Equity wealth and consumption—the experience of Germany, France and Italy in an international context

By Ben Norman, Maria Sebastia-Barriel and Olaf Weeken of the Bank's International Economic Analysis Division.

Consumption in Germany, France and Italy (the EU3) has generally been thought to be less responsive to wealth effects than in the United Kingdom or the United States. The aim of this article is to assess the evidence for changes in the responsiveness of EU3 consumption to changes in equity prices, given the rapid increase in share prices in recent years and the rising share of financial assets held in equities during the 1990s.
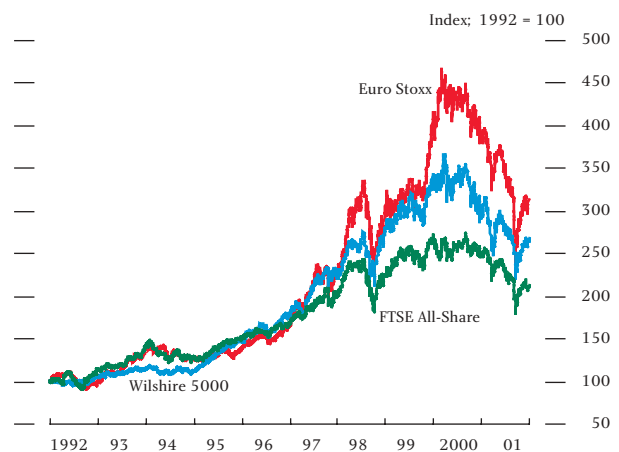
Introduction

The sharp rise in global equity prices during the 1990s (see Chart 1) and wider share ownership in a number of countries may have altered the way in which aggregate consumption reacts to fluctuations in both wealth and income. These developments may have contributed in a number of countries to the strength of consumption through a wealth effect,[1] yet such a wealth effect has been less evident in the EU3 than in the United States, where share ownership is relatively wide. A number of macroeconometric models[2] suggest that a 20% fall in global equity prices would lower US GDP within a year by between 0.4 and 1.0 percentage points relative to a baseline simulation. This compares with a range of 0.2 to 0.4 percentage points for countries in the euro area.[3]

The model simulations noted above tend to reflect historical relationships between economic variables, but they may not fully capture recent developments. Nor do they identify the determinants of cross-country differences. In this article we assess how the relationship between consumption, wealth and income varies across countries and over time. The determinants of the relationship can usefully be examined by noting that the elasticity of consumption with respect to changes in financial wealth is the product of the ratio of wealth to consumption and the marginal propensity to consume from financial wealth. Trends in the wealth to consumption ratio are easily observable and below we interpret movements in various components of financial and in particular equity wealth. Less readily available are time series data on the demographic factors that theory predicts may affect the marginal propensity to

Chart 1
World equity prices(a)

(a) In local currencies.

consume from income and wealth. Nevertheless we present such data for a limited time span in the 1990s as they may help to explain cross-country variation in our derived estimates of the marginal propensity to consume.

(1) See, for example, Poterba (2000). We acknowledge that other aspects of wealth, such as housing wealth, may also be important in explaining consumption in some countries, but tracking such developments is beyond the scope of this article.
(2) Such as those developed by the National Institute of Economic and Social Research (NIESR), or the Organisation for Economic Co-operation and Development (OECD). For details of specific simulations, the results of which are referred to here, see Boone, Giorno and Richardson (1998) and Barrell, Pain, te Velde, Holland and Hubert (1999).
(3) Extending these simulations to a two-year horizon reduces GDP to 1.0 percentage point lower than baseline for the United States in year two, compared with 0.4 to 0.6 percentage points lower than baseline for euro-area countries.

Equities and wealth

The share of equities in EU3 households' financial assets increased in the 1990s as a result of both valuation gains from the sharp rise in equity prices and net purchases of equities. The latter may reflect substantial privatisation programmes in these countries. But the prolonged increase in equity prices over the 1990s may also have fostered increasing investment in mutual funds.

