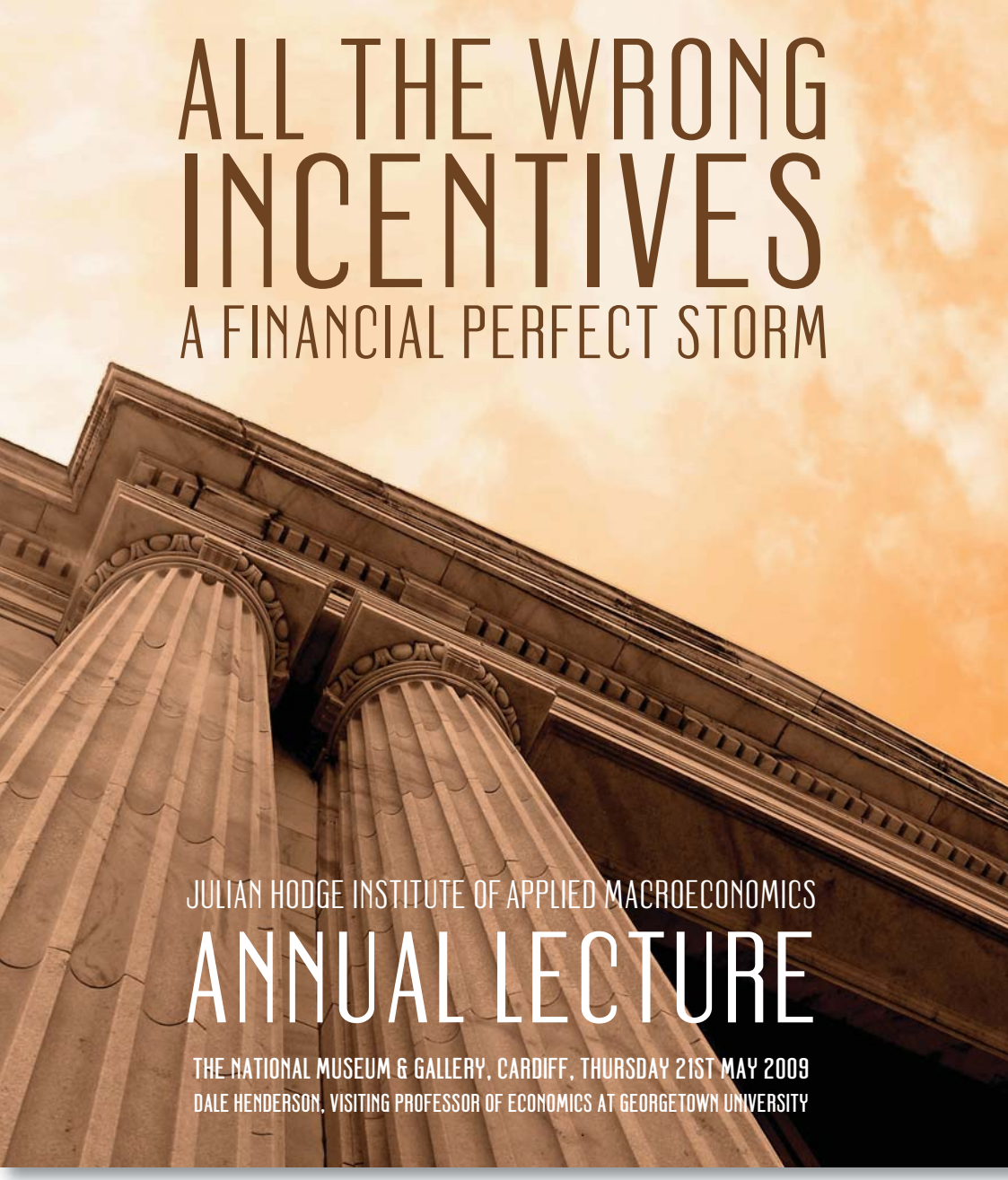
ALL THE WRONG INCENTIVES

A FINANCIAL PERFECT STORM



JULIAN HODGE INSTITUTE OF APPLIED MACROECONOMICS

ANNUAL LECTURE

THE NATIONAL MUSEUM & GALLERY, CARDIFF, THURSDAY 21ST MAY 2009

DALE HENDERSON, VISITING PROFESSOR OF ECONOMICS AT GEORGETOWN UNIVERSITY

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

CARDIFF BUSINESS SCHOOL

Julian Hodge Bank

Dale Henderson is a Visiting Professor of Economics at Georgetown University. He served at the Federal Reserve Board from 1971-84 and from 1989-2009, ending his career there as a Senior Advisor in the Division of International Finance. In between, he was a Professor of Economics at Georgetown. His teaching includes stints at Yale University; the Universities of Pennsylvania, Virginia, and Copenhagen; Institutes in Vienna and Kiel; and a summer school in Bonn. As a visiting scholar, he has been at the International Monetary Fund, the Oesterreichishe Nationalbank, the Swedish Riksbank, the Norges Bank, and the Bank of Japan. His research-support activities include cofounding the International Research Forum on Monetary Policy, a consortium of central banks and university centers that sponsors conferences periodically. He is the coauthor of books on pollution control and monetary policy in open economies and has published articles in leading scholarly journals on monetary and fiscal policy, foreign exchange intervention, and the gold market. His current work is on a comparison of alternative methods for analyzing productivity increases.

