interest-bearing assets. Needless to say, one needs to be extremely cautious when interpreting such an exercise. Apart from the difficulties in constructing the interest-bearing aggregates, some important caveats follow. Firstly, no attempt is made to check whether the assumption of perfect transmission from official to market rates holds. Should the transmission be higher in the case of the liabilities (assets), the corresponding figure would be reduced (increased). In fact, Escrivá and Haldane (1994) find that, for Spanish households, income effects run initially in the opposite direction, given the swifter

response in credit rates. However, later, when the remuneration of the assets held against banks is updated, the sign of income effects is reversed. Secondly, the shares of interest-bearing assets and liabilities in GDP or disposable income are themselves endogenous to the rates of return on different instruments. Finally, those figures say little about the impact of the income effect on aggregate expenditure, since we do not know about the propensity to spend out of interest income (which may anyway be greater for those agents who are indebted in net terms than for those holding a net interest-bearing asset position) and about the possible extent of liquidity contraints imposed by lending institutions.

Another way of looking at the income effects relies on focusing on effective interest receipts and payments -as provided by the income account of the national accounts- in relation to disposable income. The problem encountered here is that the income account does not provide information about the interest income stemming from individual financial instruments, so that payments and receipts corresponding to short-term instruments can not be split from the aggregates (see section 3 in the annex). In contrast with the bulky net interest-bearing asset position, net interest income does not represent in either country an important contribution to households' disposable income. To a certain extent, this corresponds to the fact that the cost of the liabilities is higher than the return on the assets, which partly offsets the existence of a net asset position. In 1994 (the latest period for which information for both countries is available), net interest income amounted to 1.7 and 2.6% of disposable income in Germany and Spain, respectively (table 4). The range of variation is not negligible (between 2.4 and 4.4% in Germany and between 2.8 and 4.8% -in 1995- in Spain). Charts 5 and 6 show interest receipts and payments (as a percentage of disposable income), together with the implicit interest rates on assets and liabilities. These are constructed by dividing interest receipts and payments through those financial instruments from which they originate. In both countries, fluctuations in the ratios of interest payments to disposable income are tracked quite well by the movements in their implicit cost, so that the former are not just explained by variations in the ratios of assets and liabilities to disposable income. Interest receipts as a share of disposable income are less well correlated with their remuneration. Finally, higher

net interest receipts in Spain result from relative lower implicit rates and higher interest-bearing assets and liabilities in Germany.

4.1.3. Availability of finance from credit institutions and other sources.

It has been previously argued that the balance-sheet channel of monetary policy transmission operates not only when a worsening financial position of private agents (in this case, of households) induced by a monetary tightening makes them more reluctant to spend but also when it makes lenders more reluctant to grant credit to those agents. In principle, the latter mechanism could equally apply to any category of lenders. However, it might be argued that the lending policy of financial institutions could react to the changing financial position of the borrowers more forcefully than that of other lenders (because, say, they are more aware of those changes since they have better information).

If this were so, reduced lending from financial institutions could be compensated by the availability of other sources of finance. However, this is unlikely to be the case for private households (see chart 7). First, they cannot raise any funds in money or capital markets since lenders do not possess any information about their quality as borrowers. Besides, according to the financial accounts, finance from foreign lenders is very low (Spain) or either inexistent or not shown up separately (Germany). Finally, although credit from non-financial enterprises (here shown among "Other liabilities") has a somewhat larger significance, it is impossible to disentangle -in the case of Spain- how it is split between individual enterprises included among households and households themselves. Anyway, even if retail credit may be a source of finance of some importance for households, it can never replace bank finance for decisions such as investment in housing. All in all, it seems to be a rather well established conclusion that households hardly have any relevant alternative to credit from financial institutions, so that whenever this becomes restricted, they may have to renounce some spending decisions requiring external finance. Constraints on the amount of credit obtained from financial institutions may depend on the purpose for which funds are raised. For instance, they could be less severe when funds are devoted

to the purchase of cars, since the value of the collateral would not be affected by the cycle.

4.2. The financial position of non-financial enterprises.

Firms contribute to aggregate demand by investing in capital goods. Decisions on fixed capital investment are based on comparing the cost of installing new capital with the stream of expected future profits associated with it. Apart from depreciation and fiscal factors, the cost of capital includes the cost of financing the investment projects as measured either through the cost of rising the funds in the financial markets (for instance, interest paid on loans) or, if investment is financed out of existing profits, through the forgone interest income the firm could have obtained from acquiring financial assets.

According to the neoclassical paradigm, whenever a firm wants to incur the cost of capital, financial markets will make the funds available, so that it will be irrelevant to finance investment decisions out of own resources or external funds. However, in the real world, firms may face constraints on the amount of funds they can obtain from financial markets, so that investment may be then limited by their profits. These constraints influence the investment behaviour of non-financial enterprises in the same way as liquidity constraints influence the spending behaviour of households. If monetary policy is able to affect negatively the value of the firm and its profits -by putting downward pressure on the firm's asset prices and net interest income-, investment will tend to be based to a greater extent on current cash-flow rather than expected future profits in the same way as households base their expenditure on current -and not permanent- income. Again, this can happen through two different ways: a worsened financial position will make lenders more reluctant to provide funds to firms, and -although possibly less conceivably than in the case of households- it might make firms retrench from engaging themselves in new investment projects (in the way that the need to improve balance sheets in Japan has prevented firms from investing during the nineties).

Non-financial enterprises are characterised by a negative net financial

wealth as a share of GDP (chart 8)[15]. Starting from similar positions at the beginning of the period considered, German firms were considerably less indebted, in net terms, in 1995, mainly as a result of an increase in the value of their assets. At first glance, it seems that, in both countries, net financial wealth shows a greater volatility than its two components (chart 9). Chart 10 shows the variations in the ratios of net assets and gross assets and liabilities to GDP. While the evidence should be viewed with caution, it seems that Spanish firms tend to adjust their net financial wealth through variations in their liabilities to a greater extent than their German counterparts, for which the burden of the adjustment falls primarily on gross assets. This could be consistent with the possibility that, in Germany, firms have less access to external sources of finance than they would wish.

Separate wealth and income effects associated with financial instruments denominated in foreign currency are considered. However, holdings of these assets and liabilities are not shown separately in the financial accounts of Germany. For this reason, it is assumed that they coincide with claims and liabilities against non-residents, for which information exists (see annex).

4.2.1. Wealth effects.

Domestic assets subject to wealth effects represent a lower proportion, either of total assets or of GDP, than in the case of households (table 5; upper half), so that the potential importance of the balance-sheet transmission channel of monetary policy which relies on the impact of official interest rates on the prices of assets is lower for firms than for families in both countries. However, these wealth effects -tending to reinforce the transmission of monetary impulses- show two features in common with the case of households. On the one hand, their relevance has been trending upwards during the period considered in both countries

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[15]   Shares are excluded among the liabilities when calculating the net financial wealth of non-financial enterprises, since they represent precisely the market valuation of a firm, which is an alternative to its balance-sheet value (that is, the difference between the value of its financial and real assets and the value of its financial liabilities).

(especially in Germany). On the other hand, they are greater in the case of German firms, as a result of larger holdings of bonds and, particularly, shares -which possibly reflects a greater degree of cross-shareholding in the case of Germany- (chart 11).

The net asset position of the corporate sector against non-residents does not only show a strong divergence; this has also tended to increase quite markedly during the period considered (see the lower part of table 5). The signs of the wealth effects run in opposite directions: consider for instance, an upward move in official interest rates resulting in an appreciation of the domestic exchange rate. This will induce a reduction in the value of all claims and liabilities against non-residents when measured in the national currency. Since Spanish firms run a net debtor position, their wealth will increase, thus contributing to offset the monetary impulse. On the contrary, a similar tightening in German monetary policy would reduce the value of the net assets held against non-residents, inducing consequently a wealth effect which runs in the direction desired by monetary policy.

It is difficult to tell how these conclusions are modified when the real case is considered, in which financial claims and liabilities denominated in foreign currency do not coincide with those against non-residents. If it were true that the former are a sub-set of the latter, for those instruments held against non-residents but denominated in domestic currency, the liabilities would not be subject to any wealth effect, while the assets will be subject to it depending on their nature. In particular, it seems likely that, in the German case, a higher share of the net assets held against non-residents corresponds in fact to financial instruments denominated in domestic currency, given the role played in the international monetary system by the Deutsche Mark.

Finally, under the hypothesis that foreign-currency denominated instruments are exactly those held against non-residents and that there is a 1% appreciation of the nominal effective exchange rate of the domestic currency against a basket of currencies with an equal composition to that of the respective net external positions of the non-financial enterprises' sectors of both countries, their net wealth would have been affected in

1986-95 by between 0.05 and 0.08% of GDP in the case of Germany and between -0.08 and -0.15% in the case of Spain.

4.2.2. Income effects.

As in the case of households, an attempt to ascertain the potential for income effects is made through two different ways: an analysis of the weight in the balance sheets of firms of those instruments from which these effects are presumed to arise and the consideration of the flows of interest paid and received together with the underlying average interest rates on interest-bearing assets and liabilities.

Firstly, for those instruments held against residents subject to income effects, the narrower and broader definitions from the annex are applied. Under the broad definition, net interest-bearing liabilities of non-financial enterprises amounted in 1995 in Germany and Spain, respectively, to 50.7 and 29.5% of GDP, so that, if this measure were to approximate correctly the potential for income effects, they would run in both cases in the direction desired by monetary policy, although with a larger size in the case of Germany (table 6). Besides, the net interest-bearing liabilities have been slightly increasing in Germany over the period considered, while they have moved on a declining path in Spain.

When only interest-yielding instruments with a short maturity are considered (the narrower definition), the potential for income effects reduces drastically in Germany -the net debtor position amounts to only about 10% of GDP-, given the large weight of long-term loans from financial institutions among the sources of finance for German firms (around 40% of GDP or of all liabilities).

If a 1% increase in official interest rates in 1995 were to be fully and instantaneously transmitted to the interest rates of all domestic-currency denominated interest-bearing claims and liabilities, the additional net payments of German and Spanish firms would have amounted, under the broadly-defined interest-yielding instruments, to -5.0% and -2.3% in terms of their disposable income, respectively-. Measured against the latter, the effect would have fluctuated between -4.4% and -6.5% in the

period from 1986 to 1995 in Germany and between -2.3% and -3.9% in Spain. This rough estimate suggests that the size of income effects could be rather large.

