

Procyclicality in the Financial System: Do We Need a New Macroeconomic Stabilization Framework?

William R. White

- Economic liberalization almost everywhere has constituted a positive supply shock which has been profoundly disinflationary at the global level. Financial liberalization in the industrial countries has also given fuller rein to inherent tendencies towards “procyclicality”, a process of credit creation leading to asset price increases and heavy fixed investment which can amplify the business cycle. Monetary authorities in the industrial countries have generally been able to follow easier policies than otherwise given the absence of inflationary pressures. Monetary authorities in emerging market economies, particularly in Asia, have also eased in an attempt to offset the upward pressure on their currencies resulting from ease elsewhere. Given this combination of circumstances, there has been no systematic resistance to the financial sector’s inherent tendencies to overreach.
- Adept countercyclical monetary policies have to date mitigated the potential economic costs of these imbalances. However, these policies have also had less welcome cumulative effects over time. The first is that nominal policy rates were ratcheted down very close to the zero nominal bound. This raises issues having to do with the potential for future policy responses in the event of further shocks threatening growth and employment. The second by-product has been that the financial imbalances have tended to grow ever larger. Consider the low level of saving in the United States, the current high level of fixed investment in China, rising house prices almost globally, and growing external imbalances as well. The paper concludes that the global economy does face exposures warranting a policy response.
- The challenge for domestic authorities looking forward is how the likelihood of a recurring imbalances might be reduced while still maintaining the benefits of financial liberalization. Two principles might underly such a domestic macroeconomic stabilization framework. First, we need closer cooperation between the domestic official agencies concerned about financial stability. Second, a more symmetric response from both monetary and regulatory authorities to the expansionary and contractionary phases of endogenous financial cycles might be suggested. In this regard, more attention needs to be paid to the source of disinflationary and even deflationary forces, since history indicates that they are not all equally dangerous.
- The parallel issue of whether we need a macroeconomic stabilization framework at the international level is also discussed. Unlike earlier international financial systems, there is no mechanism in the current “hybrid” system to prevent external imbalances from becoming so large as to threaten an eventual disorderly adjustment.

William R. White

Economic Adviser & Head of Monetary and Economic Department,
Bank for International Settlements,
Centralbahnplatz 2,
4002 Basle, Switzerland.
Tel.: ++41 61 280-8350, Fax: ++41 61 280-9113,
E-mail: william.white@bis.org.

KIEL ECONOMIC POLICY PAPERS

Kiel Institute for World Economics, 24100 Kiel, Germany;
Tel: ++49-431-8814-1; Website: <http://www.ifw-kiel.de>

Managing editor:

Prof. Dr. Harmen Lehment, Tel: ++49-431-8814-232,
E-mail: Lehment@ifw-kiel.de

Die Deutsche Bibliothek – CIP-Einheitsaufnahme

A catalogue record for this publication is available from Die Deutsche Bibliothek

<http://www.ddb.de>

ISSN 1860-7322

ISBN 3-89456-273-0

© Institut für Weltwirtschaft an der Universität Kiel 2005.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without the prior written permission of the Publisher. Printed in Germany

Contents

Introduction	3
1 Secular Trends	4
1.1 Stylized Economic Facts	4
1.2 Alternative Explanations	7
2 Current Exposures: Do They Warrant a Policy Response?	12
3 Towards a Domestic Macrofinancial Stabilization Framework	16
3.1 Key Elements of a New Domestic Framework	16
3.2 Impediments to a New Framework and How They Might Be Removed	19
4 Towards an International Macrofinancial Stabilization Framework	22
Conclusion	23
References	23

Lecture delivered at the Kiel Institute's Advanced Studies Program on 28 February, 2005. The views stated herein are those of the author and are not necessarily the views of the Bank for International Settlements.

Procyclicality in the Financial System: Do We Need a New Macrofinancial Stabilization Framework?

This long run is a misleading guide to current affairs. In the long run we are all dead. Economists set themselves too easy, too useless a task if in tempestuous seasons they can only tell that when the storm is long past the sea is flat again.

John Maynard Keynes

No very deep knowledge of economics is usually needed for grasping the immediate effects of a measure; but the task of economics is to foretell the remoter effects, and so to allow us to avoid such acts as attempts to remedy a present ill by sowing the seeds of a much greater ill for the future

Ludwig von Mises

Introduction

A number of years ago the then president of the Deutsche Bundesbank, Hans Tietmeyer, asked the staff of the BIS to prepare a paper on “short-termism” for discussion by the G10 Governors. This was not a term that was familiar to many of the BIS economists trained in the Anglo-Saxon tradition, and the resulting paper was judged to be well off the mark. Nevertheless, the experience did have one real benefit in that it provided an incentive to probe more deeply into both economic history and the history of economic thought. With respect to the former, it emerged that a number of puzzling and worrying recent developments seemed to have had earlier historical precedents. With respect to the latter, the contribution of the Austrian school of economics seemed to provide some clues as to the origins of these worrisome developments as well as some guidance as to how policy might deal with them.¹ Perhaps the most important message is

¹David Laidler (1999: 49–50) contrasts Austrian analysis with that of the IS/LM model (see the quotes above) which still lies at the heart of the analytical framework used by most modern policymakers. Laidler notes that the latter is essentially static, whereas “the passage of time is a central feature of Austrian theory”. While the accumulation of stocks (say, debt levels) is evidently impossible in a one-period model, the evolution of such stocks and related “imbalances” is another central feature of the more dynamic

that policymakers should try to avoid the build-up of dangerous economic imbalances in the first place.²

These investigations, elaborated below, led to some simple conclusions. Both the real and financial aspects of how the global economy functions have changed profoundly in recent decades. So too has the conduct of monetary policy, with its new concentration on the objective of price stability. The interactions between these structural changes account for a number of secular macroeconomic trends, some desirable but others less so, and also help explain some current policy conundrums. Finally, these back-

Austrian approach. Moreover, while modern macroeconomics has many ways of dealing with expectations about the future, few, if any, follow the Austrians in assuming systematic errors of judgment about future investment returns and associated misallocation of resources. Further, whereas most modern models assume a smooth adjustment from one equilibrium situation to another, the Austrian approach stresses growing imbalances and periodic crises. Finally, whereas the IS/LM approach implies a highly activist policy response to shocks, Austrian theory suggests some policy actions might, over time, make things worse, not better. As Laidler concludes: “It would be difficult in the whole history of economic thought to find coexisting two bodies of doctrine which so grossly contradict one another”.

