CENTRAL BANKS DURING TIMES OF FINANCIAL STRESS

Richard A. Werner
University of Southampton and Goethe University
(Revised version, August, 2009)

Acknowledgements

This paper was presented at the 2nd Mecpoc Symposium on April 21, 2009, at Franklin College in Lugano. I am grateful to participants for their comments and to co-presenters for sharing their views. I am thankful for the kind invitation from Professor Andrea Terzi and financial support from the sponsors of the symposium for making it possible. Needless to mention, the paper is my responsibility, including any potential errors. Any truthful insight that may be found I attribute to the *Lord Who is my Light* (Psalm 27:1).

1. Is the crisis new and different?

This paper is concerned with the role of central banks during times of financial crisis with specific reference to the current as well as to several previous relevant crises. To understand the role of central banks—what they are currently doing, what they should be doing, and also to understand their pronouncements—it is important to take a look at how we got ourselves into this crisis. In an ideal world, I would also have enough time to cover their specific operating procedures; however, this latter section will have to remain brief due to time and space limitations.

There is a strand in the literature as well as in the media that seems to suggest that this crisis is *new and different* from past crises. Two arguments are made to support this contention directly or indirectly. The first is that nobody predicted the current crisis since, it is insinuated, it is such an unprecedented and new problem. The second argument is that there are a number of new-fangled and complex financial instruments which, since they did not exist in past crises, is supposed to demonstrate that the present crisis is new.

1.1 The present crisis could not be predicted

Let us first address the question of whether the current crisis was to some extent predictable and whether warnings had in fact been issued. Many observers, including the British Queen, were surprised that a crisis of such proportions could happen out of the blue. "Why did nobody predict it?" was Her Majesty's question. "*Cui bono*?" The argument that the crisis was unpredictable has served two important stakeholders well: On the one hand there are politicians and central bankers who carry the responsibility to deliver financial stability. Since they failed so dramatically and appeared to have been taken by surprise, they had an incentive to argue that it was natural to be taken by surprise and to have failed to prevent the crisis in the first place – after all, nobody could possibly have predicted it. On the other hand, there are those financial sector decision makers who have accumulated significant financial losses, nonperforming assets or otherwise failed in their duties to shareholders, customers, regulators or the public at large. Again, the argument that the crisis was an unpredictable thunderbolt appears to absolve them from criticism.

Let us now consider whether the claim is true that the crisis was unpredictable. The record shows that there were fairly specific predictions. A number of economists warned that certain developments in the banking systems of several countries were unsustainable, threatened financial stability and were likely to cause a crisis with more or less severe consequences. Due to space and time limitations, and due to my comparative advantage in commenting on my own predictions, I will here confine myself to the latter.

My key comments can be divided into country-specific predictions which mainly concerned the U.K., the U.S., Ireland, Spain and Austria, where my early warning indicators (more about these later) gave the most dramatic tocsins, and secondly, into warnings about the global financial system. I will briefly summarize these below in the above order.

(a) Predictions about specific countries

(i) U.K.

I pinpointed the U.K. financial and real estate sectors as a likely epicenter of a major financial and banking crisis from 2004 until the outbreak of the financial crisis. As it turned out, the first major bank to fail was indeed in the U.K., when Northern Rock had to be nationalized in September, 2007 – one year before the failure of Lehman Brothers in the U.S. and six months before the emergency sale of Bear Stearns to J. P. Morgan bank. I have argued that the Bank of England, whose job includes the maintenance of a stable financial system, has failed to ensure a necessary condition for that, namely the avoidance of asset bubbles which, once created, will burst and badly damage the banking system and thus the economy, creating boom-bust cycles. I have argued that the U.K. housing market had already reached the state of a "bubble" by 2004 and it was just a question of time when (not if) it would burst, taking the banking system with it (see Werner and Thomas, 2004, and Werner, 2005a).

My 2005 book, *New Paradigm in Macroeconomics*, features chapters on the "recurring banking crises" and describes the mechanism behind banking crises – which includes the creation of asset bubbles fuelled by excessive bank lending as a precursor. In the book as well as in speeches surrounding its launch I identified the U.K. property market as a bubble about to burst – with all the consequences this implies in my model, more about which later (Werner, 2005b, 2005c)[1]. In the book the most efficient responses to crises and, even more importantly, the steps needed to avoid such problems in the future are identified. As I think we will see, they have stood the test of time well.

(ii) U.S., Ireland, Spain, Austria

The above are the other countries mentioned in my past research as facing future banking crises. In the U.S., the central bank has been encouraging the creation of a real estate bubble ever since the "dotcom" equity bubble burst in 2000. Even more blatant examples that I identified were Ireland, Spain and Austria. In all of these countries a key warning signal of future banking crises (which is also a predictor and explanatory variable of asset bubbles) gave unmistakable warning signs[2]. The signals about the economies of the U.K., Ireland, Spain and Austria preceded the outbreak of the global financial crisis. I also found that the bubbles stopped earlier than in the U.S. and potentially acted as signals of pending problems in the U.S. banking system. While this is currently only speculation awaiting further research, one reason for such a sequencing (in contrast to the general perception) may be that the music stopped first in some European countries, thus reducing the risk appetite of European banks for further investments in U.S. credit derivatives. That in turn could have contributed towards triggering the crisis in the U.S. credit derivatives market by resulting in the default of the two Bear Stearns credit derivative funds in 2007 – which set off the sequence of events that eventually resulted in the Lehman failure and precipitous falls in world equity markets in September, 2008[3].

[1]A slide of the latter speeches in London and Vienna says: "U.K. property prices: Driven up by mortgage credit; danger of bust. … ECB policy: Boom in Ireland, bust in Germany. …" Werner (2005a) says: "In times when banks lend heavily for speculative purposes, such as the margin lending of the 1920s in the U.S., the property lending of the 1980s in Scandinavia and Japan, or that of the 1990s in many Asian countries, as well as the real estate lending presently in the U.K., asset price inflation is likely to occur. Meanwhile, consumer prices may hardly rise. … Such asset price rises are not sustainable and hence threaten the stability of the financial system and the economy."

[2]For details of the warning signals, see the monthly Liquidity Watch reports produced by my investment research firm Profit Research Center Ltd., Tokyo (www.profitresearch.com).