The sharpest increases in stock market capitalisation were in Italy and France (see Table A), albeit from a very low base. In Italy market capitalisation as a percentage of GDP increased approximately sixfold between 1991 and 2000, and in France it almost quadrupled. French stock market capitalisation did not fully catch up with that of the United States over the period, but did increase from 41% of US levels in 1991 to 72% in 2000. In spite of market capitalisation almost trebling in Germany, the level in Germany and Italy remains much lower than in France, the United Kingdom or the United States.

Table A
Stock market capitalisation as a percentage of GDP

	France	Germany	Italy	United States	United Kingdom
1991	28.1	20.2	12.7	68.5	89.9
2000	110.5	58.4	70.8	154.1	185.6

Notes: Excludes investment funds. US data include NYSE, Nasdaq and AMEX.

Sources: International Federation of Stock Exchanges (FIBV) and IMF *International Financial Statistics*.

Data on household holdings of equity wealth as a percentage of financial assets, shown in Table B, are consistent with trends in stock market capitalisation. The share of directly held equity in financial assets has risen more quickly in Germany and Italy than in the United Kingdom and the United States (see Table B).[1] Households' equity holdings appear to be particularly large in France and Italy, accounting for more than 40% of financial assets in 1999/2000, compared with about 20% in the United Kingdom and 28% in the United States. But in France, for example, these holdings contain a large proportion of unquoted equity, which may be less liquid and more difficult for households to quantify with precision.[2]

In the EU3, there are no large-scale private pension schemes to supplement the state pension system.[3] By contrast, households in the United Kingdom and the United States also own equity in the form of private pension plans. The inclusion of such data would indicate that households in these countries hold a markedly greater proportion of wealth in equities relative to the EU3 average. As with unquoted equity, however, it is possible that changes in the value of these pension plans may (similarly) feed less directly into consumption. This view is supported by Thaler (1990) and Poterba (2000), who suggest that consumers may keep 'mental accounts' of assets that are earmarked for a specific purpose. Assets held in private pension plans, for example, may be considered to be 'long-term assets', set aside to provide for consumption later in life.[4]

Table B
Equity holdings of households and non-profit institutions serving households

Percentage of financial assets

	1991	1993	1995	1997	1999	2000
Germany						
All direct equity (excluding unquoted shares)	10.9	11.9	11.8	15.3	20.5	19.5
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
France (a)						
All direct equity (excluding unquoted shares)	44.5	46.0	34.1	37.7	46.7	45.8
	30.0	29.4	22.9	22.0	22.8	22.8
Italy (a)						
All direct equity (excluding unquoted shares)	20.6	20.8	17.2	25.4	43.3	n.a.
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
United Kingdom						
All direct equity (excluding unquoted shares)	17.7	19.1	19.4	21.6	22.8	23.0(b)
	12.0	13.1	13.9	15.5	15.8	15.8(b)
Memo item						
All direct and indirect equity (excluding unquoted shares)	48.9	54.7	54.4	55.4	62.8	60.7(b)
	45.4	51.3	51.3	52.0	59.4	57.1(b)
United States						
All direct equity (excluding unquoted shares)	16.9	19.9	22.2	27.4	32.9	27.7
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Memo item						
All direct and indirect equity (excluding unquoted shares)	26.6	30.9	35.2	42.7	49.1	44.0
	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. = not available.

Notes: Direct equity comprises shares and other equity, including quoted, unquoted and mutual fund shares. Indirect equity comprises equity pension assets.

Sources: Deutsche Bundesbank, Deutsches Aktieninstitut, Banque de France, National Statistics, OECD, and Federal Reserve Board.

(a) In Italy and France, there is a break in the data between 1993 and 1995 because of reclassifications.
(b) 2000 Q2.

