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THE RELEVANCE OF MACROECONOMICS IN OECD COUNTRIES
Adrian Blundell-Wignall
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THE RELEVANCE OF MACROECONOMICS
IN OECD COUNTRIES

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THE RELEVANCE OF MACROECONOMICS IN OECD COUNTRIES

Introduction

"Macroeconomics" is a field divided amongst schools: monetarists, Keynesians, new classical, new Keynesian and no doubt others. Disagreements abound, particularly since it is a science that pretends to be the basis on which macro policy decisions are made.

The OECD is an institution where policy makers meet to discuss, amongst other things, discretionary monetary and fiscal policy. This world is, of course, far from that of the macro textbooks. Much of macro theory is couched in terms of equilibrium analysis, including assumptions such as:

- rational agents with forward-looking expectations;
- perfect and freely available information; and
- well-functioning capital markets in which agents are free from liquidity constraints.

Often, though not always, there is little room for active monetary and fiscal policy in such models. It is argued by some schools, for example, that policy should be driven by transparent rules such as the constant growth of the nominal money supply. The best things that governments can do is to deregulate markets, hence ensuring they work efficiently, and set rules against which macro policy makers can be held accountable. If we must have them, let's try to stop them from "messing up" too much. However, as I will argue later, unqualified faith in the smooth working of macroeconomics cannot really be justified by the recent performance of OECD countries.
Many famous academic macro theorists visited the OECD while I was there, and they were always asked about advice they might have for addressing real world problems. This situation too often proved to be rather like that of the traveller who, thinking himself lost, sought reassuring directions from a villager only to be told that: "If he wanted to go to London, he should not start from here". But I am happy to say this was not always the case. An increasing number of macro theorists are trying to modify ideas about macroeconomics as the empirical evidence on its various hypotheses builds up.

In my talk today, therefore, I will take the issue of "relevance" of macroeconomics to mean the relative usefulness of different macroeconomic ideas for policy making. What does the empirical evidence say and how should policy makers interpret it? There are, of course, many different empirical macroeconomic issues. Even limiting myself to a subset of these will risk confusing the listener by squeezing too many notions into a single paper. Peter F. Drucker once said that good ideas should always have one moving part. To minimise this risk, therefore, let me state from the outset the one moving part -- or unifying theme -- in the empirical work we conducted at the OECD in recent years1. It is this. During the 1980s financial markets were liberalised in many, though not all, OECD countries, reducing liquidity constraints in the economy and increasing the role of markets in decision making. This single moving part has altered the relative importance of the different strands macroeconomic thinking -- those which should be embraced more closely and those which should be discarded.

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1 See Blundell-Wignall and Browne (1991) for a summary of all of these studies.
3.

I will first look at the some of the more straightforward implications of reduced liquidity constraints in OECD countries. Subsequently, I will discuss how the increased role of markets has combined with reduced liquidity constraints to produce some interesting challenges for both policy makers and academic theorists.

Financial liberalisation and liquidity constraints

The 1980s saw substantial liberalisation in financial and agency markets:

- **financial markets**: include markets for securities, equities and foreign exchange;

- **agency markets**: are markets for the services of those intermediaries such as banks, insurance companies and the like who act as agents for savers: collecting their savings and lending them to companies and households, whose projects the agent is supposed to monitor.

Both of these markets had been heavily constrained by:

- **powers regulations**: which were used to define the structure of financial systems — who could perform what services and whether certain financial products could be offered at all; and

- **rate/quantity regulations**: which limited the extent to which prices and quantities could adjust in those financial markets which were permitted to exist (interest ceilings, credit ceilings, capital controls and the like).
An economy with such institutionally-imposed constraints is in strong contrast to the classical world of fully-disseminated information, in which all prices are flexible. In the smoothly-functioning classical world:

- expenditure decisions are determined by expected wealth (permanent income) and relative prices; with perfect capital markets providing a link between the present and the future.

Financial regulations impose constraints on the optimising behaviour of the private sector and cause it to depart from this classical paradigm. In particular, liquidity constraints imply that agents may be unable to act on expectations of future wealth and relative prices, which would lead to the appearance of myopic behaviour.

You will immediately begin to see some of the implications for policy makers. In the constrained world, current income and current liquid wealth are more likely to be closely associated with spending decisions than permanent income and future expected wealth. There will be a strong role for fiscal policy in influencing aggregate demand, since it has a direct impact on current income. The money supply, as a major component of liquid wealth, is likely to have a close relationship with nominal demand. This is because liquid wealth in the form of accumulated money balances permits spending to diverge from income regardless of regulations on the financial system. By closely controlling the quantity of money in a regulated financial system authorities could reasonably hope to know where the economy was heading and how changes in monetary policy would influence that direction. Finally, since the quantity of liquidity is binding in this world, i.e. companies and household cannot always act on their
expectations, relative financial prices are likely to be less closely associated with (liquidity-constrained) expenditure decisions. Relative financial prices are therefore likely to be less useful as a guide to monetary policy.

To the extent that financial deregulation and innovation helps to reduce liquidity constraints, this should help to bring the classical dimension of behaviour more to the forefront.

