Why has Broad Money Demand been More Stable in the Euro Area than in Other Economies? A Literature Review

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I. Introduction

The existence of a stable relationship between money and prices is generally regarded as a prerequisite for the use of monetary aggregates in the formulation of monetary policy. The stability of such relationship is usually assessed in a money demand framework. Following the pioneering work by Bekx and Tullio (1989) and Kremers and Lane (1990), a substantial empirical literature on European money demand has accumulated.[1] While these studies have differed in a number of respects, notably country coverage, data definitions and econometric methodology, the emerging consensus has been that it was possible to estimate stable money demand models for groupings of European countries. More recently, several studies have concluded that it was possible to model the demand for M3 in the euro area as a stable function of prices, GDP and interest rates.[2]

The findings for the euro area as a whole contrast with those for several foreign individual countries, where money demand functions have been in some cases subject to structural breaks. This has contributed to generating doubts about the usefulness of monetary aggregates in the conduct of monetary policy in those countries. The empirical evidence of the better stability performance of euro area money demand relative to other economies gives rise to the question of whether the failure of money demand functions in non-euro area countries can be explained by country specific factors. Section 2 of this paper looks at country-specific

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[1] See *Browne, Fagan* and *Henry* (1997), *Filosa* (1995) and *Golinelli* and *Pastorello* (2002) for detailed surveys.

[2] See *Calza, Gerdesmeier* and *Levy* (2001), *Coenen* and *Vega* (2001), *Funke* (2001), *Bruggeman, Donati* and *Warne* (2003) and *Brand* and *Cassola* (2004) for M3. The latest observation covered in these studies is the fourth quarter of 2001.

factors for three countries identified in the literature as cases of failure of money demand, namely the US, UK and Japan. In Section 3 the paper surveys the different arguments explaining the greater stability of euro area money demand functions, recalling the existing evidence in support or against such arguments. Some conclusions are provided in Section 4.

II. Money Demand (In)Stability in the US,
the UK and Japan

The US money demand (M2) appeared to be stable until the early nineties, when a structural break occurred. The stability of M2 demand up to the early 1990s is supported by several studies (see for instance Carlson and Parrott (1991), Duca (1995), Whitesell (1997), Dotsey et al. (2000) and Carlson et al. (2000)). At that time, M2 growth began to slow down despite a considerable reduction in its opportunity cost. Although part of the M2 slowdown reflected the weakening in economic activity, the magnitude of the downturn could not be reconciled with this aggregate's estimated money demand function or with the historical behaviour of its income velocity.

The clear instability in M2 demand in the beginning of the 1990s has given rise to many different explanations as to the causes of the structural change (see for a review Duca and VanHoose (2004)). In the literature, some authors have attributed the break in money demand to financial innovation, noting that the period of "missing M2" occurred at a time when households increased their investments in bond and stock mutual funds (see Mehra (1997)). This is supported by the empirical work of Duca (1995) who has shown that the behaviour of an extended monetary aggregate corresponding to M2 plus mutual bond funds would be somewhat easier to explain than that of M2.

However, other authors have argued that the instability in the demand for M2 was related to problems in US financial institutions and therefore constituted a specific factor of the US with no implications for money demand in other economies. In particular, some authors have linked the slowdown in M2 demand to capital difficulties in depository institutions, especially thrift institutions, in the early 1990s. For instance, Lown, Peristiani and Robinson (1999) argue that capital constraints at banks and thrifts were an important factor underlying the anomalous relationship between M2 velocity and its opportunity cost. According to these authors, the downward shift in M2 was the result of

the lack of incentives of these institutions to take on further funds given that they were restricted in terms of the expansion of their lending activity. Therefore, in order to avoid increasing their liabilities, these institutions induced lower deposits by granting less favourable conditions on deposits. After correcting for this effect, Lown, Peristiani and Robinson (1999) conclude that in the absence of financial sector difficulties, M2 would have remained a useful indicator.