[3]I am referring to the Bear Stearns High Grade Structured Credit Strategies Fund and the Bear Stearns High Grade Structured Credit Strategies Enhanced Leverage Fund. These funds, measured in billions of U.S. dollars in size, were both basically wiped out in July, 2007. They were operated by Bear Stearns Asset Management, a 100-percent subsidiary of the Bear Stearns Companies, which were bought in March, 2008, by J. P. Morgan with New York Fed funding and guarantees to avoid an incipient insolvency.

(b) Predictions about the global economy and financial system

I have also made predictions since 2002 in more than half a dozen speeches, mainly to the investment and hedge fund community, about the global economy and its financial and banking sectors. The main predictions were that we had to expect greater and bigger cycles and that standard business cycles would turn into "vast bubbles and downturns" followed by banking and economic crises. I coined a new expression to refer to the risk of this happening which reveals where I believe responsibility lies: "Central Bank Risk." In brief, I showed that central banks tend to create cycles. My argument was that, given greater legal powers and more independence, central banks had to be expected to do more of what they do best – and that is to create cycles and financial crises. I thus predicted in 2002, 2003 and 2004 that "in coming years" we would experience "vast bubbles and downturns," and I estimated the risk of this happening being at a "historically unprecedented level."[4]

I think it can be said that my predictions were fairly specific. But I was by no means the only economist to predict the crisis. Thus, in summary it can be said that the crisis was not unpredictable; it *was* predicted. This suggests that it had clearly identifiable features that served as a warning (as discussed below); these warnings were, however, ignored by those who had decision-making power (central banks, governments and their regulatory agencies, and executives at the large financial institutions involved). It is not surprising that they are clinging to the story that the crisis could not be predicted.

1.2 The present crisis is unprecedented and different in its features

History is unlikely to repeat itself precisely. The question is whether there are certain important features or mechanisms that can be identified to be significant and to occur repeatedly.

Specific features of the current financial crisis are new. This is often emphasized by the adherents of the "new crisis" school. There is a long list of acronyms representing specific financial instruments that until recently had not entered mainstream monetary economics, but that during 2008 suddenly came to be cited frequently even in the daily general press. Examples are ABS, MBS, ABCP, CDO, CDS, SPC, SIV, subprime mortgages, as well as the list of brand-new Fed-created acronyms describing the Fed's responses since 2008 (such as TSLF, TALF, AMLF, MMIFF) in addition to Treasury's TARP, CAP, CPP and PPIF and the FDIC's TLGP. This gives the impression that the crisis is mainly related to a number of new instruments (and likewise a recovery only possible by inventing new responses). There is a temptation to conclude that all these newfangled instruments – since intimately linked to the losses, near blow-ups and failures of financial institutions – must also have been the cause of the crisis. And as they are new instruments, this would demonstrate that the present financial crisis is unprecedented.

Granted, the activities of banks and securities houses in recent years looked somewhat bewildering to some observers. It seemed to be a form of alchemy that managed to turn what is now called "toxic waste" into triple-A rated securities that eager and commission-based salesmen working for U.S. securities firms were recommending to gullible institutional investors such as the German *Landesbanken*.

The acronyms may be different in this crisis. But each crisis has its own new financial products that appeared attractive at the time, yet turn into "nonperforming assets" in due course. In Japan during the 1980s, there was much talk about "zai-tech" (financial technology) products into which "tokkin" (special fund) accounts of institutional investors were sunk in the expectation of high returns. The big investors who did not liquidate their long positions in these at the end of the 1980s probably do not exist any more. Before the 1920s, few people had heard of "margin loans." They seemed an attractive and sophisticated

[4]"Central banks now pursue their own political agendas, which may include the ... creation of vast bubbles and downturns. ... What is the benefit of crises? … According to World Bank staff, a "crisis can be a window for structural reform," and it can "be an opportunity to reform the ownership structure in the country" (Claessens *et al.*, 2001). "Central Bank Risk is the risk of the ... creation of price, output and currency swings by central banks. Central Bank Risk has increased significantly over the past decade – it is now at a historically unprecedented level" (Werner,2002).

new form of financial engineering that allowed investors to "generate wealth" in record time. In late 1929 it also was the instrument that crushed the largest number of "investors," or indeed lenders. So, if anything, we can already ascertain that each financial crisis seems to involve what only just prior to the crisis was considered "advanced financial engineering" often supported by the clever mathematics of university professors of finance, trained mathematicians or physicists.

Thus today's banking crisis is not the first banking crisis of its kind. It is true that a near-breakdown in the interbank market, as we observed in late 2008, is rare; but it has happened before, such as in the 1930s or when Britain declared war on Germany in August, 1914, starting what is known in Britain as the "Great War." Granted, the nominal extent of the problem is larger today than in the past; but this is always the case due to the inflationary bias of our monetary system.

In the 1980s and 1990s alone, almost 100 countries experienced banking and economic crises (Caprio and Klingebiel, 1999). Banking crises are therefore relatively common. Given such large numbers, it stands to reason that they can be explained by a smaller – and perhaps very small – number of variables. The contention that banking crises – including ours today – are nothing new can be supported, if we can establish that they can be explained by the same mechanism. Further, if such a mechanism can be identified, it must then be ascertained whether it yields indicators that may help predict – and hence prevent – crises. Finally, such a mechanism is then also likely to yield insights into the most efficient responses to crises. All this will put the action of central banks today into perspective.

I would suggest that the cause of crises is as old as banking. And banking is at least 5000 years old, going back to the fairly advanced Babylonian banking system, which was the heart of a cashless, credit-based economy with forward contracts, cashless settlement and the like. Below I thus attempt to distill out briefly the key factors that all these crises have in common. A test of these explanations is whether they help in predicting crises. Here, I believe, the approach has performed well.

2. What are the main causes of banking crises?

2.1 Open questions in monetary economics

In the mainstream approach to macro- and monetary economics, money hardly features. Banks don't feature at all. Over the past year or two, the economics experts at leading universities across the globe thus faced the difficult experience of receiving phone calls from eager journalists asking questions such as "Can crises not be predicted?" and "Please explain to us why we have banking crises." They had to respond that they had no idea, since banking does not even feature in their models of the world.