Unfortunately, not much can be said concerning the size of the instruments denominated in foreign currency from which income effects arise, since it is unknown which foreign assets and liabilities give rise to income flows. If it were assumed that the net positions in these instruments correspond to the total net positions against non-residents, the conclusions would be analogous to those referring to the wealth effects, namely the net creditor position would tend to strengthen the transmission mechanism of monetary policy in Germany, while the net debtor position would tend to weaken it in Spain. In any case, the impact on the sector's income would be of a limited size (naturally of a much lower magnitude than the impact on its wealth, under any plausible assumptions about the yields from these financial instruments).

Net interest payments represent not only an important proportion both of non-financial enterprises' disposable income and of GDP, but also a quite volatile one. This highlights the ability of these agents to become indebted and the vulnerability of their cash-flows to changes in interest rates. Net interest payments of Spanish firms have remained notably higher up to around 1992 than those of German firms, but since then have tended to draw very much closer to each other (table 7). Since remunerated net liabilities as a share of disposable income have remained higher in Germany during most of the period, greater net interest payments in Spain during the second half of the eighties must be explained by higher levels of interest rates on both remunerated assets and liabilities, by a higher differential between both or by a combination of these two possibilities.

In charts 12 and 13, the shares in disposable income of interest receipts and payments are depicted, for both Germany and Spain, along with the implicit interest rates on remunerated assets and liabilities-calculated as the ratio between interest receipts and payments, respectively, and the corresponding remunerated assets and liabilities-. The differential between both implicit interest rates was higher in Spain

at the beginning of the period considered and has since shown a tendency a to converge to the German one (albeit with fluctuations). Also, the levels of these implicit rates have tended to approximate in both countries over time. These two developments combined help to explain why net interest payments (as a percentage of disposable income) have converged towards similar levels in 1994, so that if these ratios were good indicators of the extent of income effects in the transmission of monetary policy impulses to firms, no significant differences would exist at the present moment[16].

Some overall trend towards convergence of the rates on assets and liabilities can be observed. This may be attributed to heightening banking competition and improving efficiency in the financial markets and, on the side of firms, possibly to better cash-flow management.

Finally, in Germany the implicit rates seem to track more closely the ratios of interest payments and receipts to disposable income, whereas the interest-bearing assets and liabilities of Spanish firms are more independent of their remuneration, which may imply that their investment is not so sensitive to the cost of capital.

It would be interesting to see whether a more restrictive monetary

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[16] While it must be essentially true that, given that firms' net debtor positions have remained relatively stable in both countries and at a somewhat higher level in Germany, convergence must be the result of an approximation in both the differentials between the implicit cost and return and their levels, these results should be handled with care. First, it is somewhat puzzling that the interest rates calculated (particularly the return on remunerated assets) tend to show a larger fluctuation in Germany than in Spain which, assuming movements of similar intensity in market rates in both countries (which is also probably not true), seems at odds with the presumably longer average maturity of German financial instruments. Besides, the tiny differential between the rates on assets and liabilities in Germany in 1991 suggests that the choice of instruments involved in their calculation might not be capturing those really involved in the generation of such financial flows. However, in the wake of the German reunification, money market rates reached their highest level in 1992 (while long-term market rates peaked around 1991). Chart 14 seems to suggest then that interest-bearing assets tend to have a shorter maturity than the corresponding liabilities, which seems plausible.

policy stance were able to reduce the availability of external finance. If monetary policy is able to affect the cost of external sources of finance and thus the cost of capital, it will also alter the level of investment desired by firms. Surely an increase in interest rates will also reduce the availability of internal finance, since the cash flow generated by firms will be lower, given not only the reduced operating surplus (induced by lower sales combined with initially fixed costs), but also the net debtor position and the positive differential between the cost of liabilities and the return on assets. What remains to be seen is whether a rise in interest rates will also reduce the availability of external sources of finance and whether this reduction is larger then the fall in desired investment, so that firms are liquidity-constrained.

Chart 14, which shows the investment-to-GDP ratio and the self-financing rate of investment (saving plus net capital transfers divided by investment), tries to provide some -very tentative- evidence in this regard. The main problem in interpreting the chart is that it is unknown whether the investment used to calculate both ratios coincides with desired investment, or whether it is somewhat lower, due to restricted access to external finance. However, if the self-financing rate in a given period is above 100%, there may be firms whose investment is constrained by the unavailability of finance, but on the aggregate, observed expenditure on fixed capital will tend to coincide with that desired by the sector.

In Spain, in those periods in which investment-to-GDP is lower, the own resources generated by firms more than suffice to finance their investment spending. This is not true for those periods in which investment as a proportion of GDP is higher, but then it is likely that the cost of capital will tend to be low, the financial situation of firms healthier, and the availability of external finance higher. Consequently, no evidence of borrowing constraints is found, although this assertion should be taken most cautiously, given the nature of the evidence provided.

In Germany, the self-financing rate tends on average to be lower and does not cover observed investment in any period but the latest.

Particularly, in recent years (1993-94), the self-financing rate stood at comparatively low levels in relation to those attained in periods with similar low rates of investment (around 1986-88). The fall in the self-financing rate can be assumed to be due to German reunification. However, whether this reflects borrowing constraints (possibly affecting East German enterprises) remains an open question, given the nature of the evidence provided.

4.2.3. Availability of finance from credit institutions and other sources.

In the event of a worsening of their financial position, firms are in a better situation than households to substitute other sources of finance for loans from financial institutions if these react by reducing their supply of loanable funds. Firms have access to the capital markets through the issue of shares or commercial paper and other longer-term securities, they may make a more active use of trade credit when resorting to credit from financial institutions becomes more difficult and, finally, they are also more likely to make use of the possibility of raising funds abroad.

However, the first of these alternatives (direct access to credit markets through the issue of shares or debt securities) is unlikely to be at the disposal of all firms on an equal footing. The nature of the function performed by financial institutions, when they solve information problems about the quality of the borrowers through risk diversification, suggests that the smaller a firm is, the harder its access to disintermediated finance will be, since information about the firm will be more scarce and more costly to obtain. In principle, very small firms will have as little access to disintermediated funds as households[17].

In the aggregate, the dependence of firms on finance from credit institutions has evolved in a different way in both countries. According

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[17] Nevertheless, for Spain, the data available from the Central Balance Sheet Office concerning the balance-sheet structure of firms according to their size does not provide evidence supporting the hypothesis that smaller firms are more dependent on finance from credit institutions.

to the financial accounts, these liabilities have been falling in Spain from 45.1% of total liabilities in 1986 to 39.2% in 1995; in Germany, they increased from 49.4% to 52.7% in the same period (chart 15). Probably, the reduction in Spain can be partially attributed to the development of financial markets during these years. To some extent, the higher reliance of German firms on intermediated finance may reflect the traditional strong ties among financial institutions and the enterprise sector. Otherwise, differences among both countries are difficult to explain in terms of the relative importance of small and medium-sized firms in the industry, which is very high in both cases.

Issued shares accounted in recent years for around one quarter of all liabilities in both countries. This proportion has remained quite stable in spite of valuation effects. Through the issue of commercial paper and bonds, large and solvent firms will be able to appropriate at least part of the margins of financial intermediation. Firms not fulfilling those requirements will have to renounce this source of finance, since its cost will be higher than that of banking finance or, more likely, they will not have access to it. This source of external finance has been more important in Spain than in Germany in the period considered, although the proportions in total liabilities have tended to converge (4.8% versus 3.3% in 1995). Hernando (1996) finds that, in Spain, when monetary policy becomes more restrictive, the increase in the cost of bank credit is larger than that of commercial paper.

The importance of finance obtained abroad -probably mainly denominated in foreign currency- has increased in recent years as a result of the development of instruments to hedge against exchange rate risk. Finally, access to the remaining source of finance -trade credit among firms- is less likely to be restricted to larger firms. While the purpose of this sort of credit is to finance trade operations, under certain circumstances it can play an important role among the sources of finance of the firms receiving it (for instance, when unwanted inventories pile up). The German financial accounts do not provide any data on trade credit among firms. Although the Spanish financial accounts provide this

information[18], it has been preferred here to leave it aside in order to improve the comparability of the information presented for both countries. It is in any case worth noting that, in Spain, the proportion of trade credit outstanding among firms has tended to remain constant as a proportion of total assets or liabilities. This might indicate the continuing need to resort to this alternative source of finance in the face of the persistence of restrictions on the credit extended by financial intermediaries, and in spite of the fact that, if it were true that this type of credit yields a low interest -as it is frequently assumed- lending firms might be willing to reduce the amount of credit granted.

5. CONCLUSIONS AND LIMITATIONS OF THE EXERCISE.

Knowledge about the precise mechanisms through which monetary policy exerts its influence on the final variables is limited. Traditionally, the transmission of monetary impulses has been considered to rely upon the substitution of demand between different periods or countries, induced by changes in interest rates. Recently, more attention has been paid to the role played in the process by certain financial issues. In particular, the balance-sheet channel of monetary policy transmission refers to the impact of monetary-policy-induced changes in the financial position of private agents on their willingness to spend and on the willingness of lenders to finance their expenditure.

As a result of official interest rate movements, two different types of effects on the financial position of private agents (and thus on their aggregate expenditure) are expected to emerge: wealth effects -which arise through changes in asset prices and in the domestic currency value of foreign currency denominated assets and liabilities- and income effects -which stem from changes in the net interest income flows associated with the movements in the remuneration of interest-yielding financial instruments and with the national currency value of the flows denominated

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[18] Which is estimated on the basis of the information existing for the sample of firms covered by the Banco de España Central Balance-Sheet Office.

in foreign currency -.

The paper tries to identify differences in the relevance of the balance-sheet channel in Germany and Spain. The scope of the methodology employed is rather limited: national financial accounts are used in order to point out those differences in the structure of the balance sheets of the households and firms of both countries which are presumed to give rise to divergent income and wealth effects. However, this information has a limited say on the real potency of this transmission channel of monetary policy, since important steps of the mechanism are omitted. Aspects not dealt with include the response of asset prices, the interest rates of the different instruments and the exchange rate to monetary impulses, the impact of the variations in income and wealth on aggregate demand and the transmission of the variations in aggregate demand to prices and output (which will hinge upon such issues as institutional arrangements in the labour markets). Consequently, as no attempt is made to quantify the relevance of the balance-sheet channel in terms of the final impact of official rate movements on output and prices, and as the qualitative analysis is, moreover, rather limited, the conclusions drawn must be regarded as rather tentative.