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(1) In the United Kingdom, direct holdings are normally defined to include mutual fund shares. This is different from the usual definition used in the United States, where mutual fund shares tend to be classified as indirect holdings. Table B follows the convention used in the United Kingdom, and where necessary adjusts the data of other countries accordingly.
(2) Because the precise value of unquoted equity is difficult to ascertain, these data have in some countries been revised strongly in the past. Therefore, where available, Table B shows data excluding unquoted equity from both the denominator and the numerator of the equity to financial assets ratio.
(3) In early 2001 the German Government proposed a pensions reform initiative along these lines.
(4) The empirical results in Byrne and Davis (2001) run against conventional results, in suggesting that illiquid financial wealth, including pension funds, tends to be a more significant long-run determinant of consumption than more liquid forms of financial wealth.

In summary, and notwithstanding data limitations, the data presented in Tables A and B show that both stock market capitalisation as a percentage of GDP and the share of households' financial wealth held in equities is markedly lower in Germany than in the other EU3 economies. In turn, market capitalisation is lower in France and Italy than in the United Kingdom and the United States.

Wealth and consumption

The distribution of equity and other wealth may affect the marginal propensity to consume out of both equity wealth and income. The life-cycle/permanent income hypothesis (PIH) postulates that households will maximise lifetime utility by smoothing consumption of their expected lifetime resources (income and wealth) across all periods of their lifetime.[1] If households regard equity price changes as leading to a change to their lifetime resources, they will 're-optimise' their consumption path and hence adjust consumption over their remaining lifetime. The response of a household's current consumption to a change in lifetime resources depends on the marginal propensity to consume. In the simplest form of the PIH,[2] the marginal propensity to consume is the same for everybody.

There are various reasons why the simplest form of the PIH may not hold and why marginal propensities to consume may differ across households. For example, the response of consumption to unanticipated equity price changes may differ according to income or age group, since an increase in wealth among low-income households may be more likely to ease any liquidity constraints they are facing on their borrowing.[3] Thus, because the economy-wide marginal propensity to consume is roughly the average of the marginal propensities of all households in the economy, the response of consumption to a change in both income and equity prices is likely to depend on the distribution of equity wealth across households. The next section considers why differences in the distribution of equity wealth across countries may affect both the marginal propensity to consume of each group out of

income, and their marginal propensity to consume out of wealth.

Equity wealth and income distributions

Tables C, D and E show data relating to the distribution of wealth across income and age groups. The data relate to wealth held in equities and in bank accounts, so come with the proviso that these are not an exhaustive description of wealth.

Table C shows equity holdings across different income groups in the mid to late 1990s and (for Germany and France) in 2000. Data are grouped by different income brackets for each country and the definition of equities may be broader in the United Kingdom relative to other countries; so it is difficult to establish exact comparisons between the five countries. The overall totals in the final column reveal that a relatively small percentage of EU3 citizens owns shares; in contrast there is wider share ownership in the United Kingdom, a function of active privatisation programmes, and in the United States, where 401(k) schemes have increased shareholdings.[4]

Below we assess how the distribution of equity holdings may affect the marginal propensity to consume from each of income and wealth. To the extent that the marginal propensity to consume out of income is higher in cohorts facing liquidity constraints, then, other things being equal, excluding the wealthiest cohorts (proxied by the 25% of highest-income earners in each country) may reveal more about the likely impact of liquidity constraints than considering all income groups for each country as a whole. Table C confirms that these high-income earners are much more likely to own equity shares. Aggregating the most recent data for the low and middle-income earners representing the lower 75% of income distribution in each country shows that only 3.1% of these low and middle-income earners own equity shares in Italy.[5] The figures for the other countries are: Germany 6.8%, France 10.4%, United States 13.1% and United Kingdom 19.1%. As low and middle-income households are much less likely to hold

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(1) For an overview of consumption theory see Deaton (1992), Muellbauer (1994) and Attanasio (1999). For an introduction to the life-cycle/permanent income hypothesis see (amongst others) Banks and Tanner (1999).

(2) The simplest form of the PIH is characterised by perfect capital markets and the absence of uncertainty, and assumes that agents are infinitely lived. (If agents care for their offspring as they care about themselves, they will behave as if they were infinitely lived—see Barro (1974).)