Given this state of affairs in economics I believe it is fair at this juncture to ask some very basic questions, such as: "What is money?" The textbooks tell us: "We do not know what money is" (see, for instance, Miller and VanHoose, 1993). The central banks today give us a long list of potential definitions, ranging from M0 to M4. Which one is it? The monetarists who use these terms admit that they don't know. There are also significant problems in the empirical application of any of these monetary aggregates: They do not seem to be in a stable, reliable relationship with economic activity. In the early 1980s this problem began to be noticed and by the end of the decade it had become a big conundrum. Many papers were written about this puzzling anomaly, referred to variously as "a velocity decline," a "breakdown in the money demand function," and even the perhaps slightly more figurative "Mystery of the Missing Money," because monetary aggregates were rising a lot but GDP wasn't rising by as much.[5] Where was the money going?

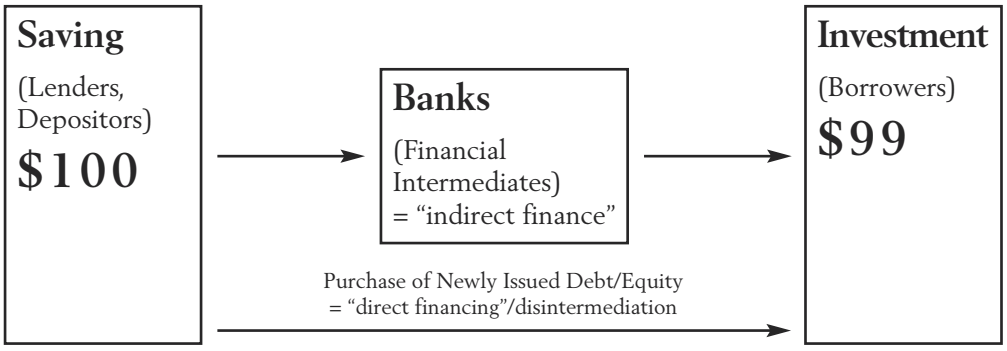
Since the mid-1990s, virtually no new papers have been produced on this question. Observers will be forgiven for thinking that the answer had been found. Yet, the reason there aren't any papers anymore is

[5]For a summary survey of these issues, see Werner (2005).

because people have given up seeking answers. But let's not give up so easily. Instead, let's ask another question: "Who creates money and how is it allocated?" The fact is, in most countries, only about 2 percent of the money supply is the sort of money that you'd think of first, the money that's in your wallet, notes and coins. In most countries, around 98 percent or even 99 percent of all the money is not notes and coins. Now, we understand where this 1-2 percent, the paper money, comes from, because it usually tells us: It has "Federal Reserve Note" or "Bank of England" written all over it. So the more interesting question is, "Who creates the rest of the money?"

Before I come to the answer, there's another puzzle in the mainstream finance and banking literature. Some empirical papers, such as Fama (1985), have shown that banks must have some special power, some kind of monopoly power, compared to other financial institutions. But there is no clear answer as to why that should be. Banks are treated like other financial intermediaries. The textbooks represent this by giving the example of a new deposit of, say, $100 in a bank. With a reserve requirement of 1%, the bank is then shown to be able to lend out $99 to new borrowers. Meanwhile, the bank will deposit $1 with the central bank as its reserve. Hence the bank is "just an intermediary" (Figure 1).

Figure 1. Textbook representation of banks as financial intermediaries; reserve requirement = 1%



2.2 Answers

I pose that this representation is inaccurate and misleading. First of all, there is a methodological issue. How did the authors come up with these explanations? We should always question the methodology, and we should always strive to adopt a scientific research methodology. The natural sciences approach matters by first considering the empirical facts. In economics, the facts are history. So, historically, where do banks come from? And empirically, how do they actually operate? If we adopt this approach – and in this paper for space and time limitations we can only briefly mention the result – we find that there is a good reason why banks are special. Schumpeter called the banks "the central settlement system of the economy, that settles all the credits and debits," and therefore he proposed that we should really start from credit transactions. Things like notes and coins are just a residual, a special case, he argued (Schumpeter, 1954).

There is literature out there saying that credit is key and also that banks are special. This has to do with concepts like the "money multiplier," the "credit multiplier" or "credit creation" – all of which you will not find mentioned even once in the 700 or so pages of the leading monetary economics textbooks of today (Walsh, 2003; Woodford, 2003). Here are some of the facts that you're not supposed to know, which is why they're not in the textbooks:

First of all, I have to disillusion you. People talk about "bank loans." I'm sorry to say, but there is no such thing. Bank loans don't exist. Why? A loan transfers an item from the lender to the borrower, so that the borrower has exclusive use of it. If I lend you my car, I cannot also drive it myself. That's a loan. And that's not what banks are doing. When banks "lend money," they are not extending loans. What they do is far more important and has far bigger implications for the economy. I would argue that this is the single most

important fact about how economies work: When banks do what is called "lending," they do not actually transfer money from somewhere else. Instead, they create money out of nothing.

I shall illustrate this by returning to the textbook example of a new $100 deposit with a bank. Let us consider the bank's balance sheet. In step 1, the new deposit creates a new liability on the bank's balance sheet (Figure 2). The bank is smarter than the textbook writers, so instead of giving $1 to the central bank and lending out $99, it will give the entire $100 to the central bank and say, "That's our new reserve." How much of the $100 will the bank extend as a "loan"? Since the $100 are now on the asset side of the bank's balance sheet as reserve, the bank will point out that the $100 is 1% of $10,000. So theoretically the bank can now lend $10,000 minus $100 and have deposits of $10,000 minus $100. By lending $9,900 and receiving deposits of $9,900 the bank would meet the formal reserve requirement of 1% with its $100 central bank deposit. While this calculation is straightforward, it is less obvious how this should work in practice. To be precise, how can the bank lend $9,900 "out of" a total of $100? It seems a physical impossibility. But has banking ever been hampered by the laws of physics? We may be constrained by the fundamental laws of thermodynamics – such as energy preservation: "You can't create something out of nothing." But this is only confined to physical matters. It does not apply to disembodied things such as thoughts, ideas and, indeed, numbers on paper (or in the computer). We are discussing banking here, not physics. And banking ultimately is accounting. In fact, it now transpires that it is very creative accounting in a somewhat devious way.