The evidence forwarded points towards a smaller size in both countries in the potential strength of the balance-sheet channel in the case of households than in the case of firms (see tables 8 and 9). By their very nature, wealth effects arising from domestic currency denominated assets held by households run always in the direction desired by policymakers, tending to strengthen the transmission of monetary impulses. Also, since households are net creditors in interest-yielding instruments denominated in the national currency, the associated income effects run against the policymakers' intentions, thus offsetting possible wealth effects. Finally, households' position in foreign currency is very reduced, so that no significant income or wealth effects are to be expected to arise from such financial instruments. Given the opposite signs of the expected domestic currency wealth and income effects, it appears that the joint size of the effects could be rather limited.

The non-financial enterprises of both countries hold net liabilities in

interest-yielding instruments denominated in national currency, so that their net interest payments move in tune with changes in official interest rates, thus reinforcing monetary policy impulses. The size of these income effects seems to be rather large, as indicated by the proportion of these net liabilities to GDP and the large weight of net interest payments in the firms' disposable income. They seem to be more relevant in Germany, although the latter ratio has tended to converge in recent periods. German and Spanish firms hold, respectively, net creditor and debtor positions in foreign currency assets (identified as those held against non-residents), so that the valuation effects arising from movements in the domestic exchange rate in response to monetary policy reinforce, in the first case, and weaken, in the second, the transmission of the monetary impulse. This fact, together with the signs pointing to larger wealth and income effects associated with domestic-currency-denominated instruments in Germany, leads to the conclusion that the balance-sheet channel is stronger in this country, as far as firms are concerned.

Broadly considered, developments in balance sheets have tended to be more stable in Germany than in Spain. This fits in well with the a priori perception that the speed at which financial innovations have developed could well been have larger in Spain, for reasons connected to the persistence of systematically larger and more volatile rates of inflation in the past.

An attempt has been made to explore the possible existence of borrowing constraints. Regrettably, the tools used in this exercise are not powerful enough to reach any solid conclusion (even of a tentative nature). While some of the information presented could be interpreted as certain evidence of the existence of borrowing constraints for German firms and for the households of both countries, alternative explanations can also easily be found.

Arguably, if both countries were to take part in a monetary union in the near future, some of the differences observed in the financial structure of the private sector should be expected to diminish. Firstly, to the extent that those differences are due to the past economic record

and policies applied -in particular, to the diverging level and volatility of inflation rates-, a single monetary policy should imply a greater convergence of balance sheets. This, however, will not be complete, since current differences in preferences are not only accounted for by diverging inflation experiences, but also by other unrelated factors, which are likely to persist.

Secondly, since the movements in the exchange rates vis-à-vis other countries entering the third stage will disappear, the income and wealth effects stemming from claims and liabilities denominated in those currencies when their exchange rates against the national currency fluctuate will cease to exist. Provided that these instruments are a large share in total foreign-currency assets, it would be mitigated in currencies what probably is the most important observed difference among both countries: that arising from the divergent net foreign asset position of the firms' sector. Since these instruments will be denominated in the same currency, possible differences among both countries in the income and wealth effects associated with them will be just explained by their common characteristics to the rest of instruments. What is more, the position in net interest-bearing domestic currency denominated liabilities of both countries' firms (as scaled by GDP) will tend to converge -and, thus, presumably, also the income effects associated with them- from their current relatively higher level in Germany. To see this, note first that the flows of interest income on remunerated short-term assets and liabilities are precisely the opposite whether they are denominated in foreign or domestic currency. Second, that the current positions of both countries' firms in net foreign liabilities are also the opposite (with German and Spanish firms being net creditors and debtors, respectively), while Germany holds larger domestic currency short-term interest-bearing liabilities. Consequently, provided that a substantial proportion of the current foreign currency financial instruments have a short maturity, net (domestic currency) liabilities will tend to draw together if the former start to be denominated in the same currency in both countries. Finally, as to financial instruments denominated in the currencies of countries outside the monetary union, income and wealth effects will coincide as long as the proportions of the currencies of denomination do so.

However, the start of monetary union will not automatically increase the convergence of financial structures in other regards, if both countries were to take part in it. Along with the remaining differences in preferences, continuing divergent fiscal treatment of certain categories of financial instruments and flows (for instance, of interest receipts or of interest and loan redemption payments associated with the purchase of owner-occupied homes financed with debt) will determine the persistence of differences in private agents' balance sheets.

Another aspect of the convergence of the balance-sheet transmission mechanism of monetary policy associated with the start of Stage Three refers to those steps of the process which have not been dealt with in this study. In particular, since there will be a single money and capital market in the whole area of the common currency, no differences will remain concerning the pass-through from official rates to short-term market rates (although differences may persist for longer-term rates provided that the underlying financial instruments are not perfect substitutes). On the contrary, while differences in the process of wage formation in different countries may be tempered by the convergence of inflation rates and increased competition in the goods markets, rigidities in labour markets are likely to persist, given the expected low mobility of the work force. For this reason, ignoring how changes in aggregate demand are translated to output and prices in both countries remains a major shortcoming of the current exercise.

Table 1

DIRECTION OF INCOME AND WEALTH EFFECTS FOR GIVEN CATEGORIES OF FINANCIAL INSTRUMENTS

	INCOME EFFECT	WEALTH EFFECT
ASSETS		
Cash and sight deposits	0	0
Other deposits	-	0
Short-term securities	-	0
Bonds	0	+
Shares	0	+
Mutual fund certificates		
Accumulation funds		
Money market funds	0	0/-
Other	0	+
"Distribution" funds		
Money market funds	-	0
Other	0/+	0/+
Insurance reserves	0	+
Claims denominated in foreign currency	+	+
LIABILITIES		
Short-term securities	+	0
Bonds	0	0
Shares	0	0
Loans from financial institutions		
Short-term and long-term with variable rates	+	0
Long-term with fixed rates	0	0
Credit granted by non-financial enterprises	0/+	0
Liabilities denominated in foreign currency	-	-

Note: A + (-) sign means that the transmission of monetary policy is enhanced (weakened); 0 indicates no significant effect.

Table 2

HOUSEHOLDS: DOMESTIC CURRENCY ASSETS SUBJECT TO WEALTH EFFECTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
As a % of total assets										
Germany	48.1	47.6	49.7	51.4	51.8	52.1	52.4	52.9	54.0	56.0
Spain	23.9	26.5	26.9	25.4	24.5	24.3	25.0	26.9	29.0	29.4
As a % of GDP										
Germany	59.3	58.7	62.8	65.7	64.5	63.7	63.9	69.5	70.5	75.7
Spain	27.7	31.9	31.7	30.4	28.8	28.4	29.4	34.0	36.8	37.3

Table 3

HOUSEHOLDS: NET INTEREST-BEARING ASSETS

As a % of GDP	1988	1987	1988	1989	1990	1991	1992	1993	1994	1995
Germany	25.5	28.2	27.0	28.8	28.8	29.0	28.9	31.2	28.7	30.8
Spain	45.1	40.7	34.5	33.4	31.2	27.5	25.3	25.0	24.9	28.8

Table 4

HOUSEHOLDS: NET INTEREST INCOME

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Germany										
(as a % of GDP)	2.0	2.0	2.0	2.5	2.8	1.6	1.8	1.8	1.7	
(as a % of disp. income)	3.2	3.1	3.2	4.0	4.4	2.4	2.7	2.6	2.7	
Spain										
(as a % of GDP)	2.8	2.3	1.9	2.2	2.3	2.5	2.7	3.2	2.6	3.4
(as a % of disp. income)	3.9	3.3	2.8	3.2	3.3	3.6	3.9	4.4	3.7	4.8

Table 5

NON-FINANCIAL ENTERPRISES: DOMESTIC CURRENCY ASSETS SUBJECT TO WEALTH EFFECTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
As a % of total assets										
Germany	31.3	26.4	29.0	32.0	32.0	34.3	34.0	33.9	36.1	38.2
Spain	20.8	24.1	23.4	24.0	20.0	19.9	22.7	24.6	23.6	23.8
As a % of GDP										
Germany	17.3	13.8	16.1	19.6	19.8	19.7	19.5	21.2	23.6	26.5
Spain	6.8	8.3	9.0	9.8	8.2	7.8	8.6	9.8	9.7	9.9

NON-FINANCIAL ENTERPRISES: NET POSITION AGAINST NON-RESIDENTS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
As a % of GDP										
Germany	5.1	5.4	6.2	8.1	7.7	5.9	5.2	6.7	6.7	6.5
Spain	- 8.2	- 9.0	- 10.1	- 11.4	- 11.0	- 12.7	- 14.1	- 16.1	- 15.3	- 13.8

Table 6

NON-FINANCIAL ENTERPRISES: INTEREST-BEARING NET ASSETS

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
As a % of GDP										
Germany	- 47.8	- 47.7	- 48.0	- 48.7	- 46.6	- 50.7	- 52.1	- 56.4	- 55.4	- 50.7
Spain	- 40.4	- 35.9	- 34.2	- 33.5	- 34.4	- 36.1	- 36.6	- 34.4	- 32.0	- 29.5

Table 7

NON-FINANCIAL ENTERPRISES: NET INTEREST INCOME

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Germany										
(as a % of GDP)	- 3.5	- 3.3	- 3.1	- 3.2	- 3.4	- 3.8	- 3.9	- 4.4	- 4.2	
(as a % of disp. income)	- 35.6	- 30.4	- 29.4	- 31.5	- 32.4	- 45.8	- 48.5	- 51.1	- 45.7	
Spain										
(as a % of GDP)	- 6.1	- 6.2	- 5.9	- 6.2	- 6.3	- 6.4	- 6.5	- 5.6	- 5.0	- 4.3
(as a % of disp. income)	- 49.8	- 53.5	- 50.1	- 57.0	- 61.9	- 63.9	- 70.1	- 51.3	- 42.1	- 33.7

Table 8

**HOUSEHOLDS: SUMMARY OF MAIN INDICATORS OF THE POTENTIAL
FOR WEALTH AND INCOME EFFECTS**

	GERMANY	SPAIN	.
Net financial wealth/GDP	Positive	Positive	Similar levels
Wealth effects - Domestic currency assets subject to wealth effects/GDP	+	+	Higher in Germany. Tending to grow in both countries
Income effects - Domestic currency net assets subject to income effects/GDP	-	-	Similar levels. Tending to grow (decline) in Germany (Spain)
- Net interest receipts / disp. income	Moderately large variability within a similar range in both countries		
Availability of alternative sources of finance	Extremely limited access to alternative sources to bank credit		

Table 9

NON-FINANCIAL ENTERPRISES: SUMMARY OF MAIN INDICATORS OF THE POTENTIAL FOR WEALTH AND INCOME EFFECTS

	GERMANY	SPAIN	
Net financial wealth/GDP Wealth effects	Negative	Negative	Higher level (in absolute value) in Spain, the difference tending to increase
- Domestic currency assets subject to wealth effects/GDP	+	+	Higher in Germany, where it grows faster
- Foreign currency net assets subject to wealth effects/GDP	+	-	Difference tends to increase
Income effects			
- Domestic currency net assets subject to income effects/GDP	+	+	Higher in Germany. Difference tends to increase
- Foreign currency net assets subject to income effects/GDP	+	-	
- Net interest receipts/disp. income	High at present similar levels. Somewhat larger variability in Spain.		
Availability of alternative sources of finance	Dependence on bank credit tends to increase (reduce) in Germany (Spain). Financing through shares is relatively important in both countries, but financing through fixed-income instruments is quite irrelevant. No information on credit between firms.		