(3) Blundell, Browning and Meghir (1994), Attanasio (1995), Merrigan and Normandin (1996) and Attanasio, Banks, Meghir and Weber (1999) all (indirectly) point to theory and evidence for various other disaggregations that may result in different marginal propensities to consume—for example, households with different educational attainments, comprising different numbers of income earners, etc.

(4) A 401(k) plan allows employees to save and invest for their own retirement.

(5) To make such analysis possible we need to make an assumption about the distribution of share ownership within the different categories. Here we assume it is linearly distributed, though our results are not particularly sensitive to other assumptions regarding the distribution.

Table C
Percentage of equity holders, by income group

Germany (a)

Income group (€) (b)	Percentage of population	1997	2000
<1,300	21.1	1.7	3.0
1,300–2,050	29.4	3.9	5.8
2,050–3,050	33.1	8.3	11.4
3,050–4,100	9.8	14.6	20.4
>4,100	6.6	18.7	25.9
Total	**100.0**	**6.2**	**9.8**

France

Income group (€) (b)	Percentage of population (c)	1997	2000
<1,500	32.3	6.1	7.4
1,500–2,300	32.2	10.1	11.2
2,300–3,050	18.3	15.5	14.3
3,050–3,800	8.4	19.1	21.1
>3,800	8.5	32.6	31.4
Total	**100.0**	**12.0**	**12.7**

Italy

Income group (€) (b)	Percentage of population	1995	1998
<850	17.6	0.2	0.6
850–1,700	33.4	2.0	2.4
1,700–2,600	22.9	5.0	5.7
2,600–3,450	13.5	10.3	11.9
>3,450	12.6	21.7	31.7
Total	**100.0**	**5.0**	**7.8**

United Kingdom (d)

Income group (e)	Percentage of population	1993	1996
Lowest quartile	25.0	8.2	13.4
Middle-lower quartile	25.0	14.8	15.6
Middle-upper quartile	25.0	27.0	26.5
Highest quartile	25.0	41.3	37.9
Total	**100.0**	**22.8**	**23.3**

United States

Income group (US$) (b)	Percentage of population	1995	1998
<850	12.6	2.3	3.8
850–2,100	24.8	8.4	7.2
2,100–4,150	28.8	13.9	17.7
4,150–8,350	25.2	24.7	27.7
>8,350	8.6	43.6	56.6
Total	**100.0**	**15.2**	**19.2**

Notes: The table shows the proportion of each income group holding direct equities excluding mutual funds—for example, in 1997, 1.7% of all German households earning less than €1,300 per month owned direct equities excluding mutual funds. Percentage of population in each respective income group for latest available year.

Sources: Deutsches Aktieninstitut, Deutsche Bundesbank, Banque de France/Paris Bourse, Banca d'Italia, Institute for Fiscal Studies, and Federal Reserve Board.

(a) German data include employee share ownership schemes.
(b) Income groups by monthly net income, rounded to nearest unit of 50.
(c) Total does not sum exactly due to rounding.
(d) Includes unit trusts, PEPs and government gilts.
(e) UK data by income quartiles, based on net household income.

equities in Germany and Italy than in France, the United Kingdom and the United States, they are correspondingly less able to use equity wealth to insulate their consumption from income fluctuations.

These data suggest that the increased stock market capitalisation shown in Table A and the increases in equity prices shown in Chart 1 are unlikely yet to have had much direct impact on the aggregate marginal propensity to consume from income for EU3 consumers, since the great majority do not own equity and are therefore unable to use equities to ease liquidity constraints. We are not able, however, to provide any quantitative assessment of the effect on aggregate consumption using these data.

The distribution of equity wealth in each country may also affect the economy's marginal propensity to consume from financial wealth. It is plausible that low-income earners who own equity could face liquidity constraints. They could sell the shares to ease these constraints. However, it is likely that households prefer to maintain a stock of precautionary savings to guard against unforeseen problems. Yet when the value of that stock rises above a particular threshold level, they may feel able to finance spending from it. So it is possible for households to hold wealth and be liquidity constrained at the same time. Rising equity prices could also raise the consumption of equity-owning households by providing extra collateral and therefore reducing their borrowing costs.