Other authors take an intermediate position arguing that the effect of financial innovation on M2 in the early 1990s was stronger than would have been in the absence of the financial difficulties in depository institutions. As noted by Carlson et al (2000), the restructuring of depository institutions seems to have acted as a catalyst for the development of mutual funds in the US, and in particular of bond funds, which in turn caused M2 demand instability. Thus, it remains difficult to ascertain whether the instability in M2 money demand in the US resulted from a single factor or instead only came about due to the combination of both contemporaneous factors.[3]

Reflecting the finding of instability in money demand in the US in the early 1990s, the literature on the use of money has evolved in different ways. A first strand of literature has looked at ways of improving money demand models, while a second strand of research has turned into the investigation of the usefulness of money as an indicator for the conduct of monetary policy (regardless of whether or not its demand function is unstable).

Regarding the first type of studies, it should be noted that, although the information content of money in the United States has been distorted for a relatively prolonged period, more recently there has been growing evidence that money demand in the US is behaving in line with past trends. For instance, Whitesell (1997) and Carlson and Schwartz (1999) find that notwithstanding the shift in M2 velocity in the early 1990s, the standard determinants of money demand (nominal GDP and the opportunity cost of money) are able to reasonably explain the behaviour of M2 since then. The estimates of Orphanides and Porter (2001) suggest that the shift in M2 velocity was an upward level shift and that in the late

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[3] *Mehra* (1997) mentions other special factors that have been cited as contributing to money demand instability in this period: a credit crunch, the downsizing of consumer balances by using M2 balances to pay off debt, rising deposit insurance premiums and the imposition of new, high capital standards for depository institutions.

1990s velocity was returning to past trends. Furthermore, they argue that the upward level shift in M2 velocity could have been detected in real time by using a smooth trend. In addition, Carlson et al. (2000) show that, while the M2 money demand relation broke down during the 1990s (due to a permanent upward shift in velocity that again was found to be largely over by 1994), there is strong evidence that money demand relationships for MZM (which includes M1, savings deposits, including money market deposit accounts, and both institutional and retail money market mutual funds and excludes small time deposit accounts) and M2M (= M2 less small time deposit accounts) remained stable throughout this period.

In the second approach, focused on the usefulness of money as an indicator for monetary policy, Dotsey et al. (2000) find that although the M2 demand function shows considerable variability over time, M2 contains useful information for forecasting nominal and real GDP. However, as shown by Amato and Swanson (2001), such predictive content does not seem to hold in a real time setting (i.e. taking into account the impact of redefinitions and revisions to M2 data).

In the UK, M4 money demand has been traditionally difficult to model. An exception is provided by Hendry and Mizon (1998) who find some evidence suggesting that, though the velocity of money and interest rates (more precisely a measure of the opportunity cost of broad money) follow different regimes over time, there is a stable long-run relationship between these variables.

A particular feature of money demand in the UK is the significant improvement in money demand stability when estimated at sectoral level.[4] This finding could be explained by the existence of different motivations for holding broad money by households and corporations which could lead to unstable money demand when it is estimated on the basis of aggregate data.[5]

Fisher and Vega (1993) estimate broad money demand (M4) by sector and find that while good results can be found for the household sector,

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[4] The findings for the UK contrast with those of Germany. A study by *Read* (1996) finds sectoral differences in estimated money demand models, but no evidence that aggregation has led to instability relative to sectoral money demand functions.