Indeed, this leads to a testable proposition about the implications of financial liberalisation for aggregate demand. It is this:

-- the relative importance of (Keynesian) current or transitory income and permanent income as determinants of private spending should have altered systematically with the liberalisation process. Permanent income factors should become relatively more important over time in countries that have liberalised.

If this is true, it carries with it two corollaries that are of considerable interest for macro policy making:

i) that financial quantities, such as money, should be less closely linked with economic activity, since liquidity becomes much more broadly defined, as rate/quantity and powers regulations constraining financial institutions are removed. Monetary aggregates are, therefore, less relevant either as a control variable for monetary policy, or as an indicator for policy makers on where they see the economy heading; and
that relative financial prices should be much more closely linked with spending decisions — since the latter would no longer be liquidity constrained. This makes financial prices a relatively more important part of the monetary policy transmission mechanism, and certainly improves their indicator value for predicting future spending, activity and inflation (indicators which can be utilised in policy decision making).

Permanent versus transitory income

Let us first focus on transitory versus permanent income. Perhaps one of the best known results in consumption theory was Hall’s 1978 demonstration that the permanent income hypothesis — with expectations of future income formed rationally and with perfect capital markets — implies that consumption should follow a random walk. Current income would have nothing to do with consumption decisions. The intuition here is that income falls short of desired consumption in youth, exceeds it in middle age and again falls short of it in retirement. With perfect capital markets individuals should be able to smooth consumption relative to income by borrowing when they are young and lending in middle age. Current income doesn’t matter, so that changes in consumption really could only result from unforeseeable innovations in permanent income and wealth i.e. due to random shocks.

This proposition has been widely tested in the context of a nested model where Keynesian consumers consume from their current income and permanent income consumers follow the random walk. A fraction \( \lambda \) of consumers are assumed to be Keynesian and the rest are assumed to be permanent income consumers. The change in total consumption is:

\[ \frac{\Delta C}{\Delta t} = \lambda \frac{\Delta Y}{\Delta t} + (1 - \lambda) \frac{\Delta Y^p}{\Delta t} \]

\[ \Delta c_t = \mu + \lambda \Delta y_t + (1 - \lambda) e_t \]

In the literature, researchers have typically found, over sample periods dominated by the 1970s and early 1980s, that the permanent income theory is rejected by the data. Current spending is quite sensitive to current income. This finding implies that at least one of the maintained hypotheses of the theory is not valid. Either:

- consumers are myopic and don’t form their expectations about income rationally; or

- consumers are liquidity constrained, causing them to appear to be myopic, since they are unable to act on their expectations.

If imperfect capital markets were the main cause of the earlier failure of the permanent income theory, then financial liberalisation through the 1980s should, in principle, have made things look a lot better for it. Hence looking at the behaviour of the \( \lambda \) parameter over the 1960s, 1970s and 1980s should help to distinguish the liquidity constraints explanation from the myopia explanation. If \( \lambda \) declines, it is probably because liquidity constraints were reduced — since there is no reason for myopia, if it is a condition of household behaviour, to decline over time.

In carrying out these tests, it is helpful to bear in mind which countries in the OECD liberalised their financial markets seriously in the 1980s and which did not. We looked at the Big 7 OECD countries and Australia, and distinguished the Anglo-Saxon countries and Japan, who did liberalise, from the European
countries (Germany, France and Italy) who have maintained strong powers regulations to the early 1990s. The regulations in these latter countries were designed to ensure that regulated banks dominated the availability of liquidity in the economy.

When we tested to see whether \( \lambda \) declined over time in individual countries, we found evidence that it did in most of the liberalising countries -- the United States, Japan, Canada and Australia (but not the United Kingdom). The size of the parameter fell from one decade to the next, as did its significance. For the other countries, we found no significant evidence that \( \lambda \) had declined. What we could not show, however, was that the declines in \( \lambda \) in the liberalising countries were significant (using unit normal tests). This led us to pool the data.

Here we used a SUR estimator. We tested whether the data accepted the constraint that the \( \lambda \) parameter is identical across countries, and found that this was accepted for the United States, Japan, Canada and Australia (but not the United Kingdom). The results are shown in Table 1. These results say that the number of households which experienced liquidity constraints fell from 38 per cent in the 1960s, to 29 per cent in the 1970s to 14 per cent in the 1980s. In other words, the proportion of the population for which the permanent income theory applies has grown substantially with financial liberalisation -- and these changes are significant according to unit normal tests. The permanent income theory of macroeconomics appears to have become more relevant.

So far so good. The evidence was broadly consistent with declining liquidity constraints in most of the countries who liberalised. But what about the other two corollaries:
9.

-- that liquid assets such as money should be less useful in countries that liberalise; and

-- that relative financial prices should be more closely linked with private expenditure decisions, and hence be more important as indicators for, and in the transmission of, monetary policy.

Money-Income Relationships

Consider first the liquid component of private wealth -- money -- which used to be one of the few means by which expenditure was able to diverge from current income. The lessening of capital and credit market imperfections gives rise to numerous options for financing expenditure, and it also causes the distinctions between banks and other financial institutions to become blurred. Assets with characteristics similar to money multiply. In these circumstances, it is not evident that money, as the liquid component of current wealth, should have a close relationship with nominal demand. Corporations and households take advantage of the increased scope for liquidity management, and the increasing array of new financial products causes money demand functions to shift. This undermines the case for monetary targeting and the usefulness of money as an indicator.