Figure 2. A more accurate illustration of the role of banks

Balance Sheet of Bank A

Step 1. Deposit of $100 by customer at Bank A

Assets	Liabilities
	$100

Step 2. $100 used to increase the reserve of Bank A

Assets	Liabilities
$100	$100

Step 3. Loan of $9,900 granted by crediting borrower's bank account with deposit

Assets	Liabilities
$100 + $9,900	$100 + $9,900

Contrary to the standard depiction of the credit creation process in most textbooks, each individual bank creates credit and money when it extends a loan. The original deposit of $100 becomes the 1% reserve on the basis of which loans 99 times as large can be granted by the same bank. Credit creation has "lengthened" the bank's balance sheet.

Let us assume there is a borrower who would like to borrow the $9,900. First, we need to sign a loan contract which features such details as how quickly the compounding interest will double or treble your total repayments or how easily the bank can foreclose on you and make you homeless. The moment this contract is signed by both parties, it has become an asset which the bank can by rights feature on the asset side of its balance sheet. Thus the bank's assets grow by $9,900. You see where we are heading. The bank now has a new asset worth $9,900, and the borrower would like to withdraw this money. The bank will say: "Nothing is easier than that. Luckily for you, we have opened a bank account for you with us. Please check your balance." And the borrower will find that it shows a balance of $9,900. Where does this "money" come from? Did the bank transfer it from any other part of the economy? Of course not – then we would be confined by the laws of thermodynamics and would have a problem. Instead, the bank's accountants, when receiving the signed loan contract, issued instructions to a data entry clerk to type the figures $9,900 into the bank account of the borrower on the agreed date. The treasury department of the

bank may at this stage not even have been informed, so that there may not even have been a chance for the bank to seek to raise such money from elsewhere. But there is no need for that anyway. The money is still only in the bank – and that means it is merely a number. So how did the sum of $9,900 come about? It was created out of thin air. Now that is precisely how 98-99 percent of the money supply is created in virtually all countries. That of course is an interesting feature that, I would argue, makes banks special. If I had a (legal) money printing press at home, I think that would make me somewhat special.

We find that the creation of the majority of our money supply is in private hands. It has been that way for a long time. We have thus already arrived at a level where we can venture a first, rudimentary explanation of the current global financial crisis. The main cause is the privatization of money creation and its allocation. Banks are profit-seeking institutions. They do not think about the macroeconomic and social welfare implications when they create money and transfer it to their customers. They don't consider whether or not it is actually a qualitatively good transaction that leads to welfare enhancement or whether new money is being created and given to an unproductive speculator who can now lay claim on finite resources far larger than all the money ever going through the hands of those productively engaged in such activities as teaching or healing people. There can be little doubt: Banking has been an industry oblivious to sustainability considerations for centuries. The system has been put in place by interested parties without any public debate, and I think now it's time to have this public debate. But we have another objective in this presentation, so I am pressing on.

Next, we should be aware of some empirical features concerning the credit market. It is established fairly clearly in both theory and empirical practice that because money is very special, there is much demand for it. When I was an undergraduate student and for the first time heard about the money demand function, I thought, "What are they talking about? My demand for money is infinite!" If demand and supply don't match, the market is not in equilibrium. In that case, the market is rationed. There is a rule about rationed markets: They operate according to the "short side principle," which says that whichever quantity of demand or supply is smaller will be transacted. In the case of money it is fairly easy to find out whether demand or supply is smaller. Since money demand is virtually infinite, it all depends on the supply. And we have just found out that 98 percent or so of money is supplied by commercial banking operations. Indeed, as Stiglitz and Weiss (1981) have shown, banks always ration credit, because the theoretical equilibrium interest rate would be so high it would be off the chart. As a result, only risky borrowers would come forward, saddling the banks with significant nonperforming loans. Therefore it makes sense for banks to ration the supply of credit. Therefore the supply of credit, which is created by banks, is the key variable in macroeconomics.

Now I'll get to a few important points on the basic rules for sound and stable banking and how to avoid crises. Keynes in his 1930 *Treatise on Money* said that we should divide money into its use for speculative purposes and its use in the real economy, which he called "industrial circulation." Fisher earlier had a similar idea. Friedman later considered these proposals favorably, but concluded that they could not be implemented in practice because the money supply could not be disaggregated by the use of money. The reason for this was the traditional definition of money into the M aggregates, such as M2 or M3. Since 1992 I have proposed a credit approach, because an accurate measure of the money supply is actually credit creation and because this has the additional advantage that we can divide this credit money qualitatively by its use. In other words, we can actually do what these great economists have been proposing for a long time. We define money as credit and divide it into credit used for transactions that are part of GDP ("real circulation credit" or CR) and credit used for non-GDP transactions ("financial circulation credit," "speculative credit creation" or CF). The non-GDP transactions are financial transactions and those real estate transactions that are also mainly financial hence are not part of GDP.

The vast volume of financial transactions – buying, selling, churning and turning of speculative financial players – is of course not part of GDP. Therefore, it is not surprising to find that whenever credit is used

for financial transactions, it cannot affect nominal GDP (for instance in the form of consumer price inflation). This finding already provides my explanation for the so-called "velocity decline." When newly created money is injected into the real estate market, it will have an impact on real estate prices – they will rise. If this money suddenly dries up or is even withdrawn, what happens with real estate prices? They go down. So credit for financial circulation (speculative credit creation) is always unsustainable because there is no underlying real income generation to service or pay back these loans in aggregate – you may be able to do it in individual cases but never in aggregate. So there is our main source for banking crises. The variable to watch in order to forecast when the next banking crisis will happen is the ratio of credit for financial circulation to total credit. This is also the variable that should be used to prevent the next crisis.

With reference to Japan, this ratio doubled from 15 percent around 1980 to 30 percent ten years later (Figure 3). This is just a ratio. The absolute figures were, of course, enormous because total credit also grew extensively, but the financial credit grew by much more. And that explains the Japanese real estate bubble, which is the prototype for what we're currently experiencing. Another example of this speculative financial credit creation occurred in the 1920s through margin loans in the U.S. Here, stocks are used as collateral for banks to create credit. In the Japanese case, the definition of CF was bank credit extended to real estate companies, construction companies and nonbank financial institutions (which mainly invested in the real estate sector). Nowadays, we have financial innovation, and we have new examples of speculative and unsustainable credit creation: loans to structured investment vehicles that invest in financial instruments; loans to hedge funds that speculate; loans for mergers and acquisitions (this also creates credit without adding to productive activity in the form of new goods or services); loans to private equity funds; and, of course, direct investments by banks.

