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HOUSEHOLD PORTFOLIO DYNAMICS IN THE E.U. – 1994-2003

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ABSTRACT

During the period 1994-2003, for which comparable data exist in Eurostat's *New Cronos* database, household portfolios in twelve E.U. countries underwent major changes, prominent among which were an increase and convergence in the share of stocks, and a decrease in the share of safe assets (currency and deposits). The empirical finding that these changes can to a large extent be explained by the returns of the respective assets, together with the qualitative evidence on the composition of corporate and bank balance sheets, suggest that the trend towards a more market-oriented financial system in the E.U. has lost momentum and likely leveled off.

J.E.L. Numbers: G11, G20.

Keywords: Household Portfolios, E.U., Stocks, Bonds, Safe Assets.

INTRODUCTION

Household portfolios in the European Union (E.U.) underwent major changes in the second half of the 1990s and early 2000's, changes that mirror the ongoing since the early 1980s move of the European financial system towards a more market-oriented one (as opposed to a bank-based system). Prominent among these changes was the rise of the share of stocks, mostly at the expense of the share of the relatively safe assets—currency and deposits, and to a lesser extent at the expense of bonds—which were modest, anyway. In addition, the shares of stocks became more similar while those of the safe assets less so, confirming the findings of other recent papers (Byrne and Davis (2002), Hackethal et al. (1998), Rajan and Zingales (2003)) that the convergence process was not uniform across the sample countries.

The significance of these changes is amply highlighted by the sheer size of the households' financial assets, which, characteristically, amounted to about twice the Euro-zone's GDP in 2000 (Massaro (2002)); and by their profound implications for, among other things, the transmission of monetary policy to the real sector of the economy (European Central Bank (2002)), risk sharing and inter-temporal smoothing (Allen and Gale (2000)), bank profitability and the structure of the financial system in the E.U. (Hackethal *et al.* (1998), Rajan and Zingales (2003)).

The changes, of course, did not occur in a vacuum. As several of the above quoted papers remark, they were the product of both institutional and market-driven developments. Prominent among the former are the process towards European integration and the attendant rules and regulations which decreased the degree of financial repression, increased competition in domestic financial markets and led to a largely liberalized financial system; pension reform that diminished expectations of pension benefits; the enactment of laws for minority-shareholder protection; and the privatization wave in the E.U. As for the market-driven developments, they include the world-wide trend towards market economies and the resulting momentum for integration of national financial markets; the decline of deposit interest rates and of the yield of long-term bonds in the low-inflation environment of the 1990s and the coincident increase of the stock market returns; technological innovation which lowered transaction costs and facilitated competition, information dissemination (thus reducing the problem of asymmetric information) and capital-market participation and trading.

Given what is at stake, it is not surprising that the composition of household portfolios in Europe—and elsewhere—has attracted a lot of attention lately. Indicatively, Guiso *et al.* (2001) and (2002) use micro data to relate asset holdings with socio-demographic characteristics, such as wealth, age and education. Also, Babeau and Sbano (2002) use macro data similar to those used in this paper to analyze qualitatively the changes in the household portfolios from 1995 to 2000 in six European countries, i.e., France, Germany, Italy, the Netherlands, Spain and the U.K., plus Japan and the U.S.A. All these studies, while attesting to the increased significance of stocks in household portfolios, identify several cross-country differences and warn against simple generalizations, such as, that household portfolios, and financial systems more generally, are converging to the same norm.

This paper, in turn, attempts to quantify the contribution of risk-return considerations in the aforementioned household portfolio changes and shed some light on the question whether the trend towards more market-oriented household portfolios will endure. To anchor the analysis, the paper uses a mean-variance model, which relates asset shares to expected returns and their variance/covariance matrix, for household investment decisions. In addition, it splits the sample across two lines, that is, southern countries (Italy, Spain and Portugal) vs. the rest, and the more pro-market Netherlands and the U.K. vs. the rest, in order to examine the robustness of the results across cultural and institutional settings.

The remaining of the paper is organized as follows. Section 2 describes the data and analyzes qualitatively the composition of the household portfolios in the E.U. and the changes thereof since 1994—a significant contribution on its own for until recently the data for such an analysis was hard to come by. Section 3 presents the theoretical framework and discusses some econometric considerations, while Section 4 presents the empirical results. Section 5, which concludes, discusses some qualitative data on corporate liabilities and on bank assets and liabilities in the sample countries that strengthen the conclusions from the empirical analysis.

DATA DESCRIPTION

Household Portfolios

The data for household portfolios comes from Eurostat's *New Cronos* database. *New Cronos* reports, among other data, consolidated financial balance sheets, at an annual frequency and on a current basis, for households and non-for-profit institutions serving households for the Netherlands, the U.K., Belgium and Denmark (starting in 1994); and Austria, Finland, Germany, France, Italy, Norway, Portugal, Spain and Sweden (starting in 1995). With the exception of Norway, the sample countries are E.U. members. With the exception of the U.K., data are on a consolidated basis, effectively eliminating within-sector transactions (Eurostat (1996, p. 14)).