This issue was looked at by first testing to see whether there was any long-run relationship between money and income. Structural change associated with financial liberalisation could be expected to cause long-run relationships to break down. The long-run relationship can be tested for directly with cointegration techniques. We also examined the short-run relationships between money and income with Vector Autoregression techniques. Changes in money should lead changes in income, and not the other way around (i.e. income leading money), if
the money supply matters in this short-run sense. The overall results for both sorts of tests are shown in Table 2. These show:

-- There is no long-run relationship with income for any narrow concept of money in any country.

-- US M2 and German M3 do exhibit a long-run relationship with income, but broad money concepts otherwise have no such a relationship in any other country.

\[ \Delta q_t = \alpha + \lambda \Delta y_t + (1 - \lambda) \varepsilon_t. \]

**TABLE 1**

<table>
<thead>
<tr>
<th></th>
<th>1960s</th>
<th>1970s</th>
<th>1980s</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States</strong></td>
<td>0.004 (0.001)</td>
<td>0.003 (0.001)</td>
<td>0.004 (0.001)</td>
</tr>
<tr>
<td><strong>Japan</strong></td>
<td>0.010 (0.002)</td>
<td>0.008 (0.002)</td>
<td>0.005 (0.001)</td>
</tr>
<tr>
<td><strong>Canada</strong></td>
<td>0.003 (0.002)</td>
<td>0.004 (0.002)</td>
<td>0.004 (0.002)</td>
</tr>
<tr>
<td><strong>Australia</strong></td>
<td>0.004 (0.001)</td>
<td>0.003 (0.004)</td>
<td>0.002 (0.001)</td>
</tr>
<tr>
<td><strong>( \lambda )</strong></td>
<td>0.38 (0.06)</td>
<td>0.29 (0.05)</td>
<td>0.14 (0.05)</td>
</tr>
</tbody>
</table>

* Sure estimation; instrumental variables for income; standard errors in parentheses.
### TABLE 2

Money/Income Relationships

<table>
<thead>
<tr>
<th></th>
<th>Narrow Money</th>
<th>Broader Money</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>United States (M1, M2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td>- income leads money</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td>Japan (M1, M2 + CD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>- income leads money</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td><strong>United Kingdom (M1, M3)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>- income leads money</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td><strong>Canada (M1, M2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
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<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>YES</td>
<td>YES</td>
</tr>
<tr>
<td>- income leads money</td>
<td>YES</td>
<td></td>
</tr>
<tr>
<td><strong>Germany (CBM, M3)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>YES</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>- income leads money</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td><strong>Italy (M1, M2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>- income leads money</td>
<td>NO</td>
<td></td>
</tr>
<tr>
<td><strong>France (M1, M2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Run Relationships (cointegration)</td>
<td>NO</td>
<td>NO</td>
</tr>
<tr>
<td>Short-Run Relationships 1980s</td>
<td></td>
<td></td>
</tr>
<tr>
<td>- money leads income</td>
<td>YES</td>
<td>NO</td>
</tr>
<tr>
<td>- income leads money</td>
<td>NO</td>
<td></td>
</tr>
</tbody>
</table>

**Source:** Blundell-Wignall, Browne and Manasse (1990) for full sets of results.
-- With regard to short-run relationships in the liberalising countries in the 1980s, there was not one single example of money leading income without income also leading money.

-- On the other hand, in the countries that deliberately ensured the dominance of banks in the supply of liquidity through powers regulations (the Europeans), broad money always unambiguously led income in the short-run.

In sum, the short-run results are broadly consistent with a reduced role for money in countries where financial liberalisation has proceeded quickly, in contrast to the stronger role of money in countries where regulations are still binding. Long-run relationships between money and income are hard to come by in all countries.

Financial prices

The second corollary of financial liberalisation reducing liquidity constraints and increasing the role of markets was that financial prices should become more closely linked with macroeconomic outcomes. This is a complex issue. But the basic point can be illustrated at this stage with one well-known component of the macroeconomic tool kit: the expectations theory of the term structure of interest rates. This states that, under certain assumptions, long-term interest rates are the average of expected future short rates. The intuition is this. If markets are not segmented and affected by regulations, and expectations are formed rationally, then investing in an n-period security once, should have the same expected return as investing in an l-period security n times. Most early papers have rejected this theory. But more recently, studies have begun to show that the data is becoming much kinder to the expectations theory.
A weak test of the expectations theory is that short-term interest rates should be cointegrated (have a long-run average relationship) with long-term rates. We tested this, and confirmed that over the 1980s it was supported by the data in most countries. If the expectations theory has merit, then the behaviour of the term structure should also provide information about future activity and inflation. This is because two factors influence its slope:

-- the liquidity effect, whereby a tightening of policy, say, raises current short rates; and

-- the Fisher effect, whereby a credible tightening that is expected to be anti-inflationary creates expectations of lower short rates in the future as activity and inflation decline -- the inflation premium in interest rates is reduced.