[5] It should be noted that the converse is also true, i.e. unstable money demand functions by sector could result in a stable money demand when aggregated data is used.

the modelling of money demand by corporations is more problematic. One possible explanation put forward for these results is the existence of differences in the motivations of households and non-financial corporations for demanding money balances. According to the study, households seem to demand monetary assets for both transaction and portfolio reasons while the demand for money by the corporate sector (which in the study includes industrial and commercial corporations and non-monetary financial corporations) seems to be driven exclusively by portfolio reasons, thereby being potentially more volatile. Thomas (1997b) goes a step further and investigates whether different companies use money for different purposes. The author argues that, while the demand for money of non-financial corporations is likely to be related more to transaction motives, non-monetary financial corporations are likely to hold money mainly for portfolio or speculative reasons. As a result, a different modelling strategy should be adopted for each sector. Proceeding in this way, Thomas (1997a and 1997b) is able to obtain broadly stable money demand functions for each of the sectors (personal sector, industrial and commercial corporations and non-monetary financial corporations).

Fiess and MacDonald (2001) provide an alternative explanation of why the demand for aggregate M4 may be unstable while the sectoral money demand functions remain stable. According to these authors, the problem of instability is related to the fact that money demand studies model real monetary aggregates imposing long-run price homogeneity. However, according to their study, long-run price homogeneity does not hold on aggregate M4 in the UK, but only holds when the data is broken down by sectors. Therefore, modelling M4 money demand by sector in the UK may be more appropriate.[6] Finally, Astley and Haldane (1995) investigate the forecasting properties of M4 and find that this aggregate has no significant leading indicator properties for aggregate demand, which they interpret as signalling the instability of the velocity of broad money. However, the results improve when the analysis is conducted at a sectoral level.

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[6] More specifically, *Fiess* and *MacDonald* (2001) argue that the instability of the money demand has to do with an unsuccessful reduction of the variables money and prices from I(2) to I(1). Such reduction is usually achieved by imposing long-run price homogeneity. However, *Fiess* and *MacDonald* (2001) test this on broad aggregate money demand and conclude that there are still I(2) components in the data even after imposing long-run price homogeneity. By contrast, using M4 disaggregated by sectors, the authors succeed in removing all I(2) components from the system.

In Japan, the money demand function for M2 appears to be difficult to model using the traditional money demand determinants. For instance, using quarterly data over the period from 1964 to 1993, Miyao (1996) finds that the real M2 monetary aggregate in Japan is not cointegrated with real output and the nominal interest rate. Underlying this failure appears to be the sensitivity of the money demand function to developments in the effective exchange rate and to wealth effects.

Regarding the exchange rate, the instability in money demand in Japan appears to be associated with a strong devaluation of foreign assets denominated in yen after the Plaza accord of 1985 (Yamada (2000)). In fact, several authors have found that, if one includes an exchange rate in the model, it is possible to find cointegration between real M2, income, the nominal interest rate and the effective exchange rate (Bahmani-Oskooee and Shabsigh (1996), Yamada (2000))[7].

As for the effect of changes in wealth, the sharp rise in land and stock prices from mid-1980s onwards and the subsequent decline constituted a major shock to money demand in Japan. Sekine (1998) addresses this issue by using as a scale variable, in addition to income, a wealth measure composed of both financial and non-financial assets (including also land and housing). The resulting money demand for M2+CDs in Japan appears to be stable for the period 1975 to 1994.

More recently, using more robust econometric methods than in previous studies, Bahmani-Oskooee (2001) finds evidence of a cointegration relation between the stock of real M2, income and an interest rate for the period between 1964 and 1996. In addition, the money demand function appears to be stable. However, given that the sample period for this study ended in 1996, the results should not be taken as valid for the more recent years. In fact, Kimura (2001) finds evidence that there is a structural break in the broad money demand function for Japan in autumn 1997 due to shocks to the financial system. The breakdown in the long-run relationship between money and income occurred during 1997 and 1998, when monetary growth continued rising despite the

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[7] The inclusion of the exchange rate in the money demand function can be justified by the fact that changes in the exchange rate alter the domestic value of foreign assets and therefore affect wealth (see *Arango* and *Nadiri* (1981)). In addition, expected exchange rate changes can be seen as indicative of the expected return on foreign monetary assets (in particular in the case of non-remunerated assets) and therefore should be part of the variables that influence the opportunity cost of holding domestic monetary assets (see *Hamburger* (1977)).

severe recession in the Japanese economy. The author attributed this breakdown to "financial anxieties", i.e. precautionary demand for money motivated by the fall in stock prices and concerns regarding the financial situation of firms. When the model was extended to include real stock prices and a measure of financial anxieties taken from the Tankan's Economic surveys of the financial position of firms, it was possible to obtain a stable long-run relationship between M2+CDs, real stock prices and the indicator of financial anxieties.