From the series *currency and deposits*, code *F.2*, *securities other than shares*, code *F.3*, and *shares and other equity*, code *F.5*, we calculate three ratios that correspond to the shares of the three generic assets in household portfolios. Specifically, s_{1t} corresponds to the share of relatively safe assets—currency and deposits, s_{2t} to the share of bonds, and s_{3t} to the share of stocks.

s_{1t} = 100* (*currency and deposits* at *t*) / (*total financial assets* at *t*)

s_{2t} = 100*(*securities other than shares* at *t*) / (*total financial assets* at *t*)

s_{3t} = 100*(*shares and other equity* at *t*) / (*total financial assets* at *t*)

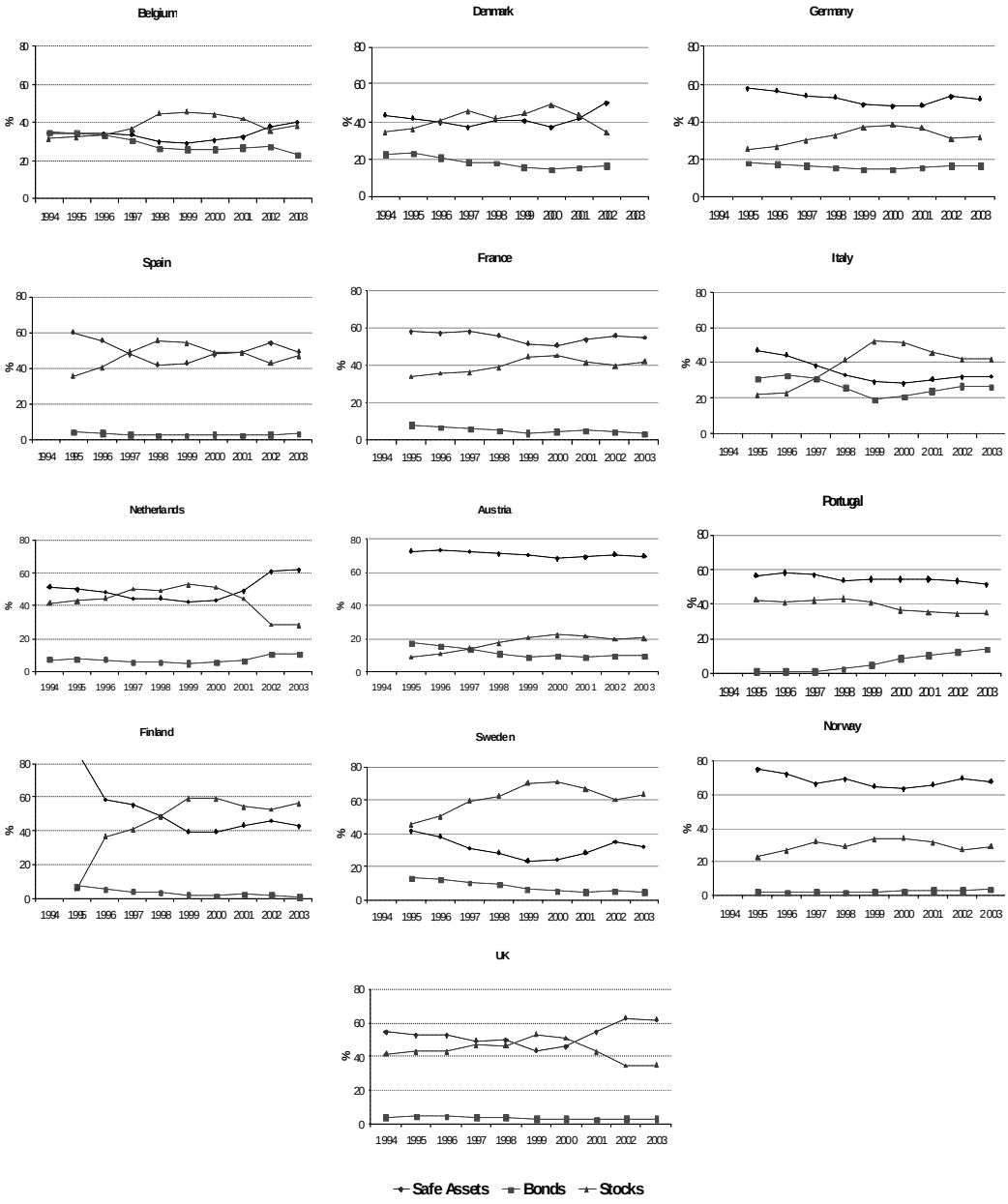
Total financial assets is equal to sum of the three items in the numerator of the three ratios and *t* is the usual time subscript. *Currency and deposits* includes currency, transferable deposits and other deposits. *Securities other than shares* includes short-term and long-term securities other than shares plus financial derivatives. *Shares and other equity* includes quoted and unquoted shares plus mutual funds shares (Eurostat (1996, p. 96)).