Such a tightening should lead to a decline in the slope of the yield curve, to a flat or inverted position, implying an expected decline in economic activity and inflation. Conversely, an easing of policy that causes the yield curve to steepen sharply should predict a recovery in activity, or a possible pick-up of inflation. The normal slightly upward sloping yield curve would predict no important cyclical changes.

Table 3 shows results of simple vector autoregression results for the 1970s and 1980s -- the approach asks whether information contained in the yield curve improve forecasts for nominal GNP and inflation over and above any predictability based on their own past behaviour. The results suggest that over the 1970s there was virtually no information in the yield curve useful for forecasting activity and inflation. Over the full sample, and in the 1980s alone,
TABLE 3
THE TERM STRUCTURE AS A LEADING INDICATOR: VAR EVIDENCE

**NOMINAL GDP RESULTS**

\[
\Delta \ln GDP_t = \text{Const.} + \sum_{i=1}^{12} \alpha_i \Delta \ln GDP_{t-1} + \sum_{i=1}^{12} \beta_i (R_{t-1} - r_{t-1})
\]

<table>
<thead>
<tr>
<th></th>
<th>1970s sample (joint significance)</th>
<th>Full sample (joint significance)</th>
<th>Most recent sample (joint significance)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(\alpha_i)</td>
<td>(\beta_i)</td>
<td>(\alpha_i)</td>
<td>(\beta_i)</td>
</tr>
<tr>
<td>United States</td>
<td>**</td>
<td>-</td>
<td>**</td>
</tr>
<tr>
<td>Japan</td>
<td>**</td>
<td>-</td>
<td>**</td>
</tr>
<tr>
<td>Germany</td>
<td>**</td>
<td>-</td>
<td>**</td>
</tr>
<tr>
<td>France</td>
<td>**</td>
<td>-</td>
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<tr>
<td>Italy</td>
<td>**</td>
<td>-</td>
<td>**</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>**</td>
<td>-</td>
<td>**</td>
</tr>
<tr>
<td>Canada</td>
<td>**</td>
<td>-</td>
<td>**</td>
</tr>
</tbody>
</table>

**INFLATION RESULTS**

\[
\Delta \ln PGDP_t = \text{Const.} + \sum_{i=1}^{12} \alpha_i \Delta \ln PGDP_{t-1} + \sum_{i=1}^{12} \beta_i (R_{t-1} - r_{t-1})
\]

<table>
<thead>
<tr>
<th></th>
<th>(\alpha_i)</th>
<th>(\beta_i)</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>**</td>
<td>-</td>
</tr>
<tr>
<td>Japan</td>
<td>**</td>
<td>**</td>
</tr>
<tr>
<td>Germany</td>
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<td>France</td>
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<td>Italy</td>
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<tr>
<td>United Kingdom</td>
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<tr>
<td>Canada</td>
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<td>**</td>
</tr>
</tbody>
</table>

**Note:** R is a 10 year government security rate and r a 3-month Treasury bill rate.
The full sample is 1970Q1-1990Q1 for the United States, Germany and Canada, 1972Q1-1990Q1 for Japan, 1973Q1-1990Q1 for France, 1974Q1-1990Q1 for Italy and 1972Q1-1990Q1 for the United Kingdom. In all cases, 1988Q1 is the first observation for the recent sample.
The null hypothesis is that the parameters \(\alpha_i\) or \(\beta_i\) are jointly insignificantly different from zero which is tested using an F test.

\* indicates rejection of the null hypothesis at the 5 per cent level.
\** indicates rejection of the null hypothesis at the 10 per cent level.
- Indicates acceptance of the null hypothesis.
this picture changes quite dramatically. The yield curve becomes a very useful predictor of future activity and inflation. These developments are entirely consistent with financial liberalisation improving the functioning of capital markets.

**Summary of Relevance Thus Far**

In reviewing these findings it seems clear that financial liberalisation is helping to bring aspects of classical macroeconomics more to the forefront, and there are useful lessons in this for policy makers. Some of these lessons include:

-- that aggregate demand will depend more on the behaviour of financial prices, which operate via wealth effects and intertemporal substitution, than on any shifts in liquidity constraints that can be manipulated easily by the authorities;

-- since private sector expectations play a more important role in financial price determination, as the role of markets is increased, monetary policy based on the desire to achieve stable and low inflation is more likely to keep these expectations in line with the objectives of policy than is an ambivalent attitude to inflation. In the disinflation phase, for example, a temporary rise in interest rates that is expected to be reversed would hardly lead to important wealth effects and intertemporal substitution -- the delaying of consumption until later. Consumption smoothing implies little change in behaviour if policy is thought to have only a temporary short-run focus;

-- that stable policy cannot be framed in terms of any simple rule for the money supply. Since inflation in the price of goods and services is inert (unlike an asset price), i.e. what is happening today influences the inflation rate in
18 month's time, successful low-inflation policy requires the authorities to
monitor a variety of indicators that give useful information about the likely
future path of inflation. Amongst these, financial prices such as the yield
curve are likely to be much more useful than they were in a
liquidity-constrained environment; and

-- fiscal policy may be a less useful tool for demand management. This is
because transitory income is less relevant for spending decisions -- the
proportion of the population who are liquidity constrained has declined.
Thus, for example, if OECD governments were to cut spending on education
or health, a majority of households would be forced to use capital markets to
ensure they did not miss out on these services.