Chart 1

NET FINANCIAL WEALTH: Households
(as a % of GDP)

Spain
Germany

Chart 2

FINANCIAL ASSETS: Households
(as a % of GDP)

Spain
Germany

1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

FINANCIAL LIABILITIES: Households
(as a % of GDP)

Spain
Germany

1986 1987 1988 1989 1990 1991 1992 1993 1994 1995

Chart 3
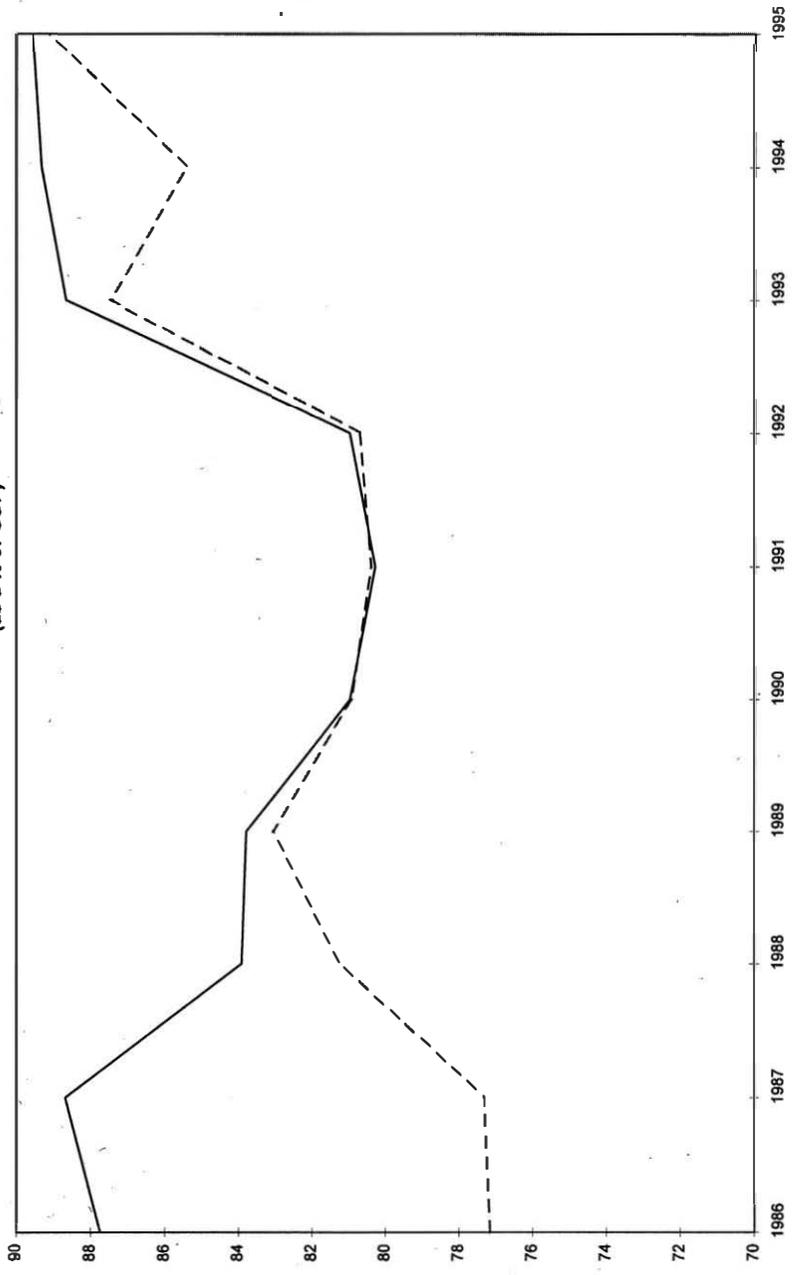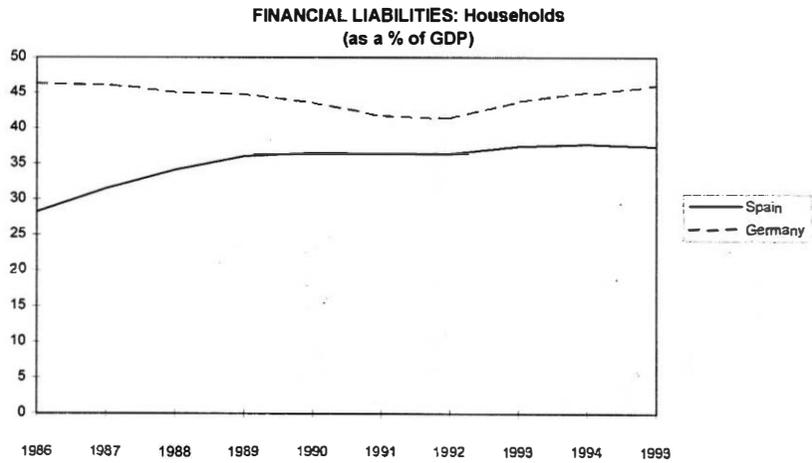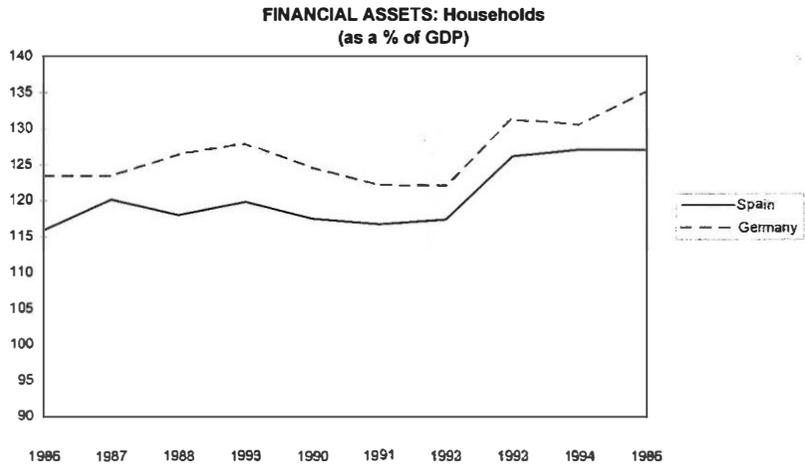
SPAIN: HOUSEHOLDS
Variations in assets/GDP, liabilities/GDP and financial wealth/GDP
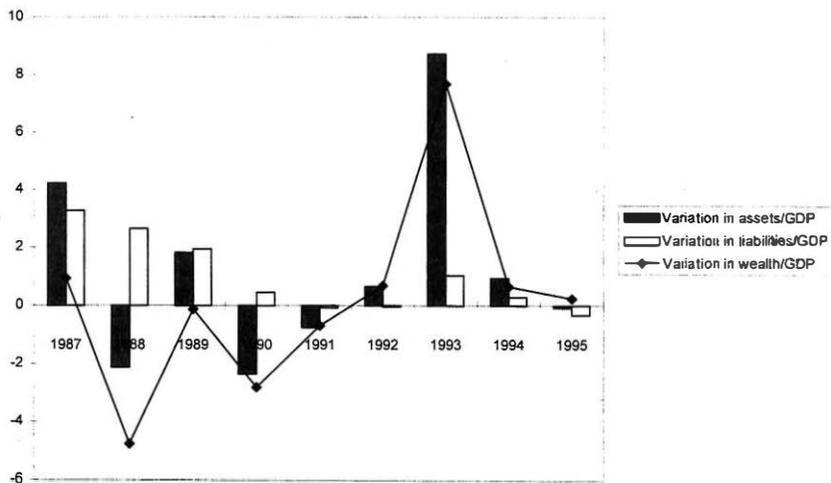
GERMANY: HOUSEHOLDS
Variations in assets/GDP, liabilities/GDP and financial wealth/GDP