Figure 1 depicts the three ratios for the thirteen countries in the sample, one graph per country. In all graphs the horizontal axis shows the year, while the vertical the shares of safe assets, stocks and bonds. For ease of comparison, all vertical axes use the same scale.

The graphs illustrate the cross-country differences in household portfolios but, at the same time, highlight several common developments. To begin with the differences, throughout the sample period, safe assets had by far the biggest share in Austria, Germany, France, Portugal and Norway; while in Sweden, the share of stocks was bigger than that of safe assets. The share of bonds was essentially zero in Finland, France, Spain, Norway and the U.K., while in the other countries it was bigger and generally declined until 2003, with the exception of Portugal in which it rose from essentially zero to about 15%.

As for the common developments, which are the major motivation for this paper, the share of stocks exhibited large fluctuations. Specifically, from the beginning of the sample period until 2000, it rose by about 10%–15% in all countries, with the

Figure 1
Shares of Safe Assets, Bonds and Stocks



exceptions of Sweden, Italy and Finland, in which it went up by 25%, 30% and 50% respectively; and Portugal, in which it remained virtually unchanged. From 2000

onwards however, it declined by 10% in Denmark and Italy; by 15% in the U.K.; by 23% in the Netherlands; and about 3%–7% in the rest of the countries. Note that the changes in the share of stocks were mainly at the expense of the share of safe assets.

As a result, by 2003 the positive gap that existed in 1994 between the shares of safe assets and stocks in the aforementioned portfolios declined substantially in Austria, Spain, Germany, France and Norway, changed sign (i.e., the share of stocks overtook that of safe assets) in Italy and Finland, and remained more or less unchanged in Belgium and Portugal. In Sweden, where the share of stocks was bigger than that of deposits in 1994, the gap widened further by 2003. Lastly, in Denmark, the Netherlands and the U.K., three countries in which the share of stocks declined after its peak in 2000, this gap ended wider in 2003, in favor of the share of safe assets.

In addition, there has been a convergence in the share of stocks, but not of safe assets or bonds. Briefly, the coefficient of variation (=standard deviation / mean) of the share of stocks in the thirteen sample countries declined from 0.41 in 1995 to 0.26 in 2000 and rose back to 0.31 in 2003. This was mainly the product of the increase in the average stock share from 30.40% in 1994 to 38.89% in 2003, which dominated. The standard deviation declined from 12.62% to 12.10%. In contrast, the coefficient of variation for the share of safe assets was 0.26 in 1995, rose to 0.29 in 2000 and ended at 0.25 in 2003; while that of the share of bonds remained virtually the same throughout the sample period, namely 0.82 in 1995, 0.83 in 2000 and 0.84 in 2003.

Yet, there is no simple explanation for the aforementioned changes, however similar they may have been in the sample countries. This point will become clearer with the discussion of the returns of the three generic assets. It suffices here to note that in the Netherlands and the U.K., the two European countries closest to the market-model, the share of stocks was below that of safe assets in 1994, while the latter was not much higher than the former in several other sample countries.

Other Data

The returns for the three generic assets are calculated with data from *Datastream*. Specifically, the return of the safe assets, denoted as R_{1t}, is the three-month Treasury bill rate for Belgium, Germany, France, Spain, Italy, Sweden and UK, and, due to data limitations, the deposit rate for the Netherlands, Finland, Austria, Portugal and Denmark, and the three-month deposit rate for Norway. The return of bonds, R_{2t}, is calculated with the *total return index* for the ten-year benchmark government bonds (for details, see Datastream (p. *Bonds*-84), while the return of stocks, R_{3t}, with the *total market return index* for each national stock exchange. The within-the-year variance/ covariance matrix for each country is calculated from the resulting monthly return series.

The return series for the sample countries confirm the conclusion drawn from Figure 1 that there is no easy explanation for the changes in household portfolios throughout the sample period. In greater detail, the deposit rates fell almost

monotonically in all countries except Norway. In the latter, it ended in 2003 at the same level as in 1994 after a jump in 1999. The smallest fall occurred in the Netherlands (about 1%) and the U.K. (about 2%), the two countries with the most market-oriented financial systems; and the biggest, in excess of 4%, in Italy, Portugal and Spain, the three southern countries. As for the bond returns, in all countries there was an upward spike in 1995, which was followed by a monotonic decline until 1999 and a modest rise since then. The stock market returns exhibit a hump shape, with the biggest values around the middle of the sample period. However, we do not observe the "north-south divide" evident in the returns of the other two assets. Nor do we observe any apparent similarities in the returns of the Netherlands and the U.K..