JULIAN HODGE INSTITUTE OF APPLIED MACROECONOMICS

In May 1999, Cardiff Business School and Julian Hodge Bank announced a major new initiative, the establishment of the Julian Hodge Institute of Applied Macroeconomics. The aim of the institute is to carry out research into the behaviour of the UK economy, and to study in particular its relationship with the other economies of Europe. This research has been given added urgency by the discussions on the future of the EU's draft constitution. The new institute has aimed to develop research relevant to this important debate.

The institute's director since it was founded has been Professor Patrick Minford, of Cardiff Business School, who is also the Economic Adviser to Julian Hodge Bank. The institute's staff of researchers are mainly based in the school. Recent research has included studies of whether the UK should join the euro and of the economic costs and benefits from UK membership of the European Union. Some other topics have been the UK's inflation and exchange rate behaviour and the relationship between growth and taxation. The institute also carries on the work of the Liverpool Research Group in Macroeconomics which Professor Minford founded and which has been based mainly in Cardiff for a number of years, producing forecasts and policy analysis of the UK and other major economies.

ALL THE WRONG INCENTIVES: A FINANCIAL PERFECT STORM

It is a great privilege and a real pleasure for me to deliver the 10th annual Julian Hodge Institute of Applied Economics Lecture. Most of you are probably quite familiar with the many achievements of Sir Julian Hodge. I have only recently learned about them and am amazed that a person could accomplish so much in a lifetime, even one of 99 years. He is a member of that endangered species - the business statesman. If there were more like him, we might not be in the mess we are in today.

My lecture concerns one part of that mess, the global financial crisis. I will address three questions: First, what got us into the crisis? Second, what is being done to mitigate its effects? And third, what might help us to avoid future crises?

As is appropriate for this audience, I refer frequently to the UK experience. In doing so, I am in danger of repeating what is obvious to you. I will do my best to avoid bringing coals to Cardiff. Also, not being an expert on the UK financial system, I risk misinterpreting your experience. I apologize in advance for any mistakes.

GETTING INTO THE CRISIS

As to what got us into the crisis, my answer is that people had all the wrong incentives. Well, maybe not all the wrong incentives, but a lot of them. This view receives official support in the Turner Review, recently published by the UK Financial Services Authority, which concludes that

> There is a strong prima facie case that inappropriate incentive structures played a role in encouraging behaviour which contributed to the financial crisis.
> (Turner Review, 2009, p. 80)

Inappropriate incentive structures do not oblige people to engage in questionable behaviour but they certainly make it more likely that they will. Alan Greenspan spoke for many when he said

> Those of us who have looked to the self-interest of lending institutions to protect shareholders' equity - myself especially - are in a state of shocked disbelief.
> (Congressional testimony, October 23, 2008)

Sir Julian would no doubt have had a similar reaction.

HOUSING PRICE BUBBLES

I am going to focus tonight on housing markets. It is generally agreed that the financial crisis began with the bursting of housing price bubbles in several countries. The word "bubble" is not a technical term with a precise definition. In trying to define it, we could adopt the approach of Justice Stewart of the US Supreme Court. In an often-quoted opinion he first wrote that he would not attempt to define the term "obscenity" and then famously declared, "I know it when I see it". Well some of us may think we know bubbles when we see them, but the rest might want to probe a little deeper.

So what are the defining characteristics of a bubble? In a bubble market, investors focus on the resale value of an asset rather than on its "intrinsic value". There is an extended period of price increases followed by steep price declines. The price increases are regarded by some observers, at least in retrospect, as being unrelated to increases in the intrinsic value of the asset.

For a house, the intrinsic value is determined by the housing services it generates over its lifetime. The value of housing services generated in a given year is equal to the rent one would have to pay for those services. Therefore, the price of a house should be related to how much it would rent for. If the price gets too high relative to the rent, everyone would want to rent. It is often argued, as I am going to this evening, that a housing bubble is in progress if the price to rent (PR) ratio for houses is well above its average. In several countries, notably my own, housing bubbles have grown and grown and then burst.