Table D shows that the distribution of equity holders among different income brackets is particularly skewed

Table D
Savings account holders and equity holders, by income group

France (2000)

Income group (€) (a)	Percentage of population (b)	Savings account	Equity holders
<1,500	32.3	72.3	7.4
1,500–2,300	32.2	79.2	11.2
2,300–3,050	18.3	80.1	14.3
3,050–3,800	8.4	81.2	21.1
>3,800	8.5	83.0	31.4
Total	**100.0**	**77.5**	**12.7**

Italy (1998)

Income group (€) (a)	Percentage of population	Bank deposits	Equity holders
<850	17.6	47.5	0.6
850–1,700	33.4	79.6	2.4
1,700–2,600	22.9	93.5	5.7
2,600–3,450	13.5	98.0	11.9
>3,450	12.6	99.7	31.7
Total	**100.0**	**82.1**	**7.8**

United Kingdom (1996) (c)

Income group (d)	Percentage of population	Interest-bearing account	Equity holders
Lowest quartile	25.0	44.0	13.4
Middle-lower quartile	25.0	55.2	15.6
Middle-upper quartile	25.0	66.2	26.5
Highest quartile	25.0	76.1	37.9
Total	**100.0**	**60.4**	**23.3**

United States (1998)

Income group (US$) (a)	Percentage of population	Transactions account	Equity holders
<850	12.6	61.9	3.8
850–2,100	24.8	86.5	7.2
2,100–4,150	28.8	95.8	17.7
4,150–8,350	25.2	99.3	27.7
>8,350	8.6	100.0	56.6
Total	**100.0**	**90.5**	**19.2**

Notes: The table shows the proportion of each income group that has a bank account of some description and the proportion holding direct equities excluding mutual funds—for example, 72.3% of all French households earning less than €1,500 per month had a savings account in 2000, compared with 6.4% of the same group that owned direct equities excluding mutual funds. German data not available.

Sources: Banque de France/Paris Bourse, Banca d'Italia, Institute for Fiscal Studies, and Federal Reserve Board.

(a) Income groups by monthly net income, rounded to nearest unit of 50.
(b) Total does not sum exactly due to rounding.
(c) Includes unit trusts, PEPs and government gilts.
(d) UK data by income quartiles, based on net household income.

towards higher-income groups, relative to different asset categories such as savings accounts.[1]

Equity wealth and household age

Recent empirical research[2] suggests that the young may have a relatively high marginal propensity to consume from income; they have a tendency to let consumption track income very closely thus avoiding the accumulation of excessive amounts of debt.[3]

Table E shows equity holdings by different age groups. Again, data are not directly comparable across countries and in some cases are not for the same time period. Nevertheless, a key stylised fact from the data is that considerably fewer EU3 citizens under the age of 40 hold equities relative to their counterparts in the United Kingdom and the United States. That provides one possible reason for the lower marginal propensity to consume out of equity wealth in the EU3. The EU3 results for the under-40s are relatively similar to each other, in contrast to those above that showed that a greater percentage of French lower and middle-income groups owned equities than did their German counterparts.

In summary, these data show that a markedly smaller proportion of EU3 households hold equities relative to those in the United Kingdom and the United States. Furthermore, the demographic distribution of share ownership suggests that the marginal propensity to consume out of financial wealth may be lower in the EU3 than in the United Kingdom and the United States, where a greater proportion of low-income and young households own equity. The data suggest that, on average, low-income households in Italy and Germany are less than half as likely to hold equities than their UK and US counterparts. Low-income households in France are more likely to hold equity than their Italian and German counterparts, but equity ownership in France is relatively highly skewed towards older households.