THEORETICAL FRAMEWORK & ECONOMETRIC CONSIDERATIONS

To tie the analysis, we assume that households use a mean-variance criterion in order to decide for the shares of the three generic assets. The resulting one-period investment strategy is rather myopic. Yet, under some assumptions, it is consistent with multi-period optimization—a framework that provides a more appropriate description of the households' decision problem and the related inter-temporal consumption smoothing and risk sharing (see, for example, Brennan *et al.* (1997)).

In mathematical terms, households choose at the end of period *t-1* the shares of the three generic assets, s_{1t}, s_{2t} and s_{3t}, in order to maximize the utility function

$$U = \Phi(E_{t-1} R_t, E_{t-1}\sigma_t^2) \text{ with } \partial U/\partial E_{t-1}R_t > 0 \text{ and } \partial U/\partial E_{t-1}\sigma_t^2 < 0$$

where $E_{t-1} R_t$ and $E_{t-1}\sigma_t^2$ denote the expected return and variance of the household portfolio.

As usual,

$$E_{t-1}R_t = s_{1t} E_{t-1}R_{1t} + s_{2t} E_{t-1}R_{2t} + s_{3t} E_{t-1}R_{3t}$$

and

$$E_{t-1}\sigma_t^2 = \sum_{i=1,3} \sum_{j=1,3} s_{it} s_{jt} \sigma_{ij}$$

with the restriction

$$s_{1t} + s_{2t} + s_{3t} = 1.$$

Using even the simplest possible functional form for *U(.)*, such as the linear one in the equation below in which the coefficient *ä* is related to the degree of risk aversion,

$$U = E_{t-1} R_t - \delta E_{t-1}\sigma_t^2 \quad (\delta \geq 0)$$

and without any constraints, such as, $s_{it} \geq 0$ (i = 1, 3), the solution of the households' maximization problem yields optimal shares s_{it} (i = 1, 2, 3) that are complicated functions of the expected returns and their variance/covariance matrix, as well as of δ. The sign of the derivatives of these functions with respect to the expected returns and variances/covariances is not certain.

To make a long story short, the households' optimization problem suggests the following regression equation for the portfolio shares s_{it} ($i = 1, 2, 3$) in which the sign of the coefficients α_j (j = 1,…, 9) is not known à priori. In this equation, the additional subscript *k* denotes the country.

$$\begin{aligned} s_{k,it} = \alpha_0 &+ \alpha_1 E_{t-1} R_{k,1t} + \alpha_2 E_{t-1} R_{k,2t} + \alpha_3 E_{t-1} R_{k,3t} \\ &+ \alpha_4 E_{t-1} \sigma^2_{k,1t} + \alpha_5 E_{t-1} \sigma^2_{k,2t} + \alpha_6 E_{t-1} \sigma^2_{k,3t} \\ &+ \alpha_7 E_{t-1} \sigma_{k,12t} + \alpha_8 E_{t-1} \sigma_{k,13t} + \alpha_9 E_{t-1} \sigma_{k,23t} + \varepsilon_{k,it} \end{aligned}$$

Expected returns and their variance/covariance terms are proxied with: (a) the realized during the previous period (lagged) values, and (b) the contemporaneous realized ones. The returns for period *t* correspond to the returns at the end of the year relative to the end of the previous year. The variance/covariance matrix for the period *t* is calculated from the within-the-year monthly returns.

In addition, a general-to-specific modeling approach is followed, with pooled data in order to get enough degrees of freedom in estimation. In it, insignificant variables are identified with a series of F-tests and excluded from the model, paying attention to whether a *fixed effects model* (FEM) or a *random effects model* (REM) is more appropriate, and to the autocorrelation of the residuals for signs of model misspecification. Lastly, the country intercepts in the FEM capture country-specific characteristics, such as, the investment culture.

EMPIRICAL ANALYSIS

Tables 1 through 4 summarize the empirical results. The first two present the results for the shares of stocks (Table 1) and safe assets (Table 2) when the lagged values of the returns and their variance/covariance terms are used as proxies for the expected ones. The remaining two present the results when the realized contemporaneous values are used instead. The share of bonds, being very low, is not examined further. All tables report the estimated coefficients (and their *t*-statistics in parentheses) for the FEM model, the estimated autocorrelation coefficient of the residuals (ρ), Hausman's χ^2 statistic to test the FEM against the REM, the R^2 and the degrees of freedom for the FEM, plus the R^2 for the REM. The last term gives a rough estimate of the proportion of the dependent variables' variance that is explained by the independent variables. Nevertheless, the estimated coefficients and their *t*-statistics are very similar in the FEM and REM. Lastly, each table also reports the results for all thirteen sample countries, plus the results without the southern countries, Italy, Spain and Portugal (Variation #1), and without the more pro-market Netherlands and the U.K. (Variation #2).