III. Money Demand Stability in the Euro Area

In contrast to the findings for the US, the UK and Japan, the evidence on broad money demand stability for the euro area is favourable. Several arguments have been put forward to justify why money demand functions may perform better in the European Monetary Union than those in individual countries outside it (or even in some of those inside it as shown by Fagan and Henry (1998)).

Some of the arguments relate to the relatively weaker impact on euro area money demand of general sources of instability such as financial innovation and other institutional and regulatory changes (developments in payment systems technology, financial deregulation, introduction of new substitutes for components included in the monetary aggregates, changes to the regime of remuneration on deposits, increased banking competition, etc.).[8] Other arguments refer to aggregation-related issues (see Browne, Fagan and Henry (1997)). This is not entirely surprising given that one important peculiarity of the euro area money demand functions is that, unlike those in individual industrialised countries, they are estimated using data aggregated across countries. As a result, it is possible that their better stability properties can be to some extent explained by factors related to the aggregation procedure. In particular, three main aggregation-related factors have been suggested: the "averaging-out" of desynchronised national shocks, the internalisation of currency substitution and the "German size" factor.

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[8] Another general source of instability relates to international developments (liberalisation of capital movements, exchange rate regime, etc.).

1. Weaker Impact of Financial Innovation in the Euro Area Compared to Non-euro Area Countries

As pointed out by Filosa (1995), the conventional wisdom at the beginning of the 1980s was that money demand functions for continental European countries enjoyed more satisfactory stability properties than their counterparts for the US and the UK because the former countries had experienced less severe financial and economic shocks than the latter. However, the process of financial innovation gained momentum throughout the following two decades, with substantial institutional changes taking place in the financial system of euro area countries. Thus, in several countries, problems of interpretation of monetary aggregates and, in some cases, of instability in money demand functions arose.

One reason why financial innovation may not have affected money demand in the euro area as a whole as strongly as in other economies is that, because innovation in the euro area regarded instruments that were close to the definition of money, central banks were able to redefine the relevant monetary aggregates to include them. Thus, by modifying the composition of monetary aggregates, central banks were able to account for the sources of instability.[9] In contrast, in other economies (for instance in the US) where instability originated from structural shifts towards bonds and equity funds in the composition of portfolios, such redefinition of monetary aggregates would not have been feasible given the clear non-monetary character of such instruments.[10] According to this argument, the current definition of M3 for the euro area reflects the past experience and is able to internalise the outcome of important episodes of financial innovation.

There are several examples in euro area countries of redefinitions of monetary aggregates with the aim of internalising substitution effects. In several cases these redefinitions led to an improvement in money demand stability, but in some cases such improvements turned out to be

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[9] In some cases, redefinitions of monetary aggregates involved exclusion of components. For instance, in Italy some categories of certificates of deposits were excluded from the aggregate M2 as a consequence of changes in the fiscal treatment of deposits and reserve requirements, changes in household portfolio behaviour and, eventually, currency substitution (see *Altissimo* et al. (2001)).