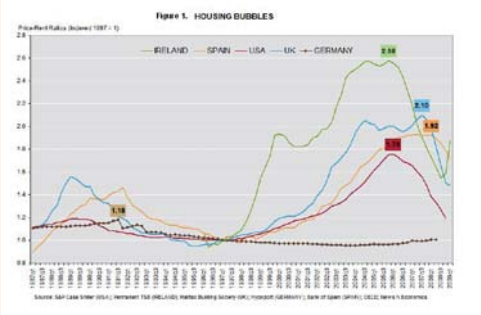


Figure 1 shows PR ratios for several countries in index form with 1997 equal to one. Indexes for the UK, the US, Spain, Ireland, and Germany are represented by the blue, red, orange, green, and black lines respectively. Movements in the indexes for the first four of these countries over the last several years display the characteristics of bubbles while movements for Germany do not. Taken together, these movements suggest some generalizations. Housing bubbles appear (1) to be widespread but not universal, (2) to occur in both "Anglo-Saxon" countries and elsewhere and (3) to recur. In this lecture I will not attempt to provide an in-depth analysis of why bubbles occurred in

some countries but not in others. I would note that average down payment requirements have been significantly higher in Germany than in the other countries.

In the UK, significant housing bubbles occurred twice during the years shown in Figure 1, in the late 1980's and in recent years. There are important differences in circumstances between these two bubble periods. For example, the range of financial assets available today is considerably larger than that available in 1989. However, these two bubble periods have at least one thing in common: they took place soon after significant deregulation of financial markets. In many other countries, bubbles in housing markets and other asset markets have been preceded by financial market deregulation. The frequent association of deregulation with bubbles does not necessarily indicate that deregulation is bad, but it certainly does suggest that often it has not been managed well.

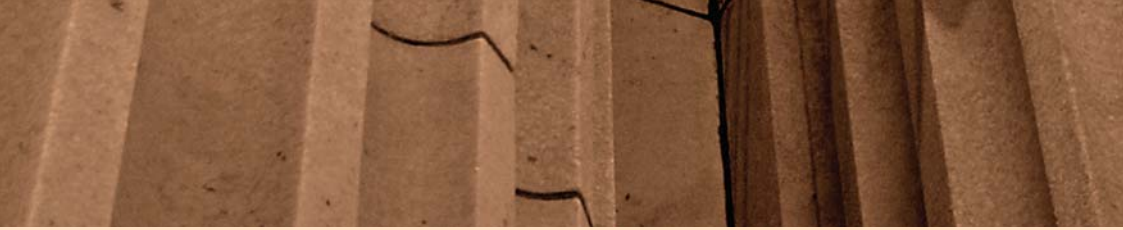
CHANGES IN INCENTIVES

Now I want to consider the changes in incentives that contributed both to starting the housing bubble and to keeping it going. I will begin by reviewing the traditional model of housing finance. In that model, one institution performs all the functions related to a mortgage. It originates the mortgage, holds the mortgage on its balance sheet, and receives payments of principal and interest. The origination process involves making an assessment of whether the borrower can be expected to make the required payments. It also involves explaining the terms of the mortgage so that the borrower can make an informed decision. Since the lending institution is going to be the loser if the loan goes bad, it has every incentive to make thorough assessments and to provide accurate information during origination.

There is an alternative model of housing finance called the "originate-to-distribute" (OTD) model. It is one type of "securitized lending". In the US, this alternative model has existed alongside the traditional model since the 1930s. In recent years it has accounted for an increasing share of housing finance in the US, the UK, and elsewhere.

There are important differences between the OTD model and the traditional model. The OTD model involves both the separation of the origination and holding functions and the introduction of at least two new functions, issuing and rating. These differences give rise to a number of incentive problems.

The OTD process is a chain with many links. The first link is the "originator" who does the work involved in originating a mortgage and is paid a fee for doing it. The originator has an incentive to increase the number of originations. To speed up the process, the originator can require less documentation,



lower standards, spend less time explaining loan terms, and, worst of all, engage in fraud. We now know that originators did all these things to one degree or another. The desire to build up a good reputation apparently often was not strong enough or was missing entirely.

The second link in the chain is the "issuer". The issuer is the one who performs the securitisation. It collects together a group of mortgages and pays fees to the originators. It then issues mortgage backed securities (MBSs) that are claims to shares of the sum of the regular payments of principal and interest associated with the individual mortgages. Often the issuer creates, for example, three classes of claims which differ in seniority and, therefore, in riskiness. The classes are called tranches, and the securities in a given tranche are sold separately from those in other tranches.

The third link is the "rating agency". In order to convey information about its quality, the issuer asks a rating agency to give the MBS a rating. It is noteworthy that the issuer pays the agency for this service. There are at least two incentive problems associated with rating agencies. First, there is a potential conflict of interest. An agency may offer advice about how to structure an MBS to get a certain rating and then give that rating. Second, there is competition among the rating agencies for business. This competition may lead the agencies to cut corners; they may shade ratings upward to attract business.