Econometric results

We present the results of econometric work carried out on German and French data. The equations estimated

Table E
Percentage of equity holders, by age group

Germany (a)

Age group	Percentage of population (b)	1997	2000
14–19	6.7	1.0	2.4
20–29	11.9	4.4	7.6
30–39	17.2	7.3	13.5
40–49	14.5	8.7	11.7
50–59	12.2	8.7	13.1
≥60	23.0	4.9	7.2
Total		**6.2**	**9.8**

France

Age group	Percentage of population (b)	1997	2000
15–24	13.0	3.7	3.3
25–34	14.5	7.9	9.1
35–44	14.6	10.2	11.6
45–54	13.9	14.6	17.6
55–64	9.2	17.9	16.9
≥65	15.9	19.2	18.3
Total		**12.0**	**12.7**

Italy

Age group	Percentage of population (b) (c)	1995	1998
<30	22.2	2.1	3.9
31–40	15.5	5.7	9.8
41–50	13.5	5.6	7.9
51–65	17.9	6.6	9.5
>65	16.3	2.9	5.5
Total		**5.0**	**7.8**

United Kingdom (d)

Age group	Percentage of population (b)	1993	1996
25–34	16.0	12.8	12.9
35–49	20.7	24.1	21.6
50–64	15.6	30.4	30.2
≥65	15.7	24.7	31.2
Total		**n.a.**	**n.a.**

United States

Age group	Percentage of population	1995	1998
<35	23.3	10.8	13.1
35–44	23.3	14.6	18.9
45–54	19.2	17.7	22.6
55–64	12.8	15.0	25.0
65–74	11.2	18.6	21.0
≥75	10.2	19.7	18.0
Total		**15.2**	**19.2**

n.a. = not available.

Notes: The table shows the proportion of each age group that holds direct equities excluding mutual funds—for example, 1.0% of all German households aged between 14 and 19 in 1997 owned direct equities excluding mutual funds. Percentage of population in each respective age group for latest available year.

Sources: Deutsches Aktieninstitut, Deutsche Bundesbank, Banque de France/Paris Bourse, Banca d'Italia, Institute for Fiscal Studies, Federal Reserve Board, and Eurostat.

(a) German data include employee share ownership schemes.
(b) Data obtained from Eurostat, and do not necessarily correspond to sample groups from national sources.
(c) The percentage of the Italian population for the lowest age bracket (ie ≤30) is calculated on the basis of Eurostat data for those aged between 15 and 30.
(d) Includes unit trusts, PEPs and government gilts.

are of a form that maps short-run changes in consumption to changes in real disposable income, changes in financial wealth and (for Germany) real interest rates.[4] The long run is characterised by a constant consumption to wealth ratio. Charts 2 and 3

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(1) As with Table C, the data are not directly comparable across different countries.
(2) See, for example, Hubbard, Skinner and Zeldes (1994), Attanasio, Banks, Meghir and Weber (1999), and Gourinchas and Parker (2001).
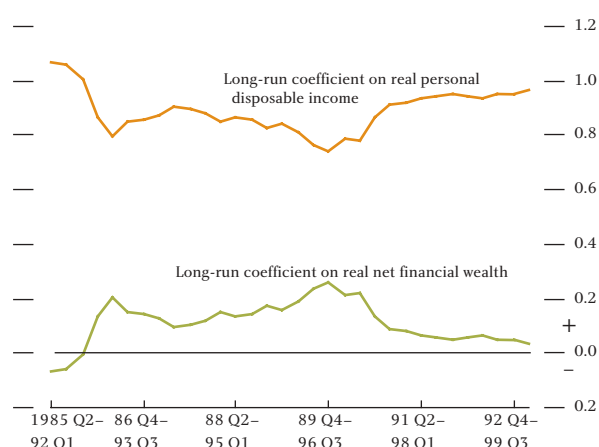(3) Such empirical results are different from predictions based on the version of the PIH with finitely lived agents and no bequest motive, when households' marginal propensities to consume increase with age because younger households have longer time horizons than older households.
(4) In practice, our econometric results could be sensitive to the precise definition of personal disposable income used. We conducted sensitivity tests on German data using alternative specifications of disposable income that excluded income derived from ownership of wealth. In this particular case, such alternative specifications made little difference to our results. We use the instrumental-variable techniques suggested by Pesaran, Shin and Smith (1996).
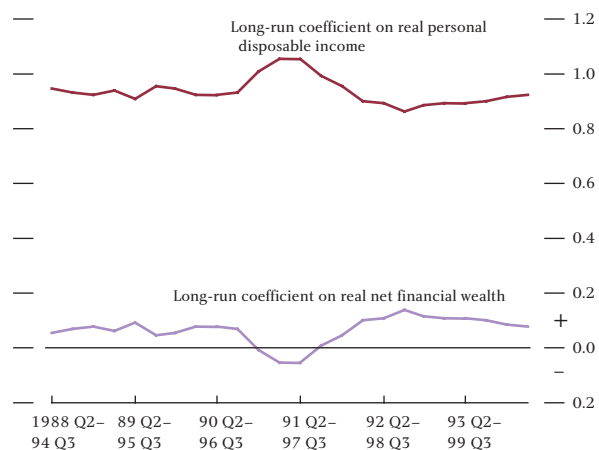
show rolling estimates of the long-run coefficients on real financial wealth and real disposable income. We calculate the marginal propensity to consume out of financial wealth by multiplying our estimates of the long-run coefficients on real financial wealth by the consumption to wealth ratio. Consistent data are available only over a relatively short period, covering 50–60 quarters, limiting the strength of inferences that may be drawn from this econometric work.[1]