[10] Data on the broad monetary aggregate M2 in the US has been subject to several re-definitions mainly in response to financial innovation and to improve the link with other macroeconomic variables (see *Amato* and *Swanson* (2001)). Nevertheless, as shown in section II., there is strong evidence that M2 demand in the US had a structural break at the beginning of the 1990s.

elusive. For instance, in France monetary aggregates were modified in 1986 to take into account the introduction of money market negotiable instruments and the particularly strong growth of money market funds. This modification brought greater stability to money demand in France (see Drumetz and Odonnat (2001)). In Spain M3 was redefined several times and then abandoned for the aggregate ALP (standing for "liquid assets held by the public") comprising instruments contained in the national definition of M3, and purchases of short-term government securities, endorsed bills and commercial paper guaranteed by deposit institutions, non-interbank private transfers and medium and long-term securities issued by the Official Credit Institute and the specialised credit institutions.[11] However, such aggregate was so broad that portfolio motives became prevalent in driving the demand for ALP, eventually leading to difficulties in the interpretation of its behaviour (see Vega (1998)).

A second reason why financial innovation may have had a smaller impact on broad money demand in the euro area is that in Germany – the largest economy in the monetary union – the effects of financial innovation on M3 were mainly of a temporary nature and did not affect the stability of national money demand (see Issing (1992, 1997) and Scharnagl (1998)).[12] In fact, according to Reischle (2001), the most important factors affecting the indicator properties of M3 in Germany were changes in tax regulations rather than financial innovation. As argued by Issing (1997), the weak impact of financial innovation on German M3 was not related to the lack of new financial products but rather a result of banks being able to satisfy the needs of the private sector with the traditional range of products and possibly a more conservative attitude

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[11] The problems of instability of money demand that led to the definition of the aggregate ALP were probably related to spurious financial innovation caused by changes in taxation and also to high level of reserve requirements during the 1980s and part of the 1990s which gave rise to a surge in off-balance sheet financial products.

[12] In Germany, although the money demand function for the intermediate target variable M3 remained stable, a "M3 extended" aggregate was introduced to the public in 1986 and commented on regularly from 1990. This complementary aggregate included, in addition to M3, bank deposits of domestic non-banks with foreign subsidiaries and foreign branches of German banks, short-term bank bonds issued by German banks and, from August 1994 onwards, certificates of money market funds held by German non-banks. For example, this aggregate took into account the effect of the authorisation of money market funds in Germany in mid-1994, which led to a corrective downward movement in German M3 (which did not include these instruments).

of money holders in this country. This contrasts with what happened for instance in the US, where the impact of financial innovation on monetary aggregates was much more profound.

Third, the existence of different speeds in financial innovation and deregulation across euro area countries (for instance in Germany capital controls were removed in the early 1980s, while in France and Italy this occurred in the late 1980s/beginning of the 1990s) probably implied that their effect on the area-wide aggregate money demand function was less important than in the individual countries concerned (see next section).

2. Factors Related to Aggregation Procedure

a) The "Averaging-out" of Desynchronised Shocks to National Money Demand

According to this argument, the stability of euro area money demand may be due to purely statistical factors. Shocks to individual countries forming a currency area may cause instability of the countries' individual money demand equations. However, if these shocks are *desynchronised* their effect may be to a large extent averaged out through the aggregation process, without affecting the stability properties of the aggregate money demand (see Arnold (1994) and Arnold and de Vries (2000)). For instance, if financial innovation is not synchronised across countries, then its effect on the area-wide aggregate will be smaller than in the case of a single country, where shocks across regions are highly correlated if not identical.

Based on a cross-section estimation of money demand for 13 OECD countries, Arnold (1994) argues that the findings of a stable European money demand by several studies in the early 1990s (e.g. those by Bekx and Tullio (1989) and Kremers and Lane (1990)) are largely dependent on the use of aggregate data and conclude that the stability of European money demand is a "statistical artefact". However, he notes that this "advantage" of aggregate data is likely to be significantly more important when modelling money demand prior to Stage Three of Monetary Union. Indeed, *"as monetary unification will lead to a centralisation of … sources of [money demand] instability"*, it is likely that following the adoption of a single monetary policy and increased economic and financial integration in Stage Three, shocks such as those arising from financial innovation will become more synchronised.[13] As a consequence, the

beneficial averaging-out effect should be reduced, leading to a deterioration of the statistical properties of euro area money demand functions.