The fourth link is the entity that purchases the rated MBS from the issuer. This entity may be the final link, the holder of the MBS, but it turns out that it often has not been. Instead, it may well pool the MBS it purchases with others, creating a new security that is a claim on a share of the total receipts of the pool. Then it gets a rating for the new security. The rating for the new security may be higher than the rating for any of its individual MBS components. This outcome is not necessarily unjustified because there might be negative correlation among the returns to the various MBSs in the pool. However, these securities are vulnerable to a shock that affects all the MBSs in the same way, such as an area-wide or nation-wide fall in house prices.

There is often one more link in the OTD chain. The issuer or the ultimate holder of the MBS may obtain credit default insurance by buying a credit default swap (CDS). The buyer of a CDS pays a periodic premium, and the seller promises to make good any loss suffered by the buyer if the security goes into default. There were problems in the CDS market for at least three reasons. First, the major sellers of CDSs such as American International Group (AIG) were used to insuring municipal bonds and lacked experience in insuring MBSs which was a

relatively new line of business. Second, the CDS market came to resemble a casino.

Insurance agencies (and other market participants) sold multiple CDSs linked to the same credit event. That is, all of us could bet on whether there was going to be a default on one particular MBS. Third, AIG angled for and was assigned the weakest of the US financial regulators.

LIGHT TOUCH REGULATION

In both the US and the UK, deregulation of financial markets has been going on for many years, but it picked up steam beginning in the late 1990s. Regulators had bought into the view that financial markets needed little regulation: that is, they could be regulated with a "light touch". The official UK approach involved

> …A light touch in financial markets to enhance international competitiveness. Better protection for consumers, through better information and advice when choices need to made and better access to redress if things go wrong.
>
> (Alan Milburn, Speech, June 17, 1999)

UK authorities intentionally put a great deal of trust in private market participants:

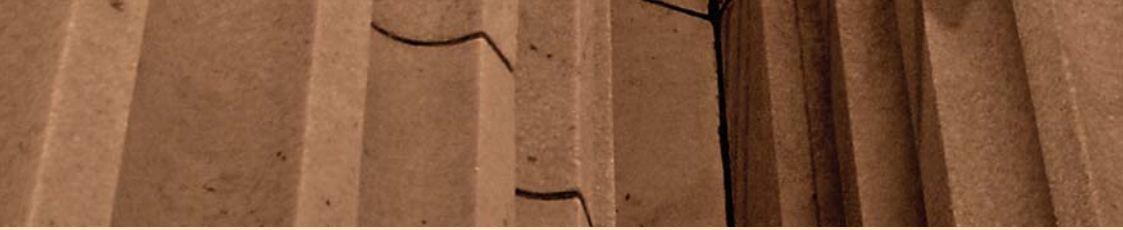
> The better, and in my opinion the correct, modern model of regulation - the risk based approach - is based on trust in the responsible company, the engaged employee and the educated consumer, leading government to focus its attention where it should: no inspection without justification, no form filling without justification, and no information requirements without justification, not just a light touch but a limited touch.
>
> (Gordon Brown, Speech, November 28, 2005)

As my earlier quote from Alan Greenspan's Congressional testimony suggests, this trust was widely shared across the Atlantic.

Unfortunately, in too many cases it turned out to be misplaced. What uncharitably might be called "do it yourself" regulation proved to be woefully inadequate.

ILLIQUIDITY AND INSOLVENCY

When we study financial crises, we hear lot about the distinction between illiquidity and insolvency. By design, most financial intermediaries have borrowings with maturities shorter than the maturity of their investments; that is, they have a deliberate "maturity mismatch". The financial crisis has made abundantly clear the perils of relying



very heavily on extremely short-term borrowing.

The extreme cases of short-term borrowing are demand deposits at banks and overnight borrowing by commercial banks, by investment banks, and by hedge funds. In normal times, short-term borrowing creates no problem because it can be rolled over, that is, repaid with new borrowing. If depositors suddenly want to withdraw their deposits or if short-term lenders do not want to roll-over their loans, the financial intermediary must come up with the funds. If it has short-term assets like government bills it can sell these liquid assets without taking a loss. However, if it must sell some of its long-term investments quickly, it is likely that these illiquid assets will sell for less than they would be worth if held to maturity. That is to say, they might be forced to sell them at "fire-sale" prices. The situation arises because it is difficult for the potential buyer to correctly value the assets. The financial intermediary has often made the investment on the basis of information that is not easy to convey to potential buyers.

In determining whether an intermediary is illiquid or insolvent, the crucial question is whether the assets of the intermediary would be sufficient to repay its lenders if held to maturity. If so, it is simply illiquid; if not, it is insolvent. According to the textbooks, the authority should lend to an intermediary that is illiquid but not to one that is insolvent. If an intermediary is insolvent, the authority should arrange for its "resolution". Resolution can take at least three forms: continuing to operate with strings attached, getting merged with somebody else, or being liquidated. There are variants of each of these forms of resolution.