Chart 2
Germany: rolling long-run coefficients

Chart 3
France: rolling long-run coefficients

The long-run coefficients on wealth and income are not very stable over time, particularly in France, where the uncertainty surrounding these estimates prevents us from drawing firm conclusions regarding changes in the strength of wealth effects.[2] In Germany there is also considerable uncertainty around the estimates, yet there is some indication that both the long-run coefficient on wealth and the marginal propensity to consume from financial wealth may have fallen over the second half of the 1990s. The main inference we draw from these estimates, however, is that our econometric results do not provide support for the proposition that changes in the pattern of wealth holdings may have led to increasing wealth effects in the larger euro-area economies.

For the entire sample, Table F shows estimates of the marginal propensity to consume from financial wealth in France, Germany and the United States, based on estimates of the long-run coefficient for the entire sample and the consumption to wealth ratio at the end of the period. There is some tentative evidence that the marginal propensity to consume out of wealth may be lower in Germany and France than in the United States.[3] The results would be consistent with our earlier analysis of the distribution of equity holdings by age and income group. There is, however, considerable uncertainty surrounding our results as the equations are estimated for a period of structural change, including, for example, German economic and monetary union.

Table F
Consumption out of wealth

	Long-run coefficient on real financial wealth	Consumption to wealth ratio (a)	Marginal propensity to consume out of financial wealth (b)
Germany	0.05	0.12	0.5
France	0.10	0.06	0.6
United States	0.16	0.05	0.8

Notes: German estimation period 1985 Q3–1999 Q4.
French estimation period 1988 Q1–2000 Q2.
For US estimation, see Bank of England (2000). Data for France and Germany exclude housing wealth. In contrast, US data include housing wealth, which may blur comparison.

(a) French and German consumption to wealth ratio in 2000 Q2.
(b) The marginal propensity to consume out of financial wealth (per cent) is equal to the estimated long-run coefficient on real financial wealth (ie the first column) times the consumption to wealth ratio (ie the second column) times 100 (subject to roundings). For example, in Germany an extra 0.5 cents is consumed for each extra euro of financial wealth.

Conclusion

A number of macroeconometric models show weaker equity wealth effects in the EU3 relative to the United States. Demographic factors may be important in explaining cross-country differences in consumption patterns, particularly through their effect on the marginal propensity to consume from income and wealth. In the EU3 equity wealth is relatively skewed

(1) This limitation arises from changes in data definitions, in particular following the introduction of the latest European System of Accounts (ESA95).
(2) As the series are not stationary, the coefficients are not normally distributed even in large samples and the resulting standard error bands cannot be used to calculate confidence intervals.
(3) See Bank of England (2000) for summary of results of US analyses. Also, the econometric results in Boone, Giorno and Richardson (1998) suggest a marginal propensity to consume out of equity wealth in a range of 4%–7% for the United States.

towards high-income and 'middle-aged' households, and the great majority of households hold insufficient equities to be able to use their equity wealth to dampen the impact of income changes on consumption. We have also offered tentative though empirically untested explanations as to why our measures of the marginal propensity to consume from equity wealth may be lower in the EU3 than in the United States.