Figure 3. The proportion of credit used for speculative purposes in Japan

So this is how a bubble economy works: You start with an increase in speculative credit creation (CF). Rising financial credit creation pushes up asset prices, which improves corporate balance sheets, and collateral values rise. This creates a very positive and euphoric outlook for financial investors, companies and banks alike. Banks increase their loan evaluation ratios, as they feel justified in expanding credit further, and therefore financial credit creation rises further. However, all of the speculative credit creation is unsustainable and in aggregate must turn into bad debts – if there is no suitable government or central bank intervention.

The downturn is triggered by a slowdown in CF. The trigger is usually the central bank, but it could also be a shock. As the bubble gets very big, almost anything could trigger a turn for the worse. But when it happens, you first notice the credit creation to the financial sector falling, which leads to asset prices falling. This creates the first bankruptcies—of overstretched speculators—and some unemployment, though initially small. Bank bad debts must increase and of course that means banks get more risk averse. As a result they reduce credit creation further and you have another round of contraction, bankruptcies and

slumping demand. This downward spiral can go on for a long time. Next year Japan will be in the twentieth year of its slump.

So the cause of past banking crises is always the same: an asset bubble created by speculative (and unsustainable) bank credit creation like those in the U.S. in the 1920s, Scandinavia and Japan in the 1980s, the Asian crisis in the 1990s, the U.K. property bubble until 2007, the U.S. property bubble and Irish and Spanish bubbles until recently.

However, credit creation is not only about asset bubbles and banking crises. Banks do not have to lend to speculators (although it may often appear to be compulsory – or how else could one explain their reckless behavior?). It is important to remind ourselves that banks can create money and give it to people who use it for transactions which are part of GDP. That creates two possibilities, namely a) inflation without growth and b) growth without inflation. The first one is not desirable: This is basically when credit is created and used for consumption, i.e., for activities that don't add to the stock of goods and services. Again, if money is created and the same amount of goods and services is being chased by this increased money, their prices must go up. That's called consumer price inflation. But there is another possibility – and that's the Holy Grail of macroeconomic policy – namely growth without inflation. Credit creation that is used for the production of new goods and services will always be noninflationary and create pure growth. This is always possible, whether we are below so-called "full employment" or at full employment. We can always have further growth without inflation because the money creation creates new goods and services so that there is no reason for inflationary pressures. That's why this is called productive credit creation.

3. Policy implications

3.1 How to avoid bubbles and banking crises

So how do we avoid banking crises and unproductive credit creation, both of the speculative and the consumptive kind, and ensure that we obtain mainly productive credit creation? This is what some may call boring, old-fashioned banking. It used to be what bankers focused on – when they preferred a quiet life without banking crises – but also with lower bankers' pay. The pay, but also the advances of modern economic theory, persuaded many bankers otherwise. So what is required for productive credit creation? All we need is transparent regulation of the qualitative allocation of bank credit, with a simple rule: bank credit must never be given to those who will use it for non-GDP transactions. This means mainly the financial speculators. Such a regulation is enforceable, because banks do ask borrowers a lot of questions as part of their credit analysis. Central banks also ask banks many detailed questions about the use of the newly created credit. Finally, by so drastically restricting access by speculators to bank credit, we are in no way prohibiting financial speculation. To the contrary, speculators will continue to be free to speculate. What should be forbidden, however, is to give them access to newly created money, which affects us all and the stability of the economy and financial system. Meanwhile, the speculators will be free to access the allegedly efficient capital and financial markets to raise their funds. It is ironic that hedge funds engaged in allegedly highly complex financial transactions in the end could do their jobs only because they relied on plain, old-fashioned bank credit (creation). That is what gave them the excess returns. And that is what must be taken away from them. Let them earn double-digit returns without being able to access newly created money.

Unfortunately, modern economic theory has rejected the idea of directing bank credit as an unwarranted interference in the efficient functioning of free markets. Ironically, now, after the horse has bolted, governments have been taking steps precisely to monitor bank lending and its allocation, in order to ensure that small firms obtain loans. In other words, the current crisis has demonstrated the need to intervene in the credit market. Of course, once we admit that, then it becomes clear that we could have avoided the entire problem if we had done so several years ago. In actual fact, given that the credit

market is rationed, it is not very difficult for welfare and efficiency-enhancing government intervention to take place. Had proper regulation of the qualitative allocation of credit creation taken place earlier – by preventing speculative credit creation – the entire financial crisis and preceding bubble could have been avoided.

This leads us to another issue: Who carries the greatest responsibility for the crisis? Many people are involved in this, carrying partial responsibility. But usually they have no power or even knowledge about the credit aggregates, which are really the problem. The central banks have both the data and the instruments to intervene and prevent crises and bubbles. They intervened in the allocation of credit until the early 1970s, when they monitored very directly the quantity and quality of credit allocation (credit guidance, or credit controls, as it is sometimes called). As a result, they avoided, in many countries for decades, financial crises. But central banks had to stop doing this. It rendered their power too obvious. They were pitching for greater legal powers and central bank independence and hence had to downplay their ability to manipulate the economy as well as their power to create boom and bust cycles. If such power had been widely known, would we have made central banks so unaccountable? Today, they can virtually do what they want – democratic institutions have virtually no way left to influence the economy. It is largely in the hands of unelected technocrats who know what is good for us (a justification that was very popular in Nazi Germany, by the way). So it was argued that more power should be given to central banks and the world would be better off for it. The empirical evidence is now in: That's not the case. So the role and independence of central banks need to be reviewed.

How can we end the cycle of recurring banking crises? We either return the power to create money to the public, for instance in the form of true government money issuance, which unfortunately currently we don't have, or we institute rigorous controls and transparency over the money creation and allocation process. There would have to be discussions of the type, "Should Bank A newly create and give money to this hedge fund, or should it create money and hand it to an environmentally sustainable and interesting project that is good for the local community?" We could also abolish central banks entirely and render them departments of the government, the Finance Ministry (or Treasury), which would then put me very much into agreement with some of the things Scott was saying, if that were the world we live in. Perhaps we should create such a world. Or we make the central banks legally dependent on democratically elected institutions, accountable and transparent, especially concerning their credit creation policies. And then we monitor and restrict credit creation to make sure it is granted only for productive uses.