Unfortunately the distinction between illiquidity and insolvency is not at all clear cut. It is difficult for anyone, including the relevant officials, to determine whether the assets of an intermediary would in fact be sufficient to cover its obligations if held to maturity. Furthermore, whether an institution is insolvent or not depends not only on what classes of assets it holds but also on prospects for the economy. An institution that would be ruled solvent if the outlook were good might be ruled insolvent if the outlook were bad.

Other considerations have figured in decisions about whether to lend to particular intermediaries. One consideration has always been the size of an intermediary: an intermediary might be deemed "too big to fail" because its failure would lead to the failure of many of its creditors. With the benefit of hindsight, many would argue that Lehman Brothers should have been regarded as being too big to fail because allowing it to fail turned out to severely deepen the financial crisis.

In the current financial crisis, another consideration has become prominent. An

intermediary might be deemed "too interconnected to fail" because financial markets would freeze up during the costly and time-consuming process of unwinding its complicated business relationships. An example of an institution that was rescued at least in part because it was deemed "too interconnected to fail" was AIG.

UNCONVENTIONAL MONETARY POLICY

In their attempts to mitigate the effects of the financial crisis on economic activity, central banks and treasuries have been navigating in uncharted waters. Conventional monetary policy can no longer be effective. Therefore, the authorities have resorted to "unconventional monetary policy". The UK has been a leader in this area. It has been quick to develop and implement policies that others have used as reference points. Let me explain using the Asset Purchase Facility (APF) in the UK as an example.

It is useful to review the essentials of conventional monetary policy. In conducting monetary policy, the BOE sets Bank Rate, the rate it charges for overnight lending to commercial banks. Although commercial banks borrow relatively little at Bank Rate, it plays a central role because other rates are tied closely to it. Commercial banks raise most of their funds from the public by offering deposits of various maturities; by borrowing short-term, especially from other financial institutions; by selling longer-term debt; and by issuing equity. Their cost of funds is determined by averaging the rates they pay to the public. It is closely related to Bank Rate because borrowing from the BOE is always an option. The banks use the funds they raise to acquire assets. They make loans to households and to firms that borrow to consume and invest. They also purchase securities, including MBSs in some cases. The rates they earn on their assets are, to a first approximation, a mark up over their cost of funds. When assets mature, the banks either roll them over or use the repayments to acquire new assets. The interest rates or prices set for rollovers and new assets are usually not too different from those for the maturing assets. What I have described, albeit briefly, is business as usual.

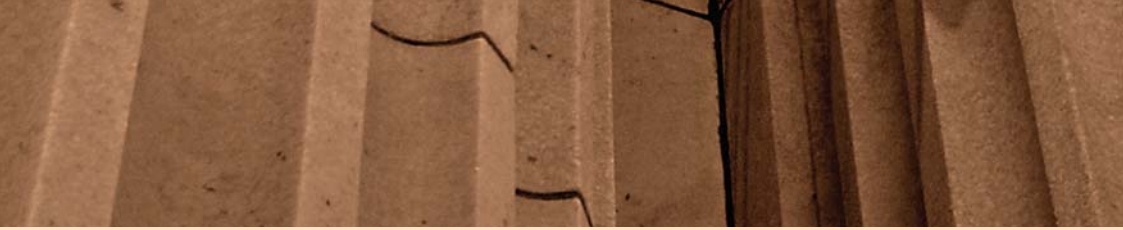
Figure 2a. Bank of England Balance Sheet
Before Asset Purchase Facility

Assets	Liabilities
Loans to Banks	Currency and Coin
	Reserve Balances of Banks

Figure 2b. Bank of England Balance Sheet
After Asset Purchase Facility

Assets	Liabilities
Loans to Banks	Currency and Coin
Mortgage Backed Securities	Reserve Balances of Banks ↑
Commercial Paper	
Corporate Bonds	
Long-term Government Bonds	

It may help to look at a stylized balance sheet for the BOE in normal times, that is, before the APF. As shown in Figure 2a, under Assets it would have Loans to Banks. Its Liabilities would consist of Currency and Coin as well as Reserve Balances of Banks. In the



period from May 30, 2007 until March 4, 2009, Reserve Balances of Banks averaged about £29 billion with little variation.

Needless to say, business is anything but usual these days, both on your side of the Atlantic and on mine. The UK Bank Rate is essentially zero, and there is no scope for lowering it any further. Commercial banks can borrow from the BOE very cheaply. However, the banks are so worried about getting repaid that they will roll over or increase their loans to the public, even their loans to other banks, only at rates that are very high by historical standards, if at all.

Also, they are leery of most securities, especially MBSs, with the exception of those issued by the government. The situation is virtually the same in the US.

Since conventional monetary policy is stymied, central banks are doing unconventional things. Even though the BOE Bank Rate is as low as it can go, the UK government still wants to maintain or increase the supply of credit. It has established the APF which is being managed by the BOE. The Bank has been authorised to buy "unconventional assets" directly. Unconventional assets are assets that have not been used to carry out monetary policy in recent memory, if ever. They include mortgage-backed securities, commercial paper, corporate bonds, and long-term government bonds. Figure 2b shows a stylized balance sheet for the BOE after the APF was in effect. Now BOE Assets include its purchases of unconventional assets.