The results are quite interesting. In summary, the returns of the three generic assets and their variance/covariance terms explain between 17% (Table 3) and 20% (Table 1) of the variance of the share of stocks, and between 11% (Table 2) and 58% (Table 4) of the share of safe assets. For the share of stocks, the lagged values have

higher explanatory power than the contemporaneous ones (Tables 1 and 3), while for the share of safe assets both classes of assets the opposite holds (Tables 2 and 4). There is also remarkable stability in the estimated models whether the southern countries or the more pro-market Netherlands and the U.K. are excluded from the sample or not. Furthermore the estimated models for the share of stocks and safe assets virtually "mirror" each other (Table 1 vs. Table 2, and Table 3 vs. Table 4), that is, they have the same explanatory variables but with opposite signs, as one would reasonably expect given the relatively small share of bonds.

Most importantly, the results are not likely to be accounting artifacts. In such a case, a rise (fall) in stock prices would lead to higher (lower) share of stocks by virtue of a bigger change in the numerator than in the denominator of s_{3t}, and to lower (higher) shares of bonds and safe assets, by virtue of a change in the denominator of s_{2t} and s_{1t} even without any transactions taking place. Had this been true, the lagged returns and their variance/covariance terms in Tables 1 and 2 would have no explanatory power for the end-of-period asset shares.

More details follow.

Lagged Determinants of the Shares of Stocks and Liquid Assets

As Table 1 documents, the share of stocks was positively affected by the stock market return and its variance (respective coefficients 0.098 and 0.809, with t-statistics 5.04 and 3.05), and negatively by the variance of the bond return (coefficient -6.7 with t-statistic -6.03). Hausman's χ^2, equal to 6.69 and significant at the 10% level, indicates that the FEM is more appropriate than the REM. The latter's R^2, equal to 0.20, indicates that the three significant explanatory variables explain about 20% of the variance of the share of stocks.

Dropping the Southern European countries (Variation #1) or the more pro-market Netherlands and the U.K. (Variation #2) from the sample did not affect perceptibly either the structure of the estimated model or the size and significance of the estimated coefficients, the only difference being that in Variations #1 and #2 the covariance of the deposit rate with the bond return is also significant.

Almost the same conclusions hold for the share of safe assets, as shown in Table 2. What is different is the lower explanatory value of the independent variables, about 11%-12% as opposed to 20%-27% for the share of stocks in Table 1; and that the REM model is more appropriate than the FEM.

Not only the explanatory variables are largely the same for the models in Tables 1 and 2, but, in addition, their estimated coefficients have opposite signs. That is, as one would reasonable expect, the variables that affected the share of stocks negatively affected the share of safe assets positively, and vice-versa. For example, the share of safe assets was affected negatively by the stock market return and its variance (respective coefficients –0.075 and –0.558, with t-statistics –4.04 and –2.47) and

Table 1

Lagged Determinants of the Share of Stocks

$$s_{i,3t} = \alpha_i + \alpha_1 R_{i,1t-1} + \alpha_2 R_{i,2t-1} + \alpha_3 R_{i,3t-1} + \alpha_4 \sigma^2_{i,1t-1} + \alpha_5 \sigma^2_{i,2t-1} + \alpha_6 \sigma^2_{i,3t-1} + \alpha_7 \sigma_{i,12t-1} + \alpha_8 \sigma_{i,13t-1} + \alpha_9 \sigma_{i,23t-1} + \varepsilon_{i,t}$$

Return Coefficients			*Variance Coefficients*			*Covariance Coefficients*				*Hausman's*	*FEM*		
α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9	ρ	χ^2	R^2	*d.o.f.*	*REM* R^2
Basic Model													
		0.098		-6.7	0.809				0.26	6.69*	0.77	105	0.20
		(5.04)***		(-6.03)***	(3.05)***								
Variation #1: Sample Without the Southern European Countries (Italy, Portugal, Spain)													
		0.099		-6.180	1.220	-6.030			0.16	9.71**	0.81	76	0.23
		(4.48)***		(-4.30)***	(3.82)***	(-1.91)**							
Variation #2: Sample Without the More Market-oriented U.K. and Netherlands													
		0.077		-7.21	0.999	-5.080			0.16	8.63**	0.81	83	0.27
		(3.85)***		(-5.93)***	(3.67)***	(-1.83)**							

Notes: 1. Basic Model:

- Sample countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, U.K.
- Sample period: 1994-2003

2. For variable definitions, see the main text
3. One (*), (**) and three (***) asterisks denote significance at respectively the 10%, 5% and 1% level
4. ρ: residuals' autocorrelation (estimated)
5. Hausman's χ^2: statistic for testing the *random effects model* (REM) against the *fixed effects model* (FEM) shown in the equation above. High values are in favor of the FEM.
6. FEM R^2, REM R^2: the R^2's of the two models. The latter reflects the explanatory value of the independent variables without the country intercepts.
7. d.o.f.: degrees of freedom of the FEM
8. For the sake of comparison, the results shown are for the FEM model. Nevertheless, the estimated coefficients α_j (j=1,9) and their *t*-statistics are very similar in the two models.
9. Sources: EUROSTAT, DATASTREAM and authors' calculations.