3.2 Suitable post-crisis policy responses

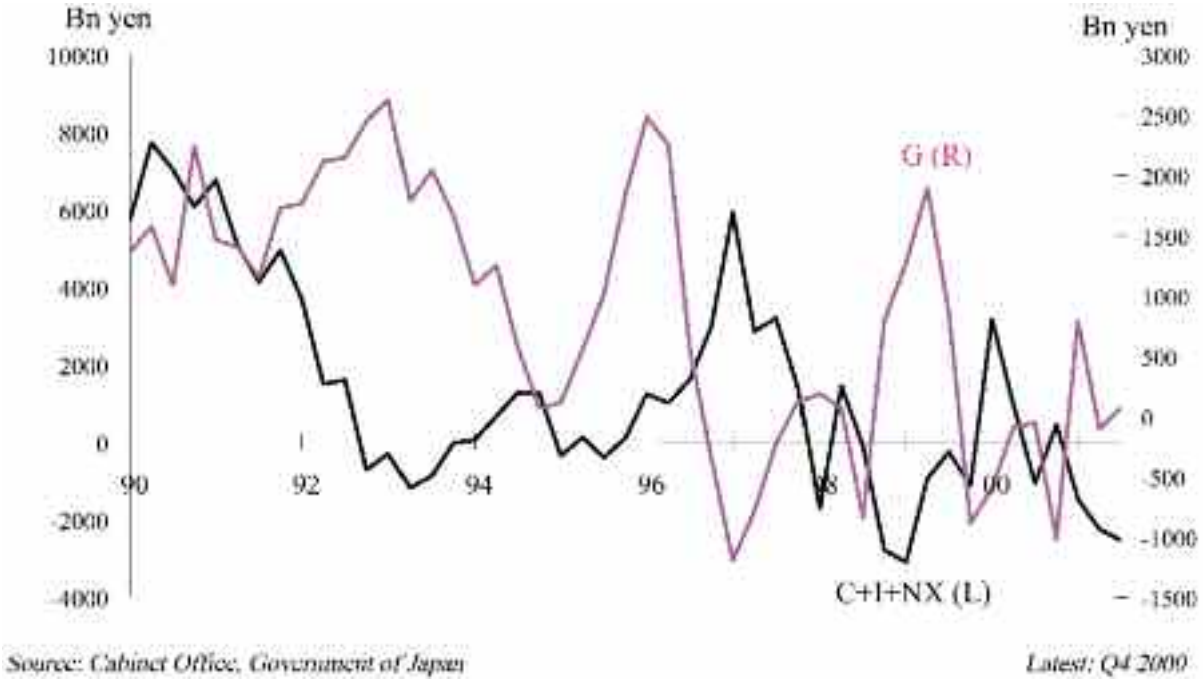
What are the solutions once a crisis has broken out? The cause of crises has been credit creation. The solution also has to involve credit creation. This is not too difficult. It is not as if factories have disappeared. The working population in most countries is still there, nothing has been swallowed up by the ocean, so our problem amounts to an accounting problem. Well, let's change the accounts! The institution that can do that legally within the current framework, without big institutional changes, is the central bank. Just to give an example of correct policy responses, look at the U.K. in 1914, Germany in 1933, Japan in 1945, Malaysia in 1998 or China in 2008. The correct responses are few. You will find many examples of wrong responses.

The problem with the current bailout in fiscal expenditure is that it is often not linked to credit creation. Fiscal expenditure per se does not increase credit creation *per se*. Fiscal expenditure does not mean government money issuance. This is so in most countries, including the U.S., because the Federal Reserve is not a government entity. It was created as a bankers' cartel, is owned by the bankers and, despite the existence of a politically appointed board in Washington, we can't treat it as being fully part of the government. With the birth of the Federal Reserve in 1913, national debt really took off in America, because the government couldn't create money anymore. Despite the fact that the U.S. Constitution

identifies only the government as having the right to create money, this power has been outsourced and the government has to borrow from the central bank at compounding interest. Naturally, the debt burden must rise.

At the same time, increased fiscal expenditure will not stimulate the economy because it is not directly linked to credit creation. My empirical work on Japan, the first country to embark on a vast post-crisis fiscal expansion program, showed that for every yen the government spent, which is the pink line, private demand fell by 1 yen (Figure 4).

Figure 4. Government expenditure G vs. private demand in Japan



For details on the econometrics, see Werner (2005). The statistical results were strong, the coefficient for government expenditure coming in at virtually exactly -1. The logic is as follows: When the government issues bonds to fund its public sector borrowing requirement, it drains this money from the economy. It will inject it again with the other hand, but it is a zero-sum game. The amount of money (or credit) circulating does not increase, thus there cannot be more nominal economic growth. In other words, with the same size of the income pie, an increase in government expenditure merely increases the government's share of this pie. Thus the private sector share must decline by the same amount, resulting in complete crowding out. This is not the textbook type of crowding out – which takes place via interest rates: rates declined for over a decade in Japan. It is a form of quantity crowding out due to the restriction in credit creation. So when the government injects money with the right hand, it takes the same money out with the left by issuing bonds, and if the bond buyers, private sector nonbank investors, pull the money out from somewhere else, the effect will be zero. This is what I argued in 1995, and it has held up well (Werner, 1995).

I also proposed how this can be resolved. There are many possibilities, but here is one way to recapitalize the banks or increase credit creation or boost demand at zero cost. Since we have to utilize credit creation, current institutional arrangements leave us with the banking sector and the central bank. Connected to this, one also needs to ensure that the bill for fiscal expenditure stays with the banking sector, including the central bank, and is not passed on to the government (i.e., the taxpayers). The taxpayer was not responsible for this banking crisis, so why should the taxpayer pay? The central bank and the banks were responsible, so they need to be left with the bill for this. That way, the problem can be solved in the most

efficient way, and indeed at zero additional social costs. Unfortunately, the post-crisis responses in many countries turned this principle on its head and left governments and taxpayers with unprecedented bills. Even when the central bank was utilized, often governments allowed themselves to be persuaded to foot the bill. Although the Fed intervened apparently without prior consultation with the Treasury in several cases of financial rescues and asset purchases, in the March 2009 Treasury-Fed Accord the Treasury agreed to foot the bill of all central bank expenses if the Fed so wishes (Federal Reserve and Treasury, 2009).