Chart 4
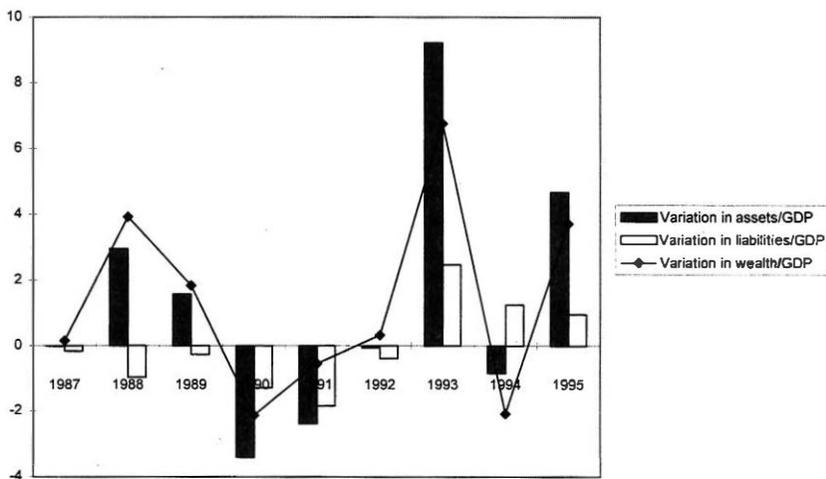
GERMANY: HOUSEHOLD ASSETS
(as a % of total assets)
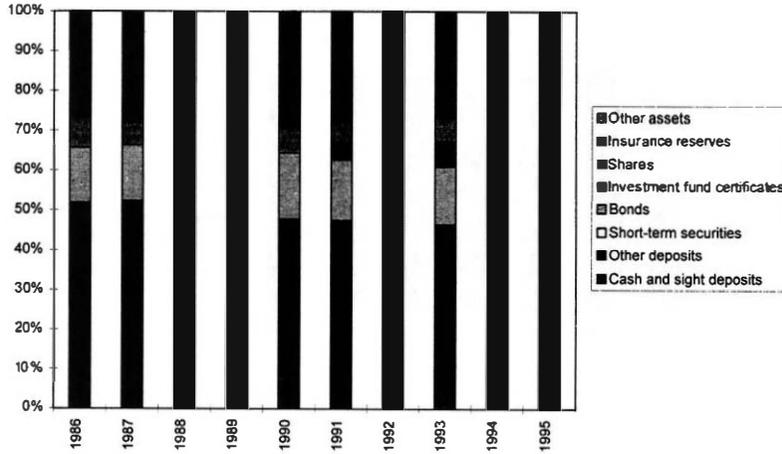
SPAIN: HOUSEHOLD ASSETS
(as a % of total assets)
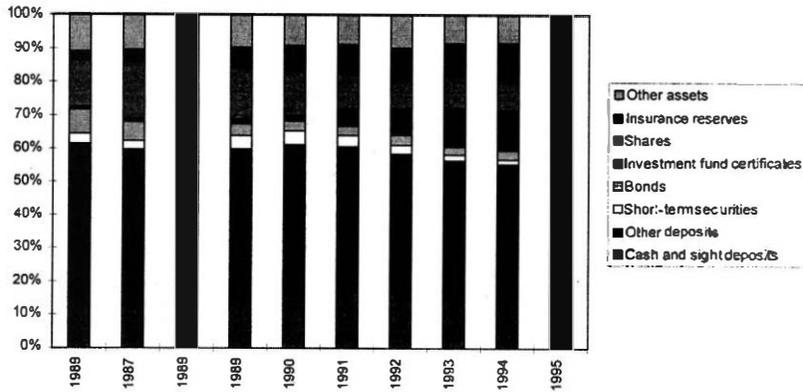
Chart 5

GERMANY: HOUSEHOLDS
Interest receipts and payments (as a share of disposable income)
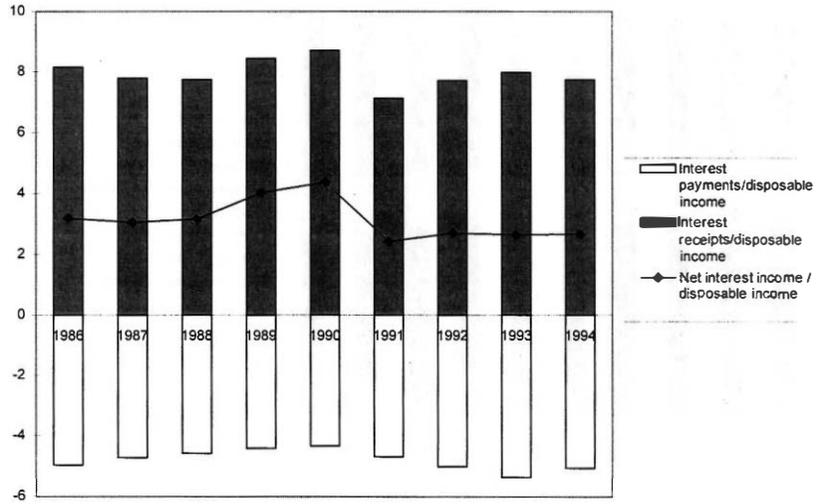
GERMANY: Cost and return on household remunerated liabilities and assets

Chart 6

SPAIN: HOUSEHOLDS
Interest receipts and payments (as a share of disposable income)

□ Interest payments/disposable income

■ Interest receipts/disposable income

◆ Net interest income /disposable income

SPAIN: Cost and return on household remunerated liabilities and assets

—— Implicit cost of remunerated liabilities

– – – Implicit return on remunerated assets
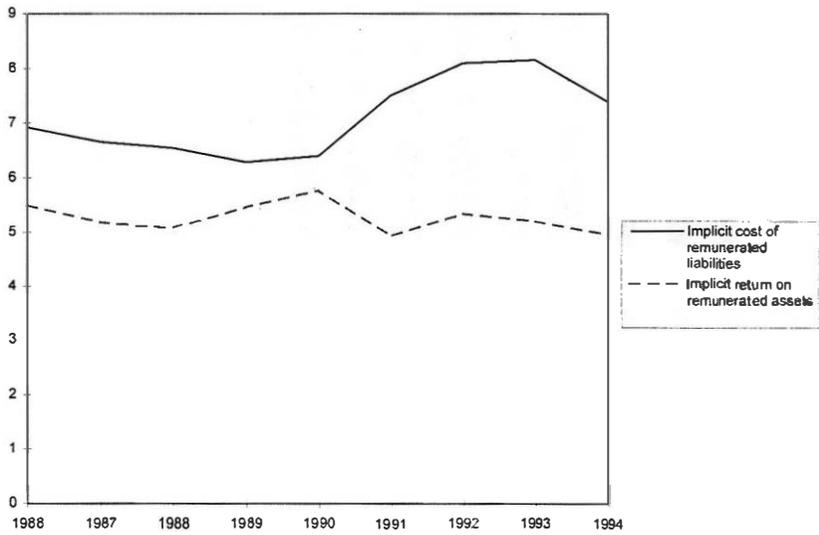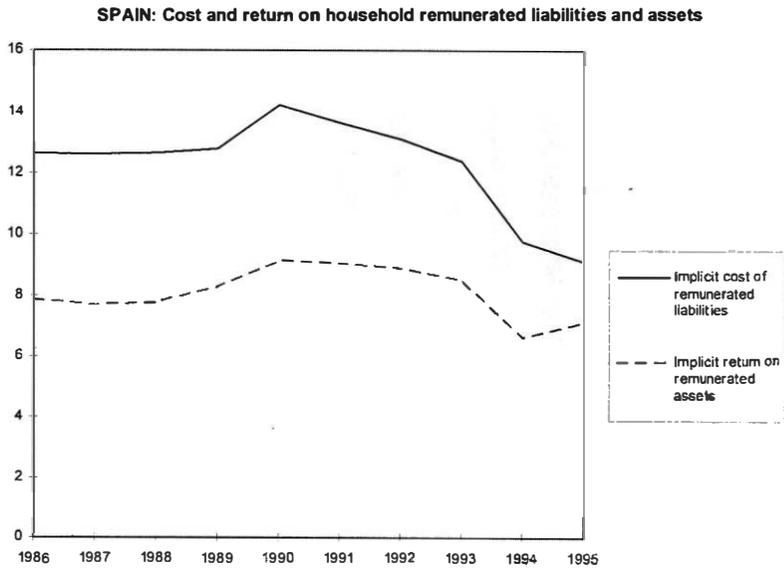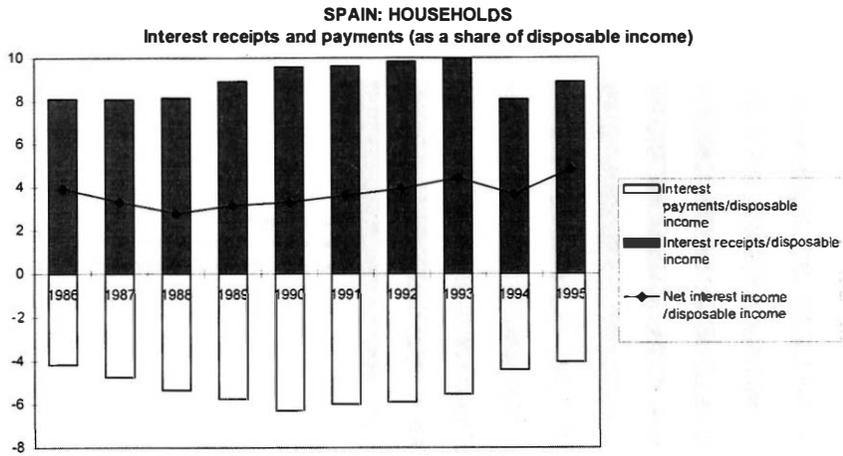
Chart 7

GERMANY: HOUSEHOLD LIABILITIES
(as a % of total liabilities)
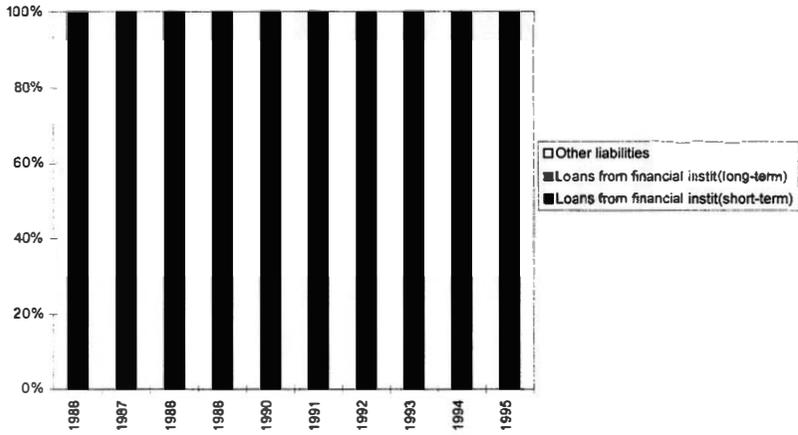
☐ Other liabilities
■ Loans from financial instit(long-term)
■ Loans from financial instit(short-term)

SPAIN: HOUSEHOLD LIABILITIES
(as a % of total liabilities)

■ Other liabilities
■ Loans from financial institutions

– 64 –

Chart 8

NET FINANCIAL WEALTH: Non-financial enterprises
(as a % of GDP)