Table 2

Lagged Determinants of the Share of Safe Assets

$$s_{i,1t} = \alpha_i + \alpha_1 R_{i,1t-1} + \alpha_2 R_{i,2t-1} + \alpha_3 R_{i,3t-1} + \alpha_4 \sigma^2_{i,1t-1} + \alpha_5 \sigma^2_{i,2t-1} + \alpha_6 \sigma^2_{i,3t-1} + \alpha_7 \sigma_{i,12t-1} + \alpha_8 \sigma_{i,13t-1} + \alpha_9 \sigma_{i,23t-1} + \varepsilon_{i,t}$$

Return Coefficients			*Variance Coefficients*			*Covariance Coefficients*				*Hausman's*	*FEM*		
α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9	ρ	χ^2	R^2	*d.o.f.*	*REM* R^2
Basic Model													
		-0.075		4.950	-0.558	4.295			0.24	6.48	0.84	101	0.11
		(-4.04)***		(4.91)***	(-2.47)***	(1.85)**							
Variation #1: Sample Without the Southern European Countries (Italy, Portugal, Spain)													
		-0.086		4.338	-0.844	6.330			0.16	6.90	0.85	76	0.12
		(-4.51)***		(3.49)***	(-3.05)***	(2.32)***							
Variation #2: Sample Without the More Market-oriented U.K. and Netherlands													
		-0.059		5.514	-0.656	5.103			0.13	5.76	0.87	83	0.11
		(-3.52)***		(5.47)***	(-2.90)***	(2.21)***							

Notes: 1. Basic Model:

- Sample countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, U.K.
- Sample period: 1994-2003

2. For variable definitions, see the main text
3. One (*), (**) and three (***) asterisks denote significance at respectively the 10%, 5% and 1% level.
4. ρ: residuals' autocorrelation (estimated)
5. Hausman's χ^2 : statistic for testing the *random effects model* (REM) against the *fixed effects model* (FEM) shown in the equation above. High values are in favor of the FEM.
6. FEM R^2, REM R^2: the R^2's of the two models. The latter reflects the explanatory value of the independent variables without the country intercepts.
7. d.o.f.: degrees of freedom of the FEM
8. For the sake of comparison, the results shown are for the FEM model. Nevertheless, the estimated coefficients α_j (j = 1,9) and their *t*-statistics are very similar in the two models.
9. Sources: EUROSTAT, DATASTREAM and authors' calculations.

positively by the variance of the bond return and the covariance of the deposit rate with the bond return (respective coefficients 4.950 and 4.295, with t-statistics 4.91 and 1.85). The results are the same in Variation #1 and #2.

Contemporaneous Determinants of the Shares of Stocks and Liquid Assets

The results with the contemporaneous values of the returns and their variance/covariance terms are similar to those with the lagged values. To begin with, as Table 3 documents, the share of stocks was affected negatively by the bond return—which was not present in Table 1—(coefficient -0.365 with t-statistic -6.28) and the variance of the bond return (coefficient/t-statistic -7.90/-6.00) and positively by the stock market return and its variance (as in Table 1—coefficients 0.060 and 0.730 with t-statistics 3.21 and 2.89). Also, the R^2 of the REM drops to 17%.

Dropping the three southern countries from the sample did not affect perceptibly either the structure or the coefficients of the estimated model, with the difference that the REM is more appropriate than the FEM. Dropping, however, the more pro-market Netherlands and the U.K. resulted in a model where the variance of the stock market return is replaced by the covariance of the bond return with the stock market return (coefficient/t-statistic -0.514/-3.63). On the positive side, the size, sign and significance of the coefficients of the other three significant variables is about the same with those in the preceding two models.

As with the case of the lagged values of the independent variables, the estimated models for the share of safe assets are similar to those for the share of stocks, with coefficients that have the opposite sign. In addition, the R^2 is much greater than that for the share of stocks. Last but not least, the REM is more appropriate than the FEM.

A CONJECTURE

Turning to the issues posed in the introduction, the econometric results confirm the visual evidence presented in section 2 that the trend towards more market-oriented household portfolios in the E.U. has likely leveled off. Specifically, since the stock and bond market returns and their variances explain a large extent of the changes in household portfolios, with the end of the "bull market" in the early 2000's, and the inevitable cyclical rise of European interest rate, the move towards more market-oriented household portfolios has likely lost momentum, if not levelled off. This assessment is consistent with Rajan and Zingales' conjecture (Rajan and Zingales, (2003))—which is based on a historical analysis of financial development in Europe under the prism of political economy—that the overall trend towards more market-oriented financial systems in Europe will likely lose momentum.