But one should not jump to the conclusion that awareness of these lessons
makes it easy to run policy in a financially liberalised world.

I have mentioned that the process of financial liberalisation has increased the
role of market forces in the allocation of resources. This is a highly favourable
development compared to the world of misallocation under regulation -- a
world where markets did not clear through price adjustment. No sensible
economist would ever yearn for a return to the regulations of the past.
Nevertheless, financial markets are essentially an auction -- and in auction
markets prices are determined instantaneously as traders use information
available to them to form expectations about the uncertain future. These
expectations dominate price determination, raising two important questions.
First, do markets always do this job well? Second, since agency markets lend on
the basis of collateral, the value of which is determined in auction markets, has
their job been complicated by the increased role of markets? Let me touch on
each of these in turn.
Asset markets and asset price inflation

The standard against which to assess the performance of asset markets is the efficient markets hypothesis. Market efficiency in this sense means that arbitrage ensures there is no unexploited information that would permit speculation to produce more than a normal rate of return on the funds employed\(^3\). Cutler, Poterba and Summers (1990) in an important article showed that this hypothesis did not hold in almost all auction markets. They looked at everything they could lay their hands on — equity and bond markets, house prices, the prices of various collectables, exchange rates and the price of gold. They found there were excess returns available in all of these markets, which were positively serially correlated at high frequency and negatively correlated at longer horizons. These patterns emerged repeatedly in their sample, and their pervasive nature was taken to imply that they were inherent features of the speculative process.

The rise of the stock market to October 1987 is a classic example. The current price is supposed to reflect fundamentals. The efficient markets hypothesis suggests that this is the present discounted value of expected future dividends. The market rose and rose in a significant asset price inflation for a number of years and then fell 20 to 35 per cent in various countries right across the board. There was no announcement of significant negative economic news at the time.

For the exchange rate, the efficient markets hypothesis suggests that the forward rate should be an unbiased predictor of the future spot rate. This test, when applied to real world data, unanimously rejects efficiency. Here a celebrated case

\(^3\) This part of the OECD project was based mainly on the works of consultants, Miller and Weller (1991).
was the US dollar in the first half of the 1980s, which sold consistently at a forward discount vis-a-vis the DM, while it was continuously appreciating for a half a decade.

For the property market, efficient prices should reflect the present discounted value of rental prices. In many countries that liberalised their financial markets in the 1980s property values, as with equities, inflated significantly beyond levels that could be justified by such fundamentals. In Japan, for example, this process seemed neverending, as values reached astronomic heights. They have only recently subsided.

Standard macro/finance theories, then have performed very poorly in explaining financial price behaviour in the real world. New efforts to inject realism into the theories is progressing -- though there is by no means any consensus. New theories to explain the observed behaviour of asset prices appeal to the asymmetric distribution of information in these unshackled markets. Some participants base their decisions on information about future fundamentals. Others base their asset demands on the extrapolation of recent trends in prices – bandwagon behaviour, noise traders, feedback rules, etc. Such asymmetries in the use of information on the part of asset market participants can be used to explain the observed phenomena of cumulative deviations of prices from fundamentals for sustained periods, with fundamentals dominating only in the longer run.

These findings suggest that while asset price developments may contain useful information about the future path of economies, not too much emphasis should be placed on volatile short-run movements. However, when these movements are sustained, such that they may be described as asset price “inflation” or
“deflation”, policy makers would do well to take note of them. Such episodes risk the economy adjusting to asset prices rather than the other way round -- asset prices adjusting to “fundamentals” concerning the economy.

Agency markets and information problems

Let me also touch on another aspect of giving markets greater sway -- the performance of agency markets under financial liberalisation. Here once again macroeconomics is going to have to deal with the recurring theme of informational asymmetries.

Lenders need information about the expected returns from borrowers projects. This is their important monitoring function I mentioned earlier. Banks rely on the age-old economic principle that interest rate margins reflect risk of default, and that the less profitable projects, at the margin, drop out. However, the lender often finds it hard to distinguish borrowers' credit quality and, under circumstances of asymmetric information, adverse selection problems may arise. As interest rates rise, it is the risk-averse investors who may withdraw from the pool of potential borrowers, so that the average quality of borrowers on the financial intermediaries books may actually decline (borrowers willing to pay high interest rates may be worse credit risks). Attempts to allocate credit by raising interest rate margins may simply increase the probability of defaults. Information asymmetries in the form of moral hazard problems also arise since, once a loan is advanced, the borrower cannot control the borrowers actions directly. As interest rates rise, borrowers who were previously good risks may undertake projects with lower probabilities of success, but higher returns when successful. They will plough money into the solar-powered toothbrush that

4 This part of the OECD project was based partly on the work of a consultant, Driscoll (1991).
works in the dark, borrowing on the expectation of high future returns if it actually works. Limited liability companies with high potential return but high risk projects have the incentive to borrow for riskier projects as the cost of finance rises — if they play and win they are rich, if they fail they just walk away from the loan and a bad debt emerges. The bank may not be well placed to assess the projections of future profits from solar-powered toothbrushes.