Spain
Germany

Chart 9

**FINANCIAL ASSETS: Non-financial enterprises
(as a % of GDP)**

**FINANCIAL LIABILITIES: Non-financial enterprises
(as a % o GDP)**

Chart 10
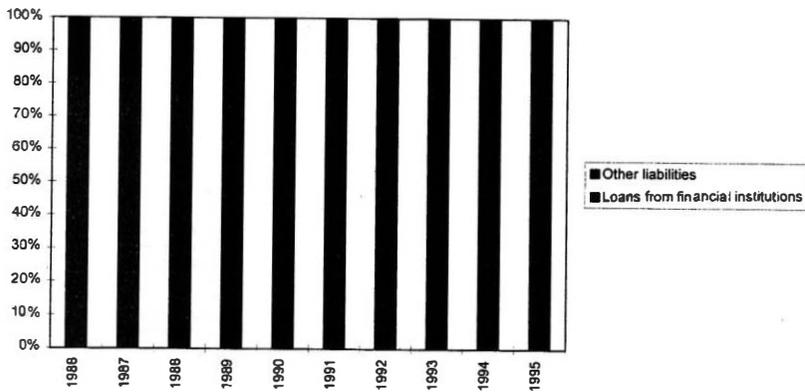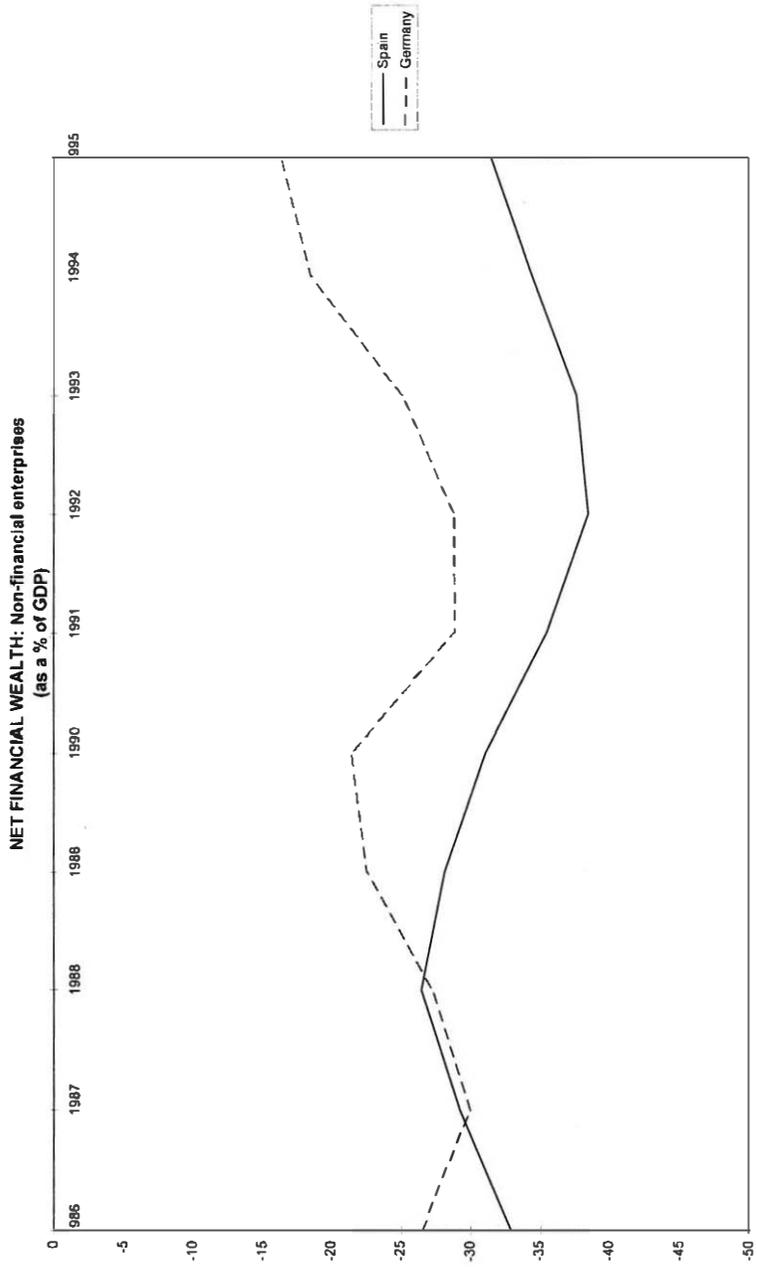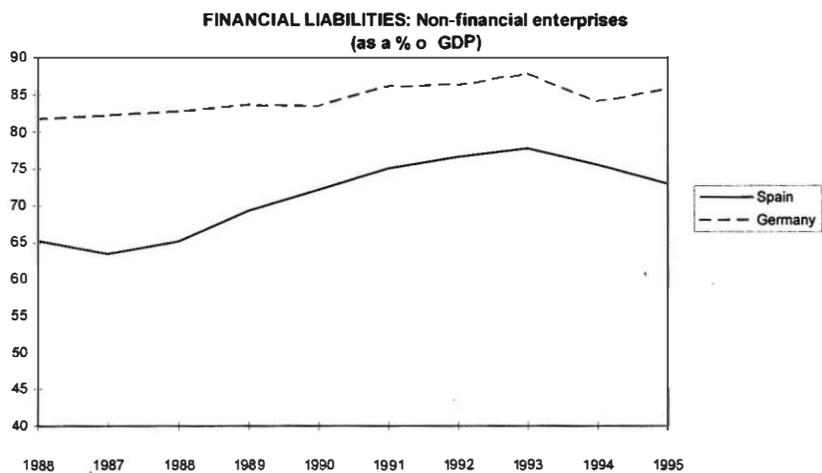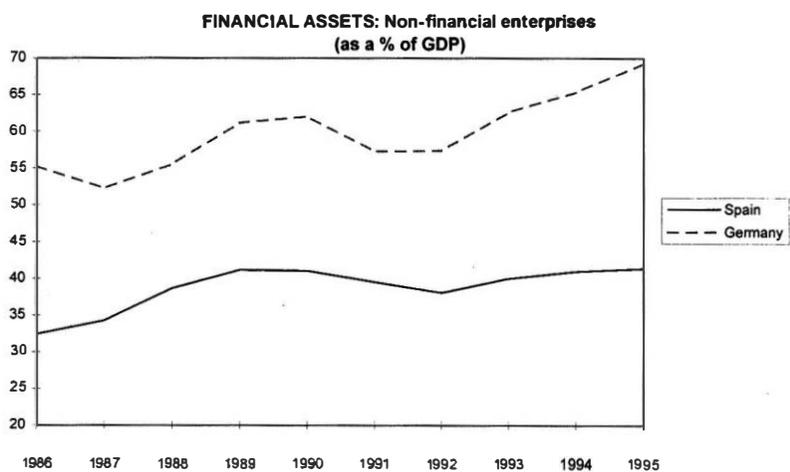
GERMANY: NON-FINANCIAL ENTERPRISES
Variations in assets/GDP, liabilities/GDP and financial wealth/GDP

SPAIN: NON-FINANCIAL ENTERPRISES
Variations in assets/GDP, liabilities/GDP and financial wealth/GDP

Chart 11
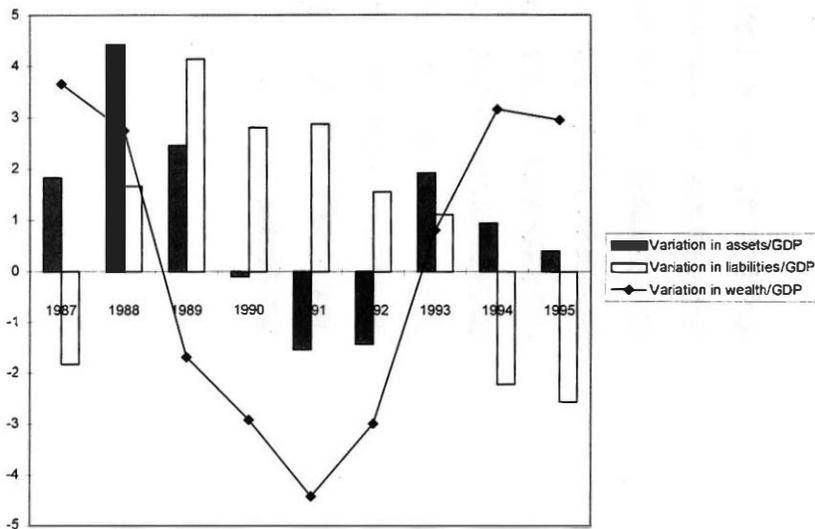
GERMANY: NON FINANCIAL ENTERPRISES' ASSETS
(as a % of total assets)

SPAIN: NON-FINANCIAL ENTERPRISES' ASSETS
(as a % of total assets)
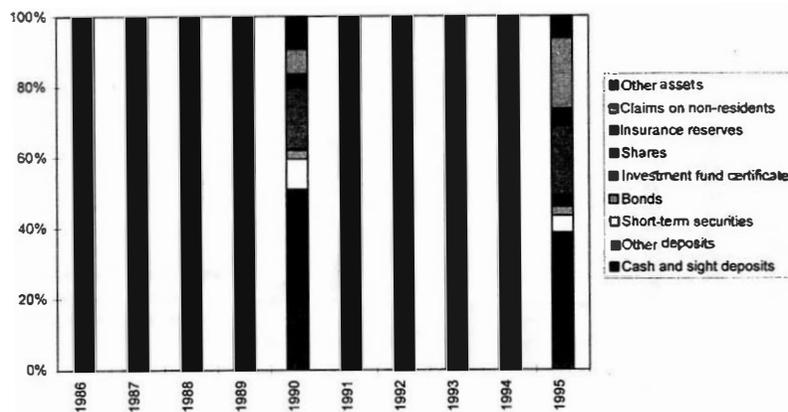
Chart 12