This tentative—owing to the limitations of the data—conclusion is reinforced by the visual evidence that there is no evidence of steady and uniform across countries developments in the composition of finance corporations' balance sheets and in the assets of non-finance corporations in the thirteen sample countries. Briefly, on the

Table 3
Contemporaneous Determinants of the Share of Stocks

$$s_{i,3t} = \alpha_i + \alpha_1 R_{i,1t} + \alpha_2 R_{i,2t} + \alpha_3 R_{i,3t} + \alpha_4 \sigma_{i,1t}^2 + \alpha_5 \sigma_{i,2t}^2 + \alpha_6 \sigma_{i,3t}^2 + \alpha_7 \sigma_{i,12t} + \alpha_8 \sigma_{i,13t} + \alpha_9 \sigma_{i,23t} + \varepsilon_{i,t}$$

Return Coefficients			*Variance Coefficients*			*Covariance Coefficients*				*Hausman's*	*FEM*		
α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9	ρ	χ^2	R^2	*d.o.f.*	*REM* R^2
Basic Model													
	-0.365	0.060		-7.90	0.730				0.36	8.84**	0.79	105	0.17
	(-6.28)***	(3.21)***		(-6.00)***	(2.89)***								
Variation #1: Sample Without the Southern European Countries (Italy, Portugal, Spain)													
	-0.446	0.052		-7.82	0.820				0.28	7.02	0.82	80	0.17
	(5.91)***	(2.46)***		(-4.92)***	(2.64)***								
Variation #2: Sample Without the More Market-oriented U.K. and Netherlands													
	-0.422	0.062		-6.05				-0.514	0.36	8.12*	0.84	87	0.12
	(-7.18)***	(3.29)***		(-4.17)***				(-3.63)***					

Notes: 1. Basic Model:
- Sample countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, U.K.
- Sample period: 1994-2003

2. For variable definitions, see the main text
3. One (*), (**) and three (***) asterisks denote significance at respectively the 10%, 5% and 1% level
4. ρ: residuals' autocorrelation (estimated)
5. Hausman's χ^2 : statistic for testing the *random effects model* (REM) against the *fixed effects model* (FEM) shown in the equation above. High values are in favor of the FEM.
6. FEM R^2, REM R^2: the R^2's of the two models. The latter reflects the explanatory value of the independent variables without the country intercepts.
7. d.o.f.: degrees of freedom of the FEM
8. For the sake of comparison, the results shown are for the FEM model. Nevertheless, the estimated coefficients α_j (j = 1,9) and their *t* statistics are very similar in the two models.
9. Sources: EUROSTAT, DATASTREAM and authors' calculations.

Table 4
Contemporaneous Determinants of the Share of Safe Assets

$$s_{i,1t} = \alpha_i + \alpha_1 R_{i,1t} + \alpha_2 R_{i,2t} + \alpha_3 R_{i,3t} + \alpha_4 \sigma_{i,1t}^2 + \alpha_5 \sigma_{i,2t}^2 + \alpha_6 \sigma_{i,3t}^2 + \alpha_7 \sigma_{i,12t} + \alpha_8 \sigma_{i,13t} + \alpha_9 \sigma_{i,23t} + \varepsilon_{i,t}$$

Return Coefficients			*Variance Coefficients*			*Covariance Coefficients*				*Hausman's*	*FEM*		
α_1	α_2	α_3	α_4	α_5	α_6	α_7	α_8	α_9	ρ	χ^2	R^2	*d.o.f.*	*REM* R^2
Basic Model													
	0.275	-0.049		5.631	-0.479				0.35	3.27	0.85	105	0.58
	(5.55)***	(-3.11)***		(5.05)***	(-2.23)***								
Variation #1: Sample Without the Southern European Countries (Italy, Portugal, Spain)													
	0.322	-0.047		5.339	-0.516				0.33	2.09	0.84	80	0.53
	(4.76)***	(-2.51)***		(3.74)***	(-1.85)**								
Variation #2: Sample Without the More Market-oriented U.K. and Netherlands													
	0.304	-0.038		5.498	-0.528				0.24	4.21	0.88	87	0.59
	(6.00)***	(-2.46)***		(4.85)***	(-2.48)***								

Notes: 1. Basic Model:
- Sample countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Portugal, Spain, Sweden, U.K.
- Sample period: 1994-2003