Between March 9 and May 13 of 2009, BOE holdings of unconventional assets increased by roughly £58 billion. All of these assets are subject to credit risk to one degree or another. Assuming such risk is something that central banks have generally been unwilling to do in the past.

In contrast to Bank Rate, interest rates on the unconventional assets are still quite high. When the Bank increases demand for these assets, issuers can offer lower interest rates and still sell the same quantity. The expectation is that cheaper borrowing is going to increase spending, or at least keep it from falling as much as it would otherwise. The BOE is bypassing the normal transmission channel of monetary policy through the banking system. It is acting in place of the banking system and lending directly to the public or to the government.

The APF was set up in the hope that it would motivate the banks to increase the supply of credit available to the private sector. The BOE would buy assets from the commercial banks, and the commercial banks would use the proceeds to make new loans or buy new securities. So far the results have been disappointing. To a considerable extent commercial banks have been depositing the proceeds of their asset sales at the BOE rather than increasing the supply of credit to the private sector. In the stylized BOE

balance sheet in Figure 2b, the increase in banks' deposits is represented by the upward-pointing arrow next to Reserve Balances of Banks. In the period between March 4 and May 13 of 2009, these balances rose from about £31 billion to about £95 billion for an increase of about £64 billion.

The APF is different from another type of unconventional monetary policy that has also been used in the UK called the Asset Protection Scheme (APS). The APS is designed to try to resuscitate the bank lending channel by guaranteeing some types of assets to make them more attractive to banks. Thus the BOE, with the support of the Treasury, is working on at least two fronts: it is both acting in place of the banking system with the APF and encouraging bank lending with the APS.

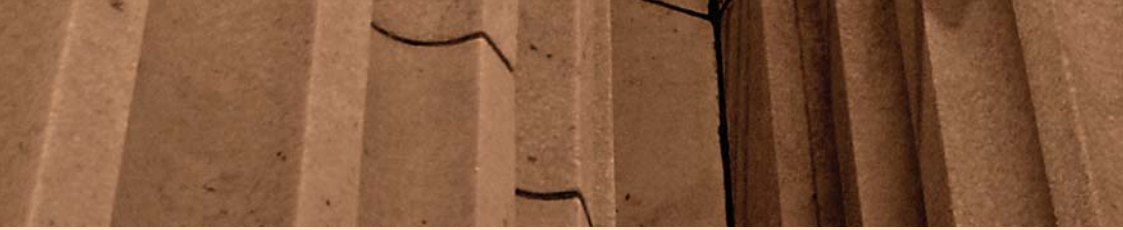
Central bank purchases of unconventional assets have also taken place in the US with similar results. It may come as no surprise that this policy goes by different names on the two sides of the Atlantic. We often have different names for the same things. In this case, there is a clear rationale for each of the names. In the UK the policy is called "quantitative easing", and in the US it is called "credit easing". The rationale for the UK name is that the asset purchases directly increase the money supply, or at least bank reserves. Its focus is the liability side of the central bank balance sheet. The rationale for the US name is that asset purchases lower the rates at which consumers and firms can obtain credit, either directly through purchases of their debt instruments or indirectly through purchases of government debt that is a close substitute for those instruments. Its focus is the asset side of the central bank balance sheet. There may never be agreement on the best name for this policy, but what matters is whether it works.

CENTRAL BANK AND TREASURY COORDINATION

Rescue operations in financial markets conducted by central banks often have fiscal implications. As I have said, the loans extended and the assets purchased by central banks during a financial crisis may result in losses. Such losses reduce the transfer to the treasury that is made by the central bank. As a result the treasury is going to have to either cut spending or raise taxes, either now or in the future.

It is desirable for the central bank and the treasury to coordinate on how to handle any losses that may be incurred by the central bank. If they do not, the independence of the central bank may be threatened. The UK has been a model of transparency. A prime example is the exchange of letters between the Chancellor of the Exchequer and the Governor of the BOE concerning the APF.

This exchange makes it clear that the Bank is supposed to manage the facility and that the



Treasury is responsible for any losses. The letters leave little scope for misunderstanding about what assets can be purchased and how they are to be paid for.

AVOIDING FUTURE CRISES

Now I will move from the question of what to do when financial crises are already in progress to the question of how to avoid them. My focus is on how to limit the size of bubbles. The first hurdle is to convince people that, for example, a housing price bubble is in progress. People are usually very reluctant to agree that prices are rising faster than is justified by improvements in the fundamentals. But suppose we have gotten over that hurdle.

Suppose that there is agreement that a housing bubble is in progress but that there is no evidence of overheating elsewhere in the economy. What should the authorities do then? There are two types of policy that are usually considered, monetary policy and supervision and regulation (S&R) policy.