GERMANY: NON-FINANCIAL ENTERPRISES
Interest receipts and payments (as a share of disposable income)
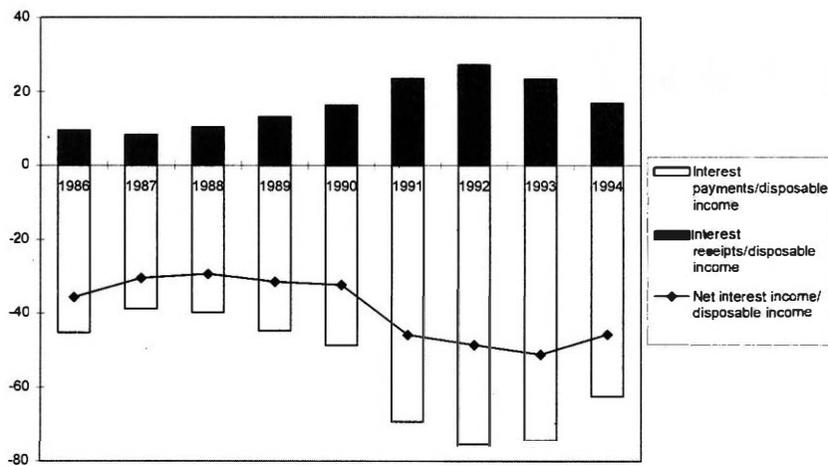
GERMANY: Cost and return on non-financial enterprises' liabilities and assets
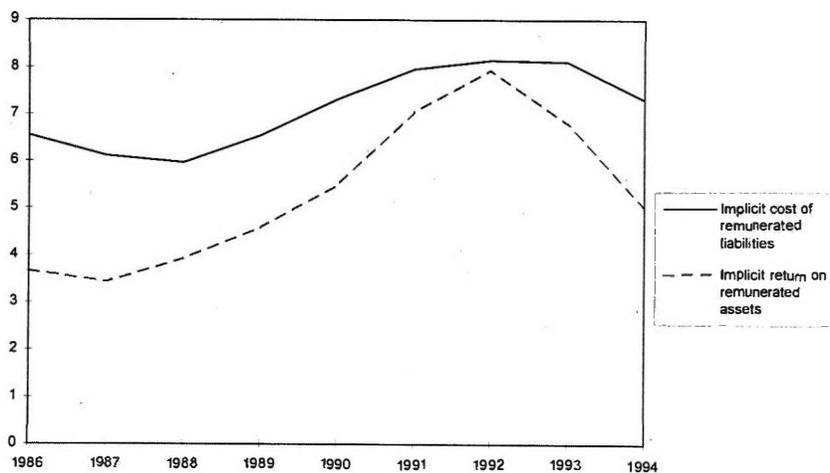
Chart 13

SPAIN: NON-FINANCIAL ENTERPRISES
Interest receipts and payments (as a share of disposable income)
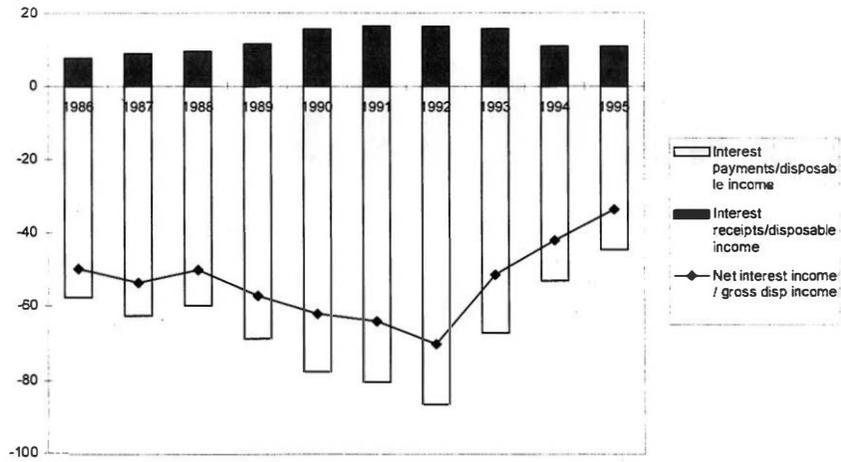
SPAIN: Cost and return on non-financial enterprises'
remunerated liabilities and assets

Chart 14
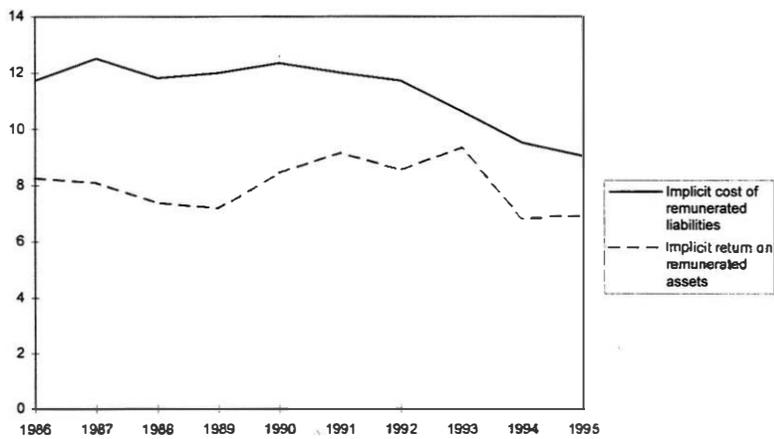
GERMANY: Investment-to-GDP ratio and self-financing rate
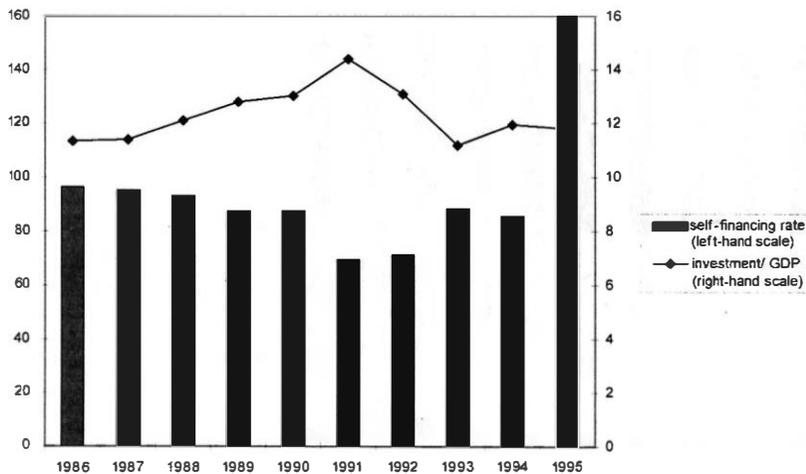
SPAIN: Investment-to-GDP ratio and self-financing rate
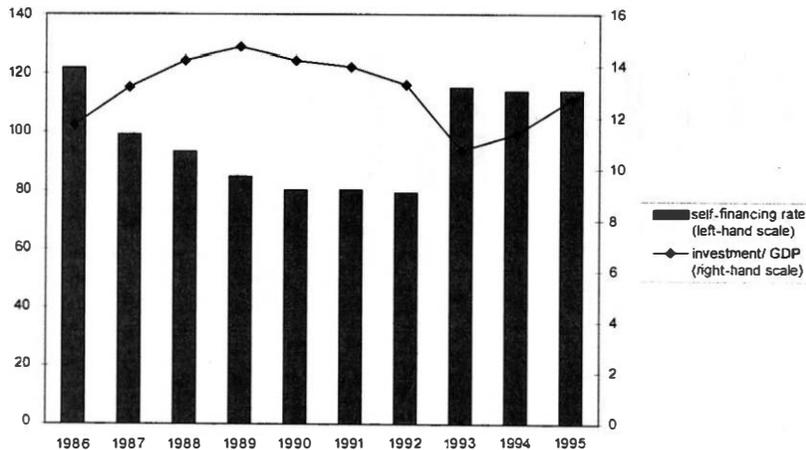
Chart 15

GERMANY: NON FINANCIAL ENTERPRISES' LIABILITIES
(as a % of total liabilities)

Legend:
- Other liabilities
- Liabilities to non-residents
- Shares
- Loans from financial instit (long-term)
- Loans from financial instit (short-term)
- Bonds
- Short-term securities

SPAIN: NON-FINANCIAL ENTERPRISES' LIABILITIES
(as a % of total liabilities)
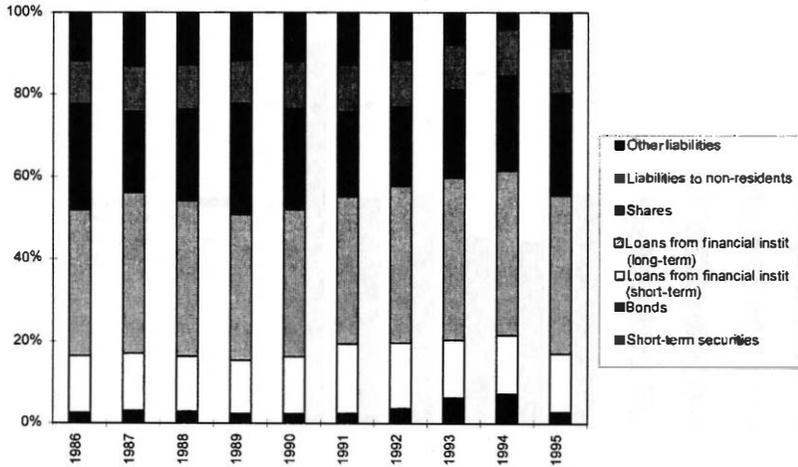
Legend:
- Other liabilities
- Liabilities to non-residents
- Shares
- Loans from financial institutions
- Bonds
- Short-term securities
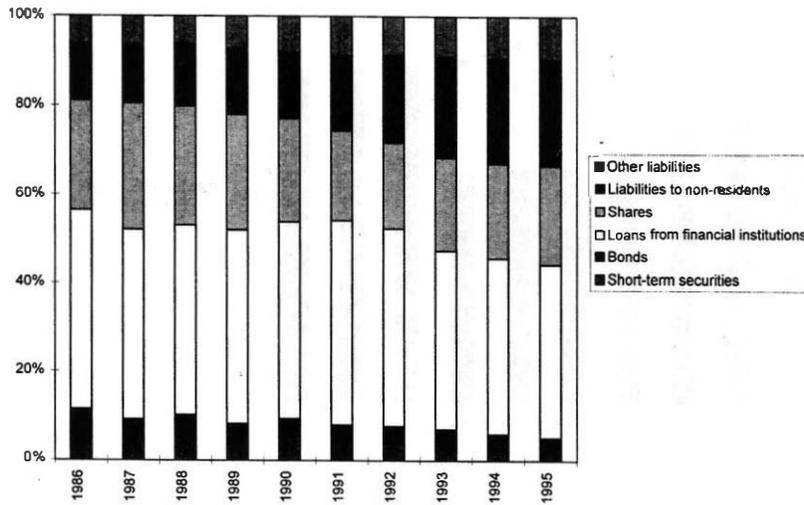
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ANNEX. TREATMENT OF DATA

1. TREATMENT OF THE DATA FROM THE FINANCIAL ACCOUNTS IN ORDER TO IMPROVE THEIR COMPARABILITY.

Most of the data are drawn from the databases of the Bundesbank and the Banco de España and have been published in Deutsche Bundesbank (1994, 1995) and Banco de España (1996), which also contain methodological notes. Raw data have been treated in order to accommodate them to the purposes of this exercise and to improve comparability. The main transformations made are:

(a)   Spain

Households:

1.   "Other assets" includes not only those labelled as such in the Spanish national accounts but also loans to non-financial enterprises (probably loans from individual firms rather than households). Intra-sectoral loans (loans among households) are not included under any heading, given that they do not appear in the German accounts.