2. For variable definitions, see the main text.
3. One (*), (**) and three (***) asterisks denote significance at respectively the 10%, 5% and 1% level.
4. ρ: residuals' autocorrelation (estimated)
5. Hausman's χ^2 : statistic for testing the *random effects model* (REM) against the *fixed effects model* (FEM) shown in the equation above. High values are in favor of the FEM.
6. FEM R^2, REM R^2: the R^2's of the two models. The latter reflects the explanatory value of the independent variables without the country intercepts.
7. d.o.f.: degrees of freedom of the FEM.
8. For the sake of comparison, the results shown are for the FEM model. Nevertheless, the estimated coefficients α_j (j = 1,9) and their *t*-statistics are very similar in the two models.
9. Sources: EUROSTAT, DATASTREAM and authors' calculations.

asset side of finance corporations' balance sheets, loans as a percent of total assets declined by 5 to 15 percentage points in Germany, Austria, France, Netherlands, Sweden, Finland and Denmark; rose by about 15 points in Portugal; and remained stable in the rest. Equity rose by 15 points in France and the Netherlands; fell by 5 points in the U.K. and ended at almost the same level in the other countries. Bonds remained stable, with the exception of Denmark and Austria, where it rose by 10 points; and Portugal, where it fell by more than 10 points. On the liability side of finance corporations' balance sheets, the most pronounced changes were a rise in the share of equity by about 10 points in Denmark, France, Italy, the Netherlands and Finland, a more limited rise in the others, and a modest decline in the share of deposits—the only exception occurring in Italy where it fell by about 20 percentage points. As for the liabilities of non-finance corporations, the share of loans declined, while that of equity increased—with the exception of Portugal in which the reverse holds—but the magnitude of these changes was in excess of 10 percentage points only in Finland. Moreover, all the above changes had leveled off by 1999.

The visual evidence is consistent with the findings of Byrne and Davis (2002), who compare the structure of the balance sheets of households, corporations and banks in four countries, France, Germany, Italy and the U.K., in 1980, 1990, 1998 and 2000. Further, Hackethal et al. (1998), who compare several intermediation ratios for France, Germany and the U.K. for the period 1981 through 1996, also find a trend towards a more market-oriented financial system, though they stress that this trend does not necessarily imply a diminishing role for banks nor is it universal.

All in all, the available evidence suggests that the trend towards a more market-oriented financial system in the E.U. has lost momentum if not leveled off. In addition, despite the rise of the share of stocks in household portfolios, it is not a foregone conclusion that the role of banks in the E.U. has been diminished or is likely to be diminished in the foreseeable future.

REFERENCES

Allen, Franklin and Douglas Gale (2000), *Comparing Financial Systems*, The MIT Press, Cambridge, Massachussets.

Babeau, André and Teresa Sbano (2002), "Household Wealth in the National Accounts of Europe, the United States and Japan", *OECD Statistics Directorate Paper* STD/NA (2002) 20.

Brennan, Michael J., Eduardo S. Schwartz and Ronald Lagnado (1997), "Strategic Asset Allocation", *Journal of Economic Dynamics and Control*, 21, 1377-1403.

Byrne, Joseph P. and E. Philip Davis (2002), "A Comparison of Balance Sheet Structures in Major EU Countries", *National Institute Economic Review*, 180, 83-95.

Catalan, Mario, Gregorio Impavido and Alberto R. Musalem (2000), "Contractual Savings or Stock Market Development–Which Leads?", *World Bank Policy Research Paper*, 2421.

Chakrabotry, Atreya and Mark Kazarosian (1999), "Portfolio Allocation of Precautionary Assets: Panel Evidence for the United States", *Boston College Working Papers in Economics*, 432.

Datastream Definitions Manual.

European Central Bank (2002), "The Stock Market and Monetary Policy", *ECB Monthly Bulletin,* 2, 39-52.

Eurostat (1996), *European System of Accounts–ESA 1995*.

Fisher, K.L. and Meir Statman (2003), "Consumer Confidence and Stock Returns", *Journal of Portfolio Management*, 30, 115-27.

Greene, William H. (1995), *LIMDEP–User's Manual (Version 7.0)*, Econometric Software, Inc., Bellport N.Y..

Guiso, Luigi, Michael Haliassos and Tullio Jappelli (2001), *Household Portfolios*, The MIT Press, Cambridge, Massachussets.

Guiso, Luigi, Michael Haliassos and Tulio Japelli (2002), "Household Stockholdings in Europe: Where Do We Stand and Where Do We Go?", *Working Paper*, 88, Centro degli Studi in Economia e Finanza, Università di Salerno.

Hackethal, Andreas, Reinhard H. Schmidt and Marcel Tyrell (1998), "Disintermediation and the Role of Banks in Europe: An International Comparison", *Working Paper*, 10, Johann Wolfgang Goethe-Universität.

Massaro, Ricardo (2002), "Financial Wealth of Households in the Euro-zone", *Statistics in Focus –Economy & Finance*, Eurostat.

Rajan, Raghuram and Luigi Zingales (2003), "Banks and Markets: The Changing Character of European Finance", *NBER Working Paper*, 9595.