By contrast, let us consider how Japan escaped from far bigger banking problems far quicker and at little cost to the taxpayer. I am emphatically not talking about the recent Japanese banking and economic problem, but the banking crisis of 1945. The bad debt problem amounted to virtually 100 percent of bank assets. Banks had mainly two items on their balance sheets: forced loans to the ammunition industry, which had ballooned in the last year of the war (in 1945, with the arrival of American troops, they were worth nothing!) and Greater East Asian Prosperity Bonds (forced war bonds). These were also worthless. (Actually that's not precisely true: one can still buy them for around $10 on eBay! I've got two on my wall.) So the banks' balance sheets on the asset side consisted of nothing valuable. By comparison, bank balance sheets were impaired only up to 30 percent in the 1990s. Nevertheless, in 1947 bank credit creation was ballooning and the economy accelerated dramatically. How was this achieved? Since the U.S. required a fast recovery, there was no debate about whether accounting tricks should be used or not. We must remember that the central bank can simply buy all the nonperforming assets from the banks – for instance, at a face value of 100, although we know they are worth only 10. While it then appears as if the central bank will sustain a loss of 90, in reality it will make a profit of 10. Its cost of funding is zero, and it obtains something that is worth 10. This is how the Bank of England helped the British banks in 1914. Even if the Bank of England still had all those European "enemy country" bills of exchange on its balance sheet today, they would not be an issue, as inflation would have rendered them minor items over the past century. Remember, central banks do not have to mark their assets to market.

I made another proposal in 1997 which has been picked up by some U.K. economists—Andrew Smithers, Tim Congdon and now Charles Goodhart. I found that this is how Germany reflated in 1933. To kick-start bank credit while avoiding fiscal crowding out of the kind just described, the German government did the logical thing: Instead of funding government expenditure through bond issuance it raised funds by borrowing from the commercial banks. In this case, as we discussed earlier, new purchasing power is created out of nothing, together with banking sector liabilities (called "money"). There will be no crowding out and fiscal policy will be fully effective. An expenditure of US$10bn will boost the economy by $10bn.

If one wishes to be more radical, there are other solutions to avoid crowding out and to kick-start the economy. The crisis may tell us that it is perhaps time to rethink our financial architecture. There are better, more sustainable systems. For example, Friedman (1982) made this suggestion: Why don't we abolish the central bank and turn it into a small department within the Treasury? One could argue that one person sitting at a small desk inside the Treasury could do the job better than the Federal Reserve system's thousands of overpaid staff. This is not how the U.S. system was designed, for various reasons, and Friedman understood those quite well. So he was very much aware that the central bank is not the government and that it pursues a different agenda from the government. Do we need central banks? I think we should make sure the central bank is much more aligned with the government in its goals, and therefore fiscal policy will always be linked to monetary policy.

Why aren't these simple policies being adopted? I have published much on them since 1994 in Japan, where I've had monthly columns in the papers. One reason may be genuine lack of public awareness. But that alone may not be enough; there is also the role of vested interests. According to the World Bank, crises can actually be quite useful. A crisis can be a "window of opportunity for structural reform" and, very interestingly, for "transferring ownership" in a country. Empirically we find that when it is convenient, the

right thing is done, as in the U.K. in 1914, Germany in 1933, Japan in 1945 and perhaps the U.S. in 1963. This leads me to the last example: Kennedy, it seems, also understood that fiscal expenditure had to be linked to money creation to be effective. But since the Fed apparently refused to monetize his spending he must have gotten his brother Bobby, the Attorney General, to check the laws. Bobby must have come back and said, "John, go ahead, because the Constitution says that only the government has the right to coin money." And so here is the U.S. government money they issued (Figure 5).

Figure 5. U.S. government money from 1963: United States Notes, without the Fed seal

It is identical to the Federal Reserve Note of the time, but it is entitled "United States Note." Notice there are not two seals as on standard U.S. money, but only a red "Treasury Seal" on the right. This money was issued only by the government and had no connection with the central bank. Fiscal expenditure paid for in this way is fully monetized and does not crowd out private demand, nor does it impose a compounding debt burden on future generations.

4. Central bank operating procedures

I will conclude with a final comment on central banks' operating procedures. Central banks claim that they make monetary policy by moving interest rates, which is what we are familiar with. It is not so well-known today that academics did not believe this central bankers' story until the 1980s. For decades they felt that this claim was not true. But then, since around the 1990s, academics have given up resistance and have just accepted what the central banks are telling them: monetary policy is all about setting interest rates. When you look into how they changed their view and came to accept the central banks' story, you find that the methodology is not scientific; it is not based on an empirical examination of what central banks are doing. It is a case of uncritically repeating the assertions of the central bankers.

The empirical record contradicts this story. We are all familiar with the main chart in economics, featuring a downward sloping demand curve and an upward sloping supply curve.

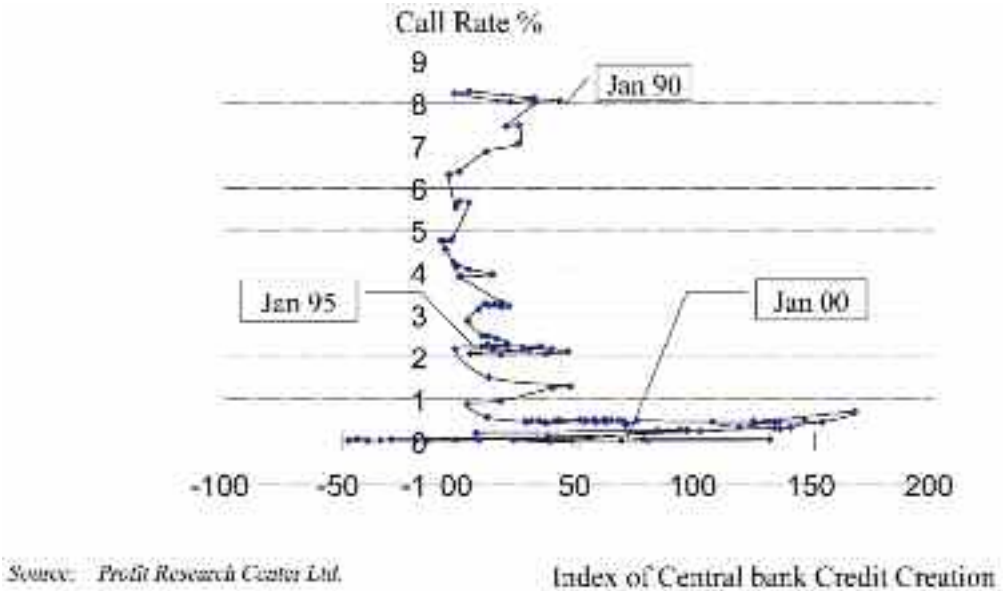
The official chain of causation is that short-term nominal rates affect both the whole yield curve structure and financial markets, economic activity and prices. But this requires, empirically, a negative correlation between nominal short rates and nominal growth – low rates lead to high growth, high rates lead to low growth – and the causation from rates to growth. However, the evidence is weak or non-existing. It turns out that the story of a negative correlation between interest rates and growth is based on theory, not on empirical facts.