2.   "Other liabilities" also includes loans from the public sector, as well as loans from non-financial enterprises. As in the case of the assets, intra-sectoral liabilities have been disregarded.

3.   Both headings also include the claims and liabilities to non-residents.

Non-financial enterprises:

1.   Intra-sectoral credit has been eliminated from both the assets and liabilities sides of the balance sheet.

2.   Although, for most instruments, information on claims and liabilities in foreign currency is available (which would have been more useful for the purposes of the exercise), for comparability with

Germany the headings "Claims on non-residents" and "Liabilities to non-residents" have been built.

(b)   Germany

1.   A very important adjustment is determined by the separate consideration in the financial accounts of the housing sector ("Wohnungswirtschaft"). This sector has been imputed to the households and non-financial enterprises sectors in the proportion of 80 and 20%, respectively. These proportions are obtained indirectly from the Banking Statistics prepared by the Bundesbank, by adding up the shares in total credit for housing purposes granted by credit institutions and "Bausparkassen" (building and loan associations) to households and roughly half of those granted to non-financial enterprises (which are assumed to be those whose final destination is housing for individual firms). The proportions so obtained are applied to all headings of the financial accounts of the housing sector. Although for some headings this could be rather incorrect, their quantitative significance is rather low.

2.   "Other deposits" includes time deposits, savings deposits and funds placed with building and loan associations.

3.   "Insurance reserves" includes the funds placed with insurance enterprises (although in the text they are assumed on the whole to be long-term financial instruments, an estimated 10% of the total is not related to life insurance and pension fund schemes, but rather have a temporary nature, such as unsettled claims or premia to be refunded or brought forward) and other claims on residents (since they consist mainly of employees' claims on firms under retirement pension schemes).

4.   "Other assets" comprises the claims on non-residents.

5.   "Loans from financial institutions" also includes insurance enterprise loans (as well as loans from credit institutions and building and loan associations).

2. DOMESTIC CURRENCY ASSETS SUBJECT TO WEALTH EFFECTS.

The categories of assets giving rise to wealth effects are assumed to be bonds, shares, insurance reserves -just in the case of households- and, to a certain extent, mutual fund certificates.

In the case of households, insurance reserves refer mostly to long-term capital accumulation with life insurance enterprises and private pension funds. Thus, they are included among assets from which wealth effects originate. For non-financial enterprises, insurance reserves are disregarded since they refer to claims of a temporary nature, such as unsettled claims or premia to be refunded.

Money market funds are excluded. According to section 3, this seems to be fully justified in the case of "distribution funds". As to accumulation funds, exclusion is probably less justified, since they have been assumed to give rise to moderate wealth effects. However, they would run in the opposite direction to that desired by monetary policy. Besides, it might be contended whether certificate holders regard capital gains and losses as changes in income rather than as changes in wealth, given the highly liquid nature of these assets.

Another possible adjustment would concern those funds which distribute their earnings to the certificate holders. These are extremely unimportant in Spain, but in Germany they amount to around 85% of the value of all certificates of "Publikumsfonds", that is, those in which individual investors can acquire certificates (as opposed to "Spezialfonds", whose certificate holders are just institutional investors).

However, since it is not clear to what extent these funds distribute their capital gains (and since it is, nevertheless, clear that they do not "distribute" capital losses at all), non-money market funds are assumed to give rise to wealth effects. In any case, excluding this type of fund changes the proportion of assets subject to wealth effects but marginally.

3. DOMESTIC CURRENCY FINANCIAL INSTRUMENTS SUBJECT TO INCOME EFFECTS

The identification of the financial instruments from which income effects arise is by no means an easy task. Ideally, such instruments should fulfil two conditions: they must involve regular interest flows and the financial contracts underlying those flows should either be signed for a short maturity or their conditions reviewed relatively often, so that either way official interest rates can affect the amount of the flows. However, in practice, limitations in the information provided in the financial accounts do not enable the instruments complying with both requirements to be clearly identified. Two different approximations are followed here.

The first consists of grouping all assets and liabilities for which an explicit interest return exists, so that the second requirement is overlooked. On the liabilities side, loans from financial institutions are considered for both sectors, as well as short-term securities and bonds for firms.

As to the assets, income effects are assumed to arise from deposits - other than sight deposits, for which no remuneration at all is assumed-, short-term securities, bonds and mutual fund certificates (but only to the extent that the funds are of a "distributive" nature). As it was earlier pointed out, this might not be however completely correct, since these funds may not only distribute interest income, but also dividends (funds which invest their proceeds in shares) and capital gains (the former plus those investing in long-term securities). This poses the difficulty that the direction of the income effects so identified is unclear: while changes in interest income from money market funds will weaken the transmission of monetary impulses, distributed capital gains would reinforce it (see section 3). In any event, for Germany 85% of all mutual funds are taken up -the share of "distribution" funds in all funds at the end of 1995- and none for Spain.

The second approach moves closer to meeting both requirements, by considering those categories of net interest-bearing financial instruments for which it can be presumed that interest flows will be affected by

monetary policy in a relatively short time. What is required is the elimination of those assets and liabilities which were contracted in the past for a longer period of time than that relevant for monetary policy effects to show up. Compared to the previous classification, bonds and "distribution" mutual funds other than money market funds are dropped out on the assets side. The adjustment concerning mutual funds is made by taking up in the case of Germany a proportion of the "distribution" funds equal to the share in the total assets of all "Publikumsfonds" of those of a money market nature since the introduction of the latter in 1994. Thus, we are assuming that the share of "distribution" funds in money market funds coincides with that in all kinds of funds.

Ideally, it might also be best to discard those deposits with the longest maturities. However, this is precluded by the degree of disaggregation provided by the financial accounts. Additionally, it would make sense to segregate, among liabilities, loans from financial institutions with longer maturities, but this is only possible in the case of Germany, since there is no disaggregated information on loans regarding their maturity in Spain. A further refinement (again unfortunately not possible for any of both countries) would take account of the fact that, among long-term loans, those with a variable rate should be included among those liabilities whose interest flows are presumed to be affected by monetary policy if the conditions of these loans are reviewed periodically enough, according to short-term market rates.

Finally, as to the calculation of the share of net interest receipts or payments in disposable income, it is regrettably not possible to identify the flows stemming from financial instruments presumed to give rise to income effects. In particular, interest receipts arise on all kinds of deposits, short-term securities, bonds, mutual funds certificates -only in the case of Germany, where all income distributed by mutual funds is considered interest income in the national accounts- and, in the case of households even insurance reserves (whenever they are liabilities of insurance companies). The inclusion of this category of assets among those from which income effects arise does not seem justified since the implicit returns on these highly illiquid assets do not contribute to households' cash-flow (see section 3 in the main text). However, the national accounts impute the returns on these assets to households. While

separate figures on this imputed income are available for Spain, this is not the case of Germany. For the sake of comparability, interest income including these returns is considered in the calculation of the share of net interest receipts or payments in disposable income. It must be kept in mind in any case that it is extremely unlikely that households will regard these implicit returns as part of their income.

In the case of firms, interest receipts and payments arise from any category of interest-bearing claims and liabilities regardless of the currency of denomination. In particular, this includes short-term securities and bonds -both as assets and liabilities-, deposits of any kind -as assets- and loans from financial institutions -as liabilities-.

4. FOREIGN CURRENCY FINANCIAL INSTRUMENTS ASSOCIATED WITH WEALTH AND INCOME EFFECTS.

Due to the lack of data for Germany concerning private agents' assets and liabilities in foreign currency, these are replaced, for both countries, with the assets and liabilities held against non-residents.

Additionally, differences in the coverage of the latter aggregates among both countries may impair comparability. In particular, financial credits, deposits, participations (other than shares) and claims arising from the ownership of land and property (which in the national accounts are considered to be bought by a fictitious domestic unit, which finances the purchase through a credit provided by the non-resident purchaser) are included in both cases. Commercial credit -included in Germany- is computed in Spain only if the maturity is longer than one year. Shares and bonds are included in Spain but not in Germany.

5. CALCULATION OF INTEREST RECEIPTS AND EXPENDITURES OF PRIVATE HOUSEHOLDS AND NON-FINANCIAL ENTERPRISES IN GERMANY.

Some of the information presented in the main text involving interest income flows in Germany does not seem completely plausible. This may be

due to some possible lack of quality in the data used. The available information about interest receipts and expenditures of the German private sector is fragmented and incomplete. The Federal Statistics Office (FSO) publishes interest paid and received by the households and non-financial enterprises sectors. However, the latter includes the housing sub-sector, for which separate figures do not exist. Since quite a large share of the interest expenditures of the housing sub-sector corresponds ultimately to households, it is required, in a first step, to impute part of the interest paid by non-financial enterprises (including housing) to the housing sub-sector and, in a second step, to impute the latter's payments partly to households and partly to non-financial enterprises (excluding housing).

That problem does not show up in the interest receipts of the firms, as published by the FSO, since the housing sub-sector does not possess any assets (except for a small amount of cash and sight deposits). Consequently, one can assume that the housing sub-sector does not receive any interest income, so that the FSO non-financial enterprises interest income series corresponds as well to the series when the housing sector is excluded.

As far as the first step is concerned, an additional series compiled by the Bundesbank is available for the period up to 1990 (for West Germany). This series refers to the net interest disbursements of non-financial enterprises (excluding housing). Adding up the latter and the FSO series concerning the interest received by the sector (for which, as stated above, the inclusion of the housing sub-sector is irrelevant), one can have the interest paid by non-financial enterprises (excluding housing) and so the disaggregation is completed.

From 1991 on, the series are constructed in a more artificial way (for unified Germany). The Bundesbank has not compiled the above-mentioned series. The only available series are those of the FSO, referring to the interest receipts and payments of the non-financial enterprises (including housing). Once again, the inclusion of the housing sub-sector is, as far as receipts are concerned, irrelevant. To disaggregate the interest payments among the housing sub-sector and non-financial enterprises (excluding that sub-sector) , their respective shares in the total for 1990

are applied to the period 1991-1994 (that is, 33.15% and 66.85%).

Finally, in the second step, 80% and 20%, respectively, of the housing sub-sector interest payments are imputed to households and to non-financial enterprises, in accordance with the estimated distribution of the housing sub-sector liabilities among both sectors.

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