Moral hazard and adverse selection are often referred to as agency costs, as they arise from the separation of lender and borrower in the debt contract. Macroeconomic theory has tried to deal with optimal behaviour of the agent in the face of agency costs. Stiglitz and Weiss show that agents should respond by rationing credit to maximise expected returns when they are aware that they are faced with serious information asymmetries. But the experience of banks in a number of financially-liberalised economies in the 1980s has shown itself to be very far from this ideal. In circumstances of rising asset prices and collateral values in the 1980s, banks in a number of OECD countries, seemed to be blissfully unaware of the algebra of Stiglitz and Weiss. Bank behaviour seemed to be more akin to herd instincts than to profit maximisation subject to informational constraints. First, they all lent to the LDCs leading up to the third world debt crisis. Then they all ran towards leveraged buyouts. Then they all decided that the commercial property market was the way to go. Now they are all scurrying back to the residential housing market and relationship banking with companies — “back to basics”.

The general principle that macroeconomists need to account for in the behaviour of intermediaries is not so much one of profit maximisation, but rather the fear of looking ridiculous. If all the banks are lending in a certain way, and it proves to be profitable, then I will look pretty silly in the market if I’m the only one who didn’t join in. On the other hand, if I do join in and the lending
strategy turns out to be unprofitable, then we will all be able to point to the others and say, "well, after all, we were all doing it, so don’t blame me". The incentive to follow the herd is very strong indeed.

The combination of these factors has proved to be a problem in the countries which liberalised earliest -- United States, Japan, the United Kingdom, Australia, some Scandinavian countries and New Zealand. Adverse selection has resulted in a deterioration of banks balance sheets, as higher quality blue chip borrowers have turned increasingly toward direct borrowing in capital markets. The banks are left with the solar-powered toothbrush inventors and the local panel beaters. At the same time increased competition unleashed by liberalisation squeezes profit margins, and incentives arise to increase turnover. Given the herd-like behaviour of banks in chasing business in this environment, it is not difficult to see how financial fragility problems arise.

Asset price inflation increases collateral value for loans and, as prices continue to rise, the expectation of capital gains can lead to a borrowing/lending interaction that feeds on itself.

- Commercial real estate in the United States is a good example;
- the rise in equity prices and property values in Japan is another;
- the house price boom in the United Kingdom still another.

The point is that these cycles in asset prices and borrowing present a serious problem for macroeconomics. They return us to the issue I mentioned earlier, of whether asset prices adjust to the economy (what economists like to call fundamentals) or whether the economy ends up adjusting to asset prices.
I will return to this issue when summing up at the end. But before doing that, let me touch on one final area in which financial liberalisation has altered the relevance of macroeconomic ideas.

Savings/investment imbalances and the real exchange rate

This last important area concerns savings investment imbalances and capital flows between countries. Financial liberalisation has had an international dimension – the globalisation of world financial markets. This began with the removal of capital controls in most major countries in the early 1980s, and has been augmented since by powers deregulation. For example, major Japanese insurance companies are allowed much greater flexibility in their holdings of foreign assets these days.

This has permitted another important prediction of macroeconomics to be fulfilled. Domestic investment is no longer constrained by domestic saving. This earlier empirical regularity, first demonstrated by Feldstein and Horioka, has certainly begun to break down. Domestic savings and investment may increasingly diverge, with world saving being allocated away from high saving/low investment opportunity countries towards low saving /high investment opportunity countries. Graph 1 shows the results of the Feldstein/Horioka investment versus savings regression pooled across nine major OECD countries. The dependence of investment on domestic saving has --on average -- declined.

Potentially, these developments improve resource allocation in the world economy. It is also an extremely important part of the reduced liquidity constraints in domestic economies which I referred to earlier. By helping to
separate the savings and investment decision, globalised international financial
markets permit countries to choose their consumption paths on the basis of
perceptions about longer-run income growth and profitability. This greatly
enhances welfare, provided that the investment being financed is profitable.
This, of course, returns us to the question of the appropriateness of relative
prices on which net borrowing decisions are made -- the key relative price here
being the real exchange rate.

One of the great puzzles in OECD countries concerning the real exchange rate is
that it appears to be a non-stationary variable. This runs against the notion that
it is connected with fundamentals -- that it should be an integral part of the
process of external adjustment.