Theory says that prices move to deliver equilibrium where the two curves intersect. If this describes the call or money market, we find that central banks can't target both interest rates (the price) and quantities. But does it describe reality? We only ever achieve equilibrium and obtain this result if a long list of assumptions hold, such as perfect information, complete markets, perfect competition, no transaction costs, utility maximization of agents, immediate price adjustments, absence of friction, etc. One might wonder which planet this refers to. Last time I checked, none of these assumptions held on planet Earth. The reality is that in our world, information, time and money are rationed. That means

everything is rationed and no market is in equilibrium. That changes economics profoundly. Disequilibrium economics is what we should be talking about, as I mentioned before, and it's very simple, based on the "short-side principle." Neoclassical economics has thus served an important function: It has demonstrated that equilibrium could exist only if we lived in a world of perfect information, etc. In other words, it has proven that there can never be equilibrium on this planet because the required assumptions are so stringent that we know for sure they will never apply to our world. But this result is now official: Greenspan has said that there's a flaw in how the free market system works and that his understanding of banking and markets has been wrong.

Since we live in a world of rationing it suddenly becomes possible for central banks to determine both interest rates and the quantity of credit creation – almost independently. Empirically, there is evidence that the correlation between nominal interest rates and nominal growth is positive, and the statistical causation runs from growth to rates. There seems to be some form of cognitive dissonance: While the traditional official party line is "Low rates lead to high growth, high rates lead to low growth," the facts are that high growth leads to high rates, low growth leads to low rates. This is different from the official story by two dimensions: causation and correlation. How can this be? The official story requires equilibrium. There is no such thing in reality. Figure 6 shows overnight interest rates on the left axis and the quantity of credit created by the central bank on the right axis, again using the Japanese example.

Figure 6. Evidence for rationing in the Japanese call market



This chart suggests that there is no equilibrium as the central bank seems able to choose any combination of price and quantity. This implies that central banks have more tools available than they like to tell us: They can set one policy rate and they can vary the quantity of their own credit creation independently – in virtually any direction. The ECB offers a further example: While interest rates are the same in euroland, the quantity of credit creation of the member central banks (and also of the banking systems) is quite different. If one wants to know the situation of the Irish and German economies it is little use trying to interpret interest rates. The quantity of credit creation in these countries, however, has information value. The trouble is that central banks have an incentive to misinform us, which the empirical record shows they have done in the past (Friedman, 1982; Horiuchi, 1993; Werner, 2003). Thus their role, status, transparency and accountability need to be reconsidered urgently.

References:

Caprio, Jerry, and Daniela Klingebiel. 1999. "Episodes of Systemic and Borderline Financial Crises," mimeo, World Bank, October, Washington, D.C.

Fama, Eugene F. 1985. "What's Different about Banks?" *Journal of Monetary Economics*, 1985, vol. 15, pp. 29-39.

Federal Reserve and Treasury (2009), Joint Press Release on March 23, 2009, accessed at http://www.federalreserve.gov/newsevents/press/monetary/20090323b.htm

Friedman, Milton. 1982. "Monetary policy, theory and practice," *Journal of Money, Credit and Banking*, vol. 14, no. 1, February, pp. 98-118.

Horiuchi, Akiyoshi. 1993. Chapter 3: "Japan," in: Haruhiro Fukui, Peter H. Merkl, Hubertus Mueller-Groeling, Akio Watanabe (eds.). *The Politics of Economic Change in Postwar Japan and West Germany*, Vol. 1, *Macroeconomic Conditions and Responses*, 1993, London: Macmillan.

Keynes, John Maynard. 1930. *A Treatise on Money*, Vol. 1, London: Macmillan.

Miller, Roger L., and David D. VanHoose. 1993. *Modern Money and Banking*, International Editions, Third Edition, McGraw-Hill, Inc.

Schumpeter, Joseph A. 1954. *History of Economic Analysis*, New York: Oxford University Press.

Thomas, Steve, and Richard A. Werner. 2004. "Has Bank paid enough attention to preventing a housing bubble?" *Financial Times*, July 6, 2004. Available at http://search.ft.com/ftArticle?searchtype=equity&ft-site=FTCOM&vsc_appId=ts&queryText=richard+werner&searchOption=equity&ftsearchType=type_news&id=040706001123&ct=0

Werner, Richard A. 1995. June edition, *Liquidity Watch*, Jardine Fleming Securities, Tokyo.

Werner, Richard A. 2002. "The spectre of central bank risk and what investors need to know about it," paper presented at Hedge Fund World Japan 2002 Conference, December 3, 2002, Tokyo.

Werner, Richard A. 2003. *Princes of the Yen*, Armonk: M. E. Sharpe.

Werner, Richard A. 2005a, *New Paradigm in Macroeconomics*, Basingstoke: Palgrave Macmillan.

Werner, Richard A. 2005b. *New Paradigm in Macroeconomics* – Book launch presentation at the Daiwa Anglo-Japanese Foundation, May 3, 2005, London.

Werner, Richard A. 2005c. *New Paradigm in Macroeconomics*. Presented at the *Oesterreichisches Institut fuer Wirtschaftsforschung (WIFO)*, June, 2005.