Some evidence in support of the averaging hypothesis is provided by Fagan and Henry (1998) who estimate both aggregate and individual M3H demand functions for the EU members excluding Luxembourg. The authors find many cases of negative cross-correlation between the residuals of national money demand functions (notably a correlation index of –0.40 for France and Germany), which they interpret as evidence of desynchronised shocks across countries. However, when the authors conduct a simulation exercise under the assumption that shocks to individual countries become perfectly correlated and synchronised (which would broadly correspond to a scenario of perfect economic and financial integration), they find that the statistical properties of the European aggregate money demand function still compare relatively well (in terms of the residual standard error) with those of individual countries. This would imply that the prediction by Arnold (1994) of a significant deterioration of the stability properties of the euro area money demand equations in Stage Three may not materialise. Fagan and Henry (1998) conclude that *"a number of reasons which have been put forward to explain the better performance of the area-wide equation such as currency substitution, the operation of the ERM system, etc.... are not strictly necessary to explain the result"*.

b) The Internalisation of Currency Substitution within Europe

A traditional explanation of the fact that aggregate estimates may be more stable than those at a disaggregate level (e.g. at the country level) regards the so-called "specification bias". This refers to the possibility that equations at a disaggregate level may omit relevant foreign aggregate explanatory variables, which are important for a single country. In this case, the recourse to aggregate data may lead to improved results by reducing this specification bias.

A possible source of specification bias in the case of national money demand equations is international currency substitution. This idea was first suggested by McKinnon (1982) who argued that international liquidity shifts among financially integrated countries may lead to in-

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[13] Nevertheless, there still would remain several sources of heterogeneity due to national fiscal policies and country specific regulations.

stability in their national money demand functions. However, these shifts would not necessarily affect the stability of the multi-country aggregate money demand, as long as the currency shifts were sufficiently internalised.

Following the progressive liberalisation of capital accounts transactions during the late 1980s and early 1990s, portfolio shifts across euro area countries became rather significant. As a result, in theory it cannot be excluded that currency substitution and intra-area portfolio diversification played a role in destabilising national money demands before Stage Three, the more so as there was the possibility of portfolio shifts abroad to exploit interest rate differentials and/or expectations of exchange rate devaluations. However, since shocks to one country's money demand function were probably to some extent offset by shocks to money demand in other euro area countries, the currency shifts are likely to be partially (if not entirely) internalised within the euro area monetary aggregate.

Kremers and Lane (1990) argue that the better performance of European-wide money demand relative to national money demand models may reflect the internalisation of currency substitution. Empirical tests on the relevance of currency substitution in the euro area have, though, produced rather mixed results. The main way of testing for the importance of currency substitution is to test whether there is a statistically significant negative cross-correlation between the residuals of national money demand equations. Angeloni et al. (1992) analyse cross-correlations of residuals of money demand equations in Italy, Germany, France, UK and Spain and find that the indices tend to be negative but hardly significant. Similarly, in her study covering Germany, France, Italy and the UK, Wesche (1997) finds that there is no significant negative cross-correlation between the residuals of national money demand functions, with the only exception of those for Germany and Italy. These results led her to conclude that the neutralisation of currency substitution *"… seems not to be the cause for the stability of a European money demand function."*

By contrast, Lane and Poloz (1992) find evidence of negative cross-correlation across residuals of national money demand equations in the G-7 countries. Similarly, Filosa (1995) studies money demand in Belgium, France, Germany, Italy, Netherlands and the UK and concludes that *"… currency substitution is an important feature of the financial behaviour of European countries. Failure to account for currency substitution*

in the estimation of individual countries' money demand equations leads to biased estimates and distorts the view of the long-run stability of monetary aggregates".