²Keynes had doubts about the efficacy of monetary policy in deep contractions and thus recommended the use of fiscal policies. The Austrians doubted the efficacy of both monetary and fiscal policies, and therefore tended to put more emphasis on preventive actions.

ward-looking observations about past and current issues lead to some practical suggestions as to how the current framework for preserving monetary and financial stability might be improved in the future.

To summarize, we may need a new *macrofinancial stabilization framework* to insure against systemic financial excesses that could eventually feed back, perhaps severely, on economic output and unemployment. Such a framework would be based upon two main principles. First, a more symmetric policy response to the expansionary and contractionary phases of the financial cycle. Implicit in this would be a greater policy focus on longer-term outcomes of policy decisions than currently seems fashionable. Second, a heightened degree of cooperation between all involved agencies of government would be essential. This framework, with its objective of containing financial excesses, would ideally have both a domestic and an international dimension.

At the domestic level, recognizing that the maintenance of price stability (while welcome) has historically not been sufficient to ensure good domestic economic performance over time, monetary policy would have to react more to internal financial imbalances than it currently does. This is defined below as a framework of *augmented inflation targeting*.³ An underlying premise is that there might be more policy tolerance of mild deflation if it arises either from positive supply shocks or if the alternative is even stronger deflationary forces over time. As for the domestic regulatory authorities, they might be advised to adopt a *macroprudential regulatory framework*, one that puts more emphasis on the health of the financial system as a whole, rather than the state of individual institutions as is currently the case. Finally, recognizing that keeping one's domestic house in order

might not be sufficient to provide international stability, there could be need for a *new international monetary order* to help prevent the build-up of external imbalances that could eventually culminate in global crisis. Recall that, before they broke down, this is precisely what the gold standard and the Bretton Woods systems were designed to do.

This paper is in four parts and draws heavily on earlier BIS research carried out by many colleagues, in particular Claudio Borio. Its structure reflects the belief that dynamic processes are the link between the past and the future, and they pass through the present. Section 1 focuses on the past. After identifying some stylized and often puzzling economic trends observed over the last few decades, some alternative explanations are suggested. It is concluded that a less orthodox analytical approach in the Austrian tradition has significant merit. Section 2 focuses on the present. Assuming the correctness of the less orthodox analysis, it describes existing financial imbalances and suggests ways that policymakers might deal with them. Section 3 looks to the future. Again assuming the less orthodox interpretation of what has been going on, suggestions are made for a new domestic policy framework that might reduce the chances of generating harmful financial imbalances in the future. After identifying some practical impediments to such alternative domestic regimes being made operational, attention is given to how those impediments might be removed. Section 4 concludes by looking at some parallels between a domestic macrofinancial stabilization framework and the international monetary system.

1 Secular Trends

1.1 Stylized Economic Facts

Looking back over the last few decades, four sets of observations stand out. The first two must be judged welcome, the last two less so. The first is the general reduction in both the level and volatility of inflation. The second is

³Morris Goldstein (2002) has suggested something similar, *Managed Floating Plus*, for use in emerging market economies. For Goldstein the "Plus" is avoidance of the currency mismatch problems which caused so much damage during the Mexican (1994), East Asian (1997–98) and Argentine crises. Evidently, this is only one form of financial imbalance among many.

the robustness of real economic growth and, again, a general reduction in its volatility. The third is the increasing prominence of credit, asset price, and investment “booms and busts”, often accompanied by financial crises of various sorts. The fourth observation is that of increasing global trade imbalances; not least in importance, the rising external deficit and debt of the United States.⁴ The objective of Section 1.2 below will be to suggest a single set of factors capable of explaining the simultaneous observation of all four phenomena.

Since the peak levels of the late 1970s, *inflation* has fallen sharply on a worldwide basis. While most attention has been focused on the industrial countries, emerging market countries have had the same experience. Even in Latin America, where many countries previously were afflicted with recurring bouts of hyperinflation, inflation has now almost everywhere been reduced to single digits. Perhaps even more remarkably, this trend was not permanently interrupted in the aftermath of very large currency depreciations in Argentina and Brazil in the late 1990s. Indeed, inflationary pressures have receded so much in some countries that outright deflation has either actually emerged for some time (for example in Japan, China, and Hong Kong SAR) or threatened (for example in the United States, Germany, and Sweden). Recall in particular the deflationary rhetoric in the United States supporting the monetary easing which took place in 2002 (Bernanke 2002, Ahearne et al. 2002), and the concerns that have begun to surface more recently about prospective deflation in Germany should the euro strengthen significantly further. At these low inflation levels, the variability of inflation has also decreased. Shocks to inflation now seem less persistent, with inflation following a more mean-reverting path. In sum, inflation seems much better anchored at low levels than in the past.

Over the last two decades, the trend of global *output growth* has risen while the variability of output growth (excluding crisis-hit countries)

has also fallen. As to the former, periods of expansion in the industrial countries have lengthened while growth rates in