We also looked for evidence that the impact of wealth on consumption may have varied over time in the EU3. The proportion of equity holdings in households' financial assets has risen over the course of the 1990s in the EU3, yet share ownership is still relatively uncommon among all but high-income earners. So there is limited scope for consumers to use equity wealth to ease liquidity constraints and this may have dampened any impact of increased share ownership on the marginal propensity to consume from income. Our econometric estimates do not provide a firm indication that the responsiveness of aggregate consumption to income and wealth in the EU3 has changed during the 1990s.

References

Attanasio, O P (1995), 'The intertemporal allocation of consumption: theory and evidence', *Carnegie-Rochester Conference Series on Public Policy*, Vol. 41, pages 39–90.

Attanasio, O P (1999), 'Consumption', in Taylor, J B and Woodford, M, (eds), *Handbook of macroeconomics*, North Holland, pages 741–1,228.

Attanasio, O P, Banks, J, Meghir, C and Weber, G (1999), 'Humps and bumps in lifetime consumption', *Journal of Business and Economic Statistics*, January, Vol. 17(1), pages 22–35.

Bank of England (2000), 'Wealth effects on consumption in the United States', *Quarterly Bulletin*, November, Vol. 40(4), pages 348–50.

Banks, J and Tanner, S (1999), *Household saving in the UK*, Institute for Fiscal Studies, Bell and Bain Ltd.

Barrell, R, Pain, N, te Velde, D, Holland, D and Hubert, F (1999), 'The world economy', *National Institute Economic Review*, July, Vol. 169, pages 38–54.

Barro, R (1974), 'Are Government bonds net wealth?', *Journal of Political Economy*, Vol. 82, pages 1,095–117.

Blundell, R, Browning, M and Meghir, C (1994), 'Consumer demand and the life-cycle allocation of household expenditures', *Review of Economic Studies*, Vol. 61, pages 57–80.

Boone, L, Giorno, C and Richardson, P (1998), 'Stock market fluctuations and consumption behaviour: some recent evidence', *OECD Economics Department Working Paper,* No. 208.

Byrne, J and Davis, E P (2001), 'Disaggregate wealth and aggregate consumption: as investigation of empirical relationships for the G7', *National Institute of Economic and Social Research Discussion Paper,* No. 180.

Deaton, A (1992), *Understanding consumption*, Oxford Clarendon Press.

Gourinchas, P-O and Parker, J A (2001), 'The empirical importance of precautionary saving', *National Bureau of Economic Research Working Paper,* No. W8107.

Hubbard, G, Skinner, J S and Zeldes, S P (1994), 'The importance of precautionary motives for explaining individual and aggregate saving', *Carnegie-Rochester Conference Series on Public Policy*, Vol. 40, pages 59–125.

Merrigan, P and Normandin, M (1996), 'Precautionary saving motives: an assessment from UK time series of cross-sections', *Economic Journal*, September, Vol. 106, pages 1,193–208.

Muellbauer, J (1994), 'The assessment: consumer expenditure', *Oxford Review of Economic Policy*, Vol. 10(2), Summer, pages 1–41.

Poterba, J M (2000), 'Stock market wealth and consumption', *Journal of Economic Perspectives*, Vol. 14(2), Spring, pages 99–118.

Pesaran, M H, Shin, Y and Smith, R J (1996), 'Testing for the existence of a long run relationship', *Department of Applied Economics Working Paper,* No. 9622, University of Cambridge.

Thaler, R H (1990), 'Anomalies—saving, fungibility, and mental accounts', *Journal of Economic Perspectives*, Vol. 4(1), Winter, pages 193–205.