Another approach to test the significance of currency substitution consists of assessing whether the stability performance of money demand functions improves when monetary aggregates are extended to include cross-border deposits. If so, this may provide indications that currency substitution plays a significant role. Estimates by Monticelli (1996) and Fagan and Henry (1998) show that the stability properties of European money demand functions do not improve significantly when extended monetary aggregates are used, suggesting that currency substitution may not be a relevant issue. Angeloni et al. (1994) conclude that extending monetary aggregates to include cross-border deposits leads to a significant improvement of the stability properties only in the cases of Germany and France.

Finally, the significance of currency substitution can be tested by analysing whether the demand for money responds to expected exchange rate changes. This is because, in a regime of liberalised capital movements (such as that emerging in Europe in the 1990s), expectations of exchange rate depreciation/appreciation would imply changes in expected returns from holding foreign assets and prompt currency substitution. After using several assumptions on the expectation formation mechanism, the Deutsche Bundesbank (1995) finds only very limited evidence of currency substitution between the D-Mark and other EU currencies.

c) The "German Size" Factor

This argument suggests that the relatively greater stability of the European money demand is the result of the remarkable stability of money demand in Germany (Wesche (1997)). There is robust evidence that money demand in Germany has been historically stable (see, for instance, Scharnagl (1998) and Hubrich (1999)) as well as evidence that money demand has been more stable in Germany than in other European countries (see Fase and Winder (1996)). The "German size" argument posits that, as a result of the relatively large weight of Germany in European monetary aggregates and the asymmetric functioning of the ERM (with Germany targeting the money stock and other countries targeting the exchange rate to the Deutsche Mark), the stability properties of the

German money demand function may "dominate" those of the other countries, thereby leading to an area-wide stable money demand.

This hypothesis of the German "size" factor finds support in the results of Wesche (1997) who compares the stability properties of aggregate money demand using M3H in a group of countries including Germany, France, Italy and the UK with those of a money demand function for the same aggregate excluding Germany. Wesche's main finding is that money demand becomes unstable when Germany is excluded from the area aggregate. Moreover, if one also includes the countries shadowing the Deutsche Mark which also enjoyed stable money demand, such as Austria and the Benelux countries, where money demand is found to be stable (see Hayo (2000) and Fase and Winder (1996), respectively), the importance of the German factor increases even more.

One interesting question that arises from this analysis is why money demand was comparatively more stable in Germany as the answer to this question may have implications for the future stability of euro area money demand. Three main arguments have been suggested to explain the superior stability of German money demand: (1) the relatively early liberalisation of the financial sector; (2) the stabilising effect of price stability; and (3) the discouragement of potentially destabilising forms of financial innovation by the Bundesbank.

As regards the first argument, Issing (1997) and Scharnagl (1998) note that the liberalisation of the financial markets and cross-border money and capital movements was largely completed in Germany by the beginning of the 1970s. This liberalisation translated into both a stable regulatory framework and relatively limited demand for those financial products, which were – by contrast – welcomed as important novelties in countries with more tightly regulated financial system. Regarding the second argument, Issing (1992, 1997) argues that the success of the Bundesbank in maintaining price stability in Germany might have also contributed to stabilising money demand in Germany. In particular, the maintenance of an environment of low and stable inflation (and interest rates) rendered unnecessary the introduction of new financial products aimed at hedging against inflationary risks which may have had a destabilising impact on domestic money demand. Finally, the stability of German money demand may have also benefited not only from the limited demand for new financial products but also from restrictions on their supply with the aim of facilitating the pursuit of a monetary targeting strategy. The most relevant example regarding this issue is the lack

of authorisation by the Bundesbank of money market funds until 1994. Nevertheless, this last factor does not appear to have been very relevant, as the authorisation of money market funds in 1994 had only a temporary effect on monetary growth and money demand in Germany continued to be stable (see Reischle (2001)).