It is straightforward to show that the real exchange rate \( q \) should be related to
the equilibrium real exchange rate \( \tilde{q} \) and the real interest differential \( R - R^* \):

\[
q(t) = \tilde{q}(t) - \theta (R - R^*)
\]

In our work at the OECD, we focussed on the idea that the globalisation of
financial markets and divergence of saving/investment imbalances would lead
to a build-up of net foreign debt and assets. Our sample period was from 1973 to
the present. It is hardly surprising that this period of major change in world
financial markets would cause cumulated current account imbalances to be
non-stationary -- to build up without signs of mean reverting. This means that
net property income commitments between countries will have shifted
dramatically, causing the equilibrium real exchange rate to shift. (Permanent
shifts in net property income commitments require changes in the real exchange
rate, if the non-interest trade balance is eventually to adjust to ensure that
intertemporal constraints about net foreign borrowing and lending are met in
### TABLE 4
COINTEGRATION TESTS FOR BILATERAL REAL EXCHANGE RATES

(sample period: 1974 Q1 to 1990 Q4)

<table>
<thead>
<tr>
<th></th>
<th>Eigenvalues λ</th>
<th>Conditional Hypothesis</th>
<th>Unconditional Hypothesis</th>
<th>Long-run Coefficients</th>
<th></th>
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<tr>
<td></td>
<td></td>
<td>Max λ Tests</td>
<td>Trace Tests</td>
<td>Real Interest Current Differential Account</td>
<td></td>
</tr>
<tr>
<td>yen/$</td>
<td>0.000</td>
<td>Ho:λ=2 0.0</td>
<td>Ho:λ=2 0.0</td>
<td>-0.125</td>
<td>-0.585</td>
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<tr>
<td></td>
<td>0.224</td>
<td>Ho:λ=1 17.2**</td>
<td>Ho:λ=1 17.2**</td>
<td>-0.027</td>
<td>-0.302</td>
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<tr>
<td></td>
<td>0.319</td>
<td>Ho:λ=0 26.1**</td>
<td>Ho:λ=0 43.4**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DM/$</td>
<td>0.005</td>
<td>Ho:λ=2 0.4</td>
<td>Ho:λ=2 0.4</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>0.073</td>
<td>Ho:λ=1 5.1</td>
<td>Ho:λ=1 5.5</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>0.212</td>
<td>Ho:λ=0 16.2</td>
<td>Ho:λ=0 21.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>FF/DM</td>
<td>0.002</td>
<td>Ho:λ=2 0.1</td>
<td>Ho:λ=2 0.1</td>
<td>-0.007</td>
<td>-0.043</td>
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<tr>
<td></td>
<td>0.072</td>
<td>Ho:λ=1 5.0</td>
<td>Ho:λ=1 5.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.393</td>
<td>Ho:λ=0 33.5**</td>
<td>Ho:λ=0 38.6**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£/DM</td>
<td>0.001</td>
<td>Ho:λ=2 0.1</td>
<td>Ho:λ=2 0.1</td>
<td>-0.064</td>
<td>-0.426</td>
</tr>
<tr>
<td></td>
<td>0.092</td>
<td>Ho:λ=1 6.6</td>
<td>Ho:λ=1 6.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.279</td>
<td>Ho:λ=0 22.3**</td>
<td>Ho:λ=0 28.9*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Note:** The conditional maximum eigenvalue test is based on the largest squared eigenvalue. The unconditional trace test is based on the null hypothesis that there are k or less cointegrating vectors. Critical values are given in Johansen and Juselius (1990). One asterisk denotes rejection of the null hypothesis at the 10 per cent level and two asterisks denotes significance at the 5 per cent level.
the longer run.) If the equilibrium real exchange rate is related to such non-stationary movements in net interest commitments, then there is every chance that it might also help to explain the puzzling behaviour of the real exchange rate itself.

Specifically, we tested to see whether the real exchange rate was cointegrated with real interest differentials (which are also non-stationary) and cumulated current account differences between countries, using the Johansen procedure. The results are shown in Table 4 for the:

- dollar/DM;
- dollar/yen;
- £/DM;
- FF/DM.

We found that three out of the four real exchange rates were cointegrated with real interest differentials and cumulated current account balances. This finding suggests that failure to take account of financial liberalisation may explain, at least in part, why the real exchange rate appears to be decoupled from fundamentals. The longer-run trends in the real exchange rate are linked to real interest differentials and to changes in fundamentals, as reflected in movements of cumulated current account imbalances. Real exchange rates are not really disconnected from fundamentals -- equilibrium real exchange rates have been affected by important structural change in the globalised world economy.

But what about short-run movements in real exchange rates? The unexplained residuals graphed in Chart 2 show periods of two to three years when there are substantial movements away from our "fundamentals". This is consistent with
the evidence of Cutler, Poterba and Summers about bandwagons, noise traders and feedback rules. The deviations may be substantial, and collapse back to fundamentals -- an implication of the finding of cointegration -- only in the longer run.

One interesting aspect of these residuals is the case of the FF/DM rate. Since about 1982 the amplitude of the residuals has declined, and in general they are noticeably smaller than for the other countries. A number of macro theorists, such as Krugman (1989), have argued that target zones for the exchange rate help to reduce destabilising speculation. The French became committed members of the EMS in the early 1980s, and these findings do appear to be consistent with Krugman’s propositions.

**Summing Up**

To sum up, it has to be said that financial liberalisation has increased the relevance of one of the key maintained hypotheses of classical macroeconomics -- that of perfect capital markets. Reduced liquidity constraints and the increased role of markets has seen permanent income becoming more relevant compared to transitory income in private spending decisions, and the roles of money and relative financial prices in macroeconomic behaviour have changed as a consequence. Wealth effects and intertemporal substitution are now much more important in the transmission of monetary policy, while it is less clear that fiscal policy is a useful demand management tool. But the initial experiences in many OECD countries in this world where classical macroeconomics has come more to the fore have not been without some important surprises. Thus, a number of countries saw substantial asset price inflation and a build-up of private sector debt that did not prove to be justified (i.e. based on fundamentals).
Experience has shown that it is impossible to have a “bubble-like” rise in asset prices and borrowing without also leading to inflation and balance of payments difficulties, as spending and incomes rise.