MONETARY POLICY

I begin by considering monetary policy. When a bubble is in progress, monetary policymakers must choose whether "to prick, or not to prick". Some argue that monetary policy should raise interest rates to prick the bubble. They acknowledge that economic activity outside the housing sector would be reduced, but they argue that the total damage to the economy would be minimised by acting in this way. Others contend that it is better to wait and see. They recommend gearing monetary policy to what is going on in the economy as a whole. In their view, interest rates should not be raised unless there is evidence of overheating in standard measures of overall economic activity such as inflation and unemployment. Instead, monetary policymakers should stand ready to deal with any damage caused by the eventual collapse of the bubble when it occurs.

So basically there is a "prick it" strategy and there is a "clean up afterwards" strategy, and both strategies have their supporters. Consider the Japanese experience of the 1990s. Unfortunately, like many events, it is subject to more than one interpretation. What we know is that the Japanese used monetary policy to prick bubbles in stock prices and land prices when there was scant evidence of overheating in standard measures of economic activity. They were very explicit about what they were doing. What followed was Japan's lost decade. Opponents of pricking point to the Japanese experience to support their case. However, proponents reply that monetary policy and fiscal policy were not conducted as well as they might have been, so the Japanese experience should not be used as a clean test of the desirability of pricking bubbles. The debate is still going on.

S&R POLICY

There is general agreement that monetary policy is a blunt instrument for dealing with bubbles in an individual market since it affects other markets as well. The question is whether we can use S&R policy instead. Many answer "no" to this question, mainly because they believe it will be ineffective. I answer a qualified "yes".

I will consider two types of S&R policy instruments: loan size restrictions and capital requirements. As you might imagine, I am not the only one who is arguing that these kinds of measures could be helpful in dealing with bubbles.

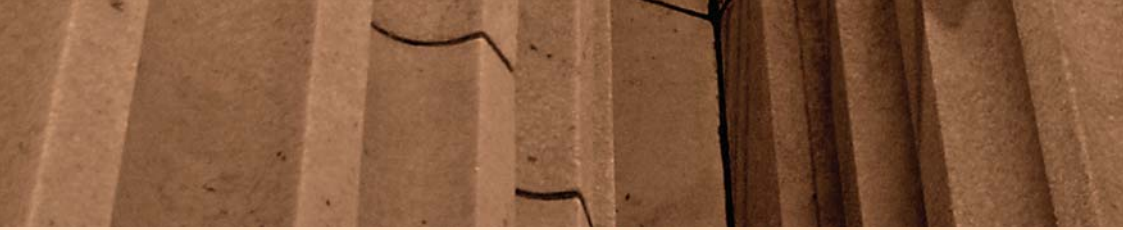
One type of S&R policy instrument is loan size restrictions. An example is the loan to value (LTV) ratio, the ratio of the amount of the mortgage to the value of the house. During housing bubbles it is common, if you can believe it, to see LTV ratios increase as housing prices increase, sometimes to levels above one. You might be able to borrow 110% of the prevailing purchase price of a house. Why? Both the lender and the borrower are betting, and betting is the right word, that prices are likely to increase so that there is little chance that the value of the house will fall below the amount owed.

Higher LTV ratios make it possible for more people to get into the market and bid up prices. More fuel is added to the fire.

If the object is to keep bubbles from continuing, exactly the opposite should happen. Permissible LTV ratios should decrease as the PR ratio for houses rises. If buyers have to put up more of their own money to buy a house, they will be more reluctant to bid for houses so there will be less upward pressure on prices. This kind of measure is being tried out. Recently Canada has lowered LTV ratios and shortened the maturities of mortgages to combat the housing bubble there.

Another loan ratio that could be varied in essentially the same way is the loan to income (LTI) ratio, the ratio of the value of the mortgage to the borrower's income. If you were trying to combat a bubble, you could lower the LTI ratio as the PR ratio rose so that fewer people would be eligible to bid for houses.

Another type of S&R policy instrument is minimum capital requirements. An important part of the job of bank regulators is to assess the ability of a bank to survive losses. Bank capital is an indicator of that ability. Regulators require the banks to keep the ratio of some measure of capital to some measure of assets above a specified value. There is much disagreement about which measures of capital and assets to use. For simplicity, in my discussion I will use the ratio of Tier 1 capital to risk-adjusted assets. Tier 1 capital is the sum of the book value of common stock and retained earnings.



Determining risk-adjusted assets involves summing all categories of assets with each category having its own capital requirement coefficient and with riskier assets having higher coefficients.

WHY ARE CAPITAL REQUIREMENTS NECESSARY?

When there is deposit insurance, explicit or implicit, as in both the US and the UK, deposits are a relatively cheap source of finance. To finance their lending banks would rather issue deposits than sell stock. As a result they sell less stock than is socially desirable. So to make sure that banks issue a minimum amount of their stock, the authorities impose capital ratios.