IV. Conclusions

This paper reviews several arguments which explain why estimated broad money demand functions have been relatively more stable in the euro area than in other economies. First, some factors affecting money demand outside the euro area appear to have been country specific. Second, financial innovation has had a weaker effect on money demand in the euro area than in other economies. Third, money demand stability in the euro area is partly due to gains from aggregating data across countries.

As regards the weaker impact of financial innovation in the euro area compared with other economies, there are three possible explanations. First, financial innovation in the euro area led to substitution towards instruments that could be considered as part of money and, therefore, could be taken care of by simply redefining monetary aggregates. Second, in Germany, which is the largest economy in the euro area, the effect of financial innovation on the stability of money demand was limited. Third, the different timing of financial innovation and deregulation in the various countries of the euro area spread their overall effect on the euro area aggregate over time.

Also with respect to the aggregation effect, there are three possible explanations. First, aggregation averages out desynchronised shocks to national money demand thereby contributing to a more stable function than at national level. A second effect of aggregation is the internalisation of currency substitution in the euro area. Finally, the fact that Germany has a large weight in the area-wide M3 aggregate and that money demand function has been historically stable in that country, has also contributed to the overall stability of euro area money demand.

Several factors that may have contributed to the greater stability of the aggregate money demand in the euro area than in other economies are likely to remain valid in Stage Three of EMU. First, in the euro area the share of wealth held in financial assets is smaller than in other economies, particularly in the US, where portfolio shifts to and from

bond and stock mutual funds were an important source of money demand instability in the past. Nevertheless, one cannot exclude that the composition of wealth in the euro area may change in the future and that shifts to other financial assets become more important than they have been so far. In this respect, the experience since the end of 2001 illustrates that also in the euro area money demand may be significantly affected by shifts from stock markets. A second factor is that it is likely that aggregation gains will remain as the existence of cross-country differences in fiscal policies, regulations, institutions, banking structures, etc. will continue to be a source of national idiosyncrasies.

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Summary

Why has Broad Money Demand been More Stable in the Euro Area than in Other Economies? A Literature Review

Based on a literature survey, this paper reviews the factors that may explain why broad money demand has usually been found to be more stable in the euro area than in other large economies, such as Japan, the US and the UK. The paper

concludes that there are three main explanations for this fact. First, some of the sources of instabilities in money demand outside the euro area were country-specific. Second, financial innovation appears to have had a weaker impact on money demand in the euro area than in other economies. A third explanation is that there are gains in terms of stability in aggregating the money demand of the individual euro area countries. (JEL E41, C22, C32)

Zusammenfassung

Warum ist die Nachfrage nach Geldmengenaggregaten in weiter Abgrenzung im Euro-Raum stabiler als in anderen Währungsgebieten? Ein Überblick auf der Grundlage der Fachliteratur

Dieser Aufsatz beleuchtet auf der Grundlage eines Überblicks über die Fachliteratur die Faktoren, die als Erklärung dafür gelten können, dass die Nachfrage nach Geldmengenaggregaten in weiter Abgrenzung im Euro-Raum im Allgemeinen stabiler ist als in anderen großen Volkswirtschaften wie Japan, Vereinigte Staaten und Vereinigtes Königreich. In diesem Aufsatz wird die Schlussfolgerung gezogen, dass es für diese Tatsache drei wichtige Erklärungsansätze gibt. Erstens handelte es sich bei einigen Quellen von Instabilität in der Geldnachfrage außerhalb des Euro-Gebietes um landesspezifische Phänomene. Zweitens hat es den Anschein, dass die Finanzinnovation einen schwächeren Einfluss auf die Geldnachfrage im Euro-Raum ausgeübt hat im Vergleich zu anderen Volkswirtschaften. Eine dritte Erklärung besteht darin, dass sich Stabilitätsgewinne aus einer Aggregierung der Geldnachfrage der einzelnen Mitgliedsländer des Euro-Raums ergeben haben.