Chart 3 shows the average inflation and current account performances of fifteen OECD countries in the second half of the 1980s -- a period chosen to abstract from the Volker disinflation and the main moves to deregulate financial markets in the first half of the 1980s. It is striking that countries with above 3 per cent inflation and current account deficits worse than 1 per cent of GNP are precisely those countries which moved most quickly towards financial liberalisation. Japan is the only country which liberalised and did not experience such difficulties. The message here is that Japan liberalised gradually rather than in one hit, hence delaying some of the effects. The graph does not include Japan’s experience in the 1990s, which is looking more shaky after a period of savage asset price inflation.

Asset price inflation that leads to more general inflation problems inevitably requires a tightening of monetary policy. Given that liquidity constraints are not binding, this relies on financial prices adjusting as part of the monetary policy transmission mechanism -- wealth effects and intertemporal substitution effects. Since these depend on expectations, it takes time for the policies to work -- unlike the bad old days of the 1970s, when liquidity constraints could be relied upon to get quantity adjustments very quickly. The analogy proved to be much like pulling on an elastic attached to a rock. You pull it and nothing happens. You pull it again, still nothing. You pull it again and again, then eventually it comes and hits you in the face. This latter part of the problem has also proved to be very real indeed. Asset prices fall. Financial fragility problems emerge as intermediaries no longer have the collateral they thought they had. Bad loans
make them unwilling to lend. This can amplify the extent and duration of the downturn. This is the current credit crunch problem in a number of countries. It may prove very difficult to get economies such as the United States moving again.

There is considerable uncertainty about how to avoid these kinds of problems in liberalised markets. This is because there is no fundamental agreement on the causes of asset price inflation and disinflation.

- Is it the inherent characteristics of financial markets, e.g. "noise trading" and "bandwagon" behaviour, so that micro policies and re-regulation is required (circuit breakers, information disclosure, turnover taxes, margin requirements, etc.)?; or

- do important monetary and fiscal policy errors of judgment lead markets to excesses which then need to be reversed, so that better macro policies are required?

At the OECD, the view was very definitely that one needs to be much more careful about macro policies in a liberalised financial market. There is a need:

i) to remove remaining distortions in markets resulting from the tax system, the lack of deregulation in goods markets, and so forth; and

ii) to learn the macro lessons of financial liberalisation well. To watch the right sorts of indicators in order to ensure that policy is unambiguously focussed on low inflation.
In this new world it is always important to ensure that it is financial prices adjusting to the economy rather than the economy adjusting to financial prices.

I believe the lessons of these transitional problems are being learned, and that financially-liberalised economies, with sound low-inflation macro policy will greatly enhance welfare. Resource allocation will be improved and the ability to smooth spending in the face of unanticipated real shocks in principle should help to smooth out business cycles. But increasing the role of markets has also bought with it new challenges for macroeconomics concerning the way financial and agency markets operate. How do they process information in forming expectations?, what asymmetries are there?, and how might economic outcomes be improved? These issues are crucial if macroeconomics is to be a sound basis on which to base policy decisions. This is surely an ongoing challenge for policy makers and academic economists alike.
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Note: The solid line refers to the time-varying parameter estimate of $\phi$ in the equation:

$$\Delta(I/Y)_{t} = \alpha + \phi \Delta(S/Y)_{t} + \varepsilon_{t}$$

where $I$ is total non-government investment, $Y$ is GDP/CPP, $S$ is equal to $S^{G} - (1 - \delta)S^{C}$ when $S^{C}$ is total savings, $S^{G}$ is government saving and $\delta$ is an estimated Ricardian effect. Estimating this equation using only cross-section data on the countries in the sample, the United States, Japan, Germany, France, Italy, the United Kingdom, Canada, Australia and Switzerland does not yield a sufficient number of observations to provide reliable estimates of $\phi$. Thus pooled time-series-cross-section data are employed. A constant inventory of 40 observations (10 countries by 4 quarters) were maintained in the sample with quarter $t$'s estimate of $\phi$, $\hat{\phi}_{t}$, obtained by adding that quarter's values of the relevant variables for all the countries and deleting those for quarter $t-4$. The discontinuous lines represent two standard error estimates for the $\hat{\phi}_{t}$. 
CHART 2
UNEXPLAINED REAL EXCHANGE RATE MOVEMENTS ABOUT EQUILIBRIUM: THE CONTEGRATING RESIDUALS

Yen/Dollar Real Exchange Rate

£/DM Real Exchange Rate

FF/DM Real Exchange Rate
CHART 3

AVERAGE INFLATION AND CURRENT ACCOUNT POSITIONS IN THE SECOND HALF OF THE 1980s

Current Account
per cent of GDP

Source: OECD National Accounts
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