Minimum capital requirements could be used to work against bubbles. The way to do that would be to increase the capital requirement coefficient for housing loans when the PR ratio increases. Increasing this coefficient would increase risk-adjusted assets thereby reducing the ratio of Tier 1 capital to risk-adjusted assets. The bank would have to issue more stock and so would be discouraged from making housing loans.

I have been discussing the use of capital requirements to prevent a bubble in a particular market. Several analysts have argued that capital requirements could be used as a stabilization tool even in the absence of bubbles.

At present, capital requirements are procyclical; that is, they tend to reinforce rather than to counteract ups and downs in the economy. As economic conditions improve so that repayment of loans is more likely, capital requirements are allowed to fall. Conversely, when economic conditions deteriorate, regulators increase capital requirements. Banks must issue more stock when stock prices are low.

There is growing support for the view that capital requirements should be countercyclical. Banks should issue stock in good times, deliberately raising their capital to assets ratio. Then, they could use the extra capital in bad times to offset losses.

One of the main difficulties with capital requirements has to do with measurement. In order to construct, for example, a capital to assets ratio, it is necessary have clear definitions of assets and liabilities. In the case of a conventional mortgage and standard securities, measurement is relatively straightforward, if not completely uncontroversial. However, for complicated financial derivatives, determining asset values is much more challenging.

The difficulty of designing a regulatory framework that can be applied to complicated financial instruments has led some to want to give up trying. In effect, they want to return to simpler times. They suggest that the activities of banks be restricted to

those that are readily understood. The idea is to restrict the assets that could be held by insured intermediaries to a relatively narrow set of assets, for example, commercial and industrial loans and conventional mortgages. These intermediaries would be subject to capital requirements which would then be easy to apply. Other intermediaries could hold a much broader range of assets. However, their liabilities would not be insured or guaranteed. They would be allowed to fail if they experienced a "run" on their liabilities.

THE WAY AHEAD

The process of redesigning and coordinating national financial regulations is already under way. In the UK, the Turner Review and its supporting documents address the issues I have been discussing and many others as well. It may come as a surprise to some that they reject most suggestions for new restrictions on the activities of financial intermediaries. Adding to widespread support, they endorse countercyclical capital requirements for risk-adjusted assets as a means of providing for possible losses on risky assets. Also, they recommend countercyclical capital requirements for total assets, often referred to as "leverage ratios", as a means of providing for possible losses from rapid deleveraging. They have explored the pros and cons of putting ceilings on loan to value and loan to income ratios but have reserved judgment.

It is clearly still early times. The UK authorities are at the forefront of thinking about the way ahead. We should all extend our best wishes to them and their counterparts around the world as they work to strengthen the global financial system.

Thank you very much.

A HISTORY OF PAST LECTURES

The first Julian Hodge Institute of Applied Macroeconomics Lecture was delivered in 2000. Since this time the lecture series held in Cardiff, has included some of the world's leading economists.

2000 - Sir Alan Walters - former Chief Economic Adviser to Mrs (now Lady) Margaret Thatcher.

2001 - Professor Otmar Issing - Board Member and Chief Economist, European Central Bank

2002 - Sir Alan Budd - Member of the Bank of England's Monetary Policy Committee and Chief Economic Adviser to the Treasury from 1991-1997.

2003 - Professor Bennett T. McCallum - H.J. Heinz Professor of Economics at Carnegie Mellon University, Pittsburgh.

2004 - Professor Danny Quah - Professor of Economics at the London School of Economics and Political Science (LSE).

2005 - Professor Nicholas Crafts - Professor of Economic History at the London School of Economics (LSE).

2006 - Ludovit Odor - Member of the Bank Board of the National Bank of Slovakia.

2007 - Paul De Grauwe - Professor of international Economics at the University of Leuven, Belgium.

2008 - Dale Henderson - Visiting Professor of Economics at Georgetown University.

Before this a series of lectures associated with Sir Julian Hodge commenced in 1970 entitled the Jane Hodge Memorial Lectures.

1970 - The Rt. Hon. Sir Leslie O'Brien GBE , Governor of the Bank of England.

1971 - M. Pierre - Paul Schweitzer, Managing Director of the International Monetary Fund (IMF).

1973 - David Rockefeller LLD, PhD, Chairman, Chase Manhattan Bank.

1973 - H.R.H. The Prince Philip Duke of Edinburgh.

1976 - His Excellency Sheikh Ahmed Zaki Yamani.

1984 - Robin Leigh Pemberton, Governor of the Bank of England.

1990 - Sir George Blunden, Deputy Governor of the Bank of England

The Julian Hodge Institute of Applied Macroeconomics therefore carries on the very proud tradition of promoting debate and understanding of present day economic issues.

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

CARDIFF BUSINESS SCHOOL

Julian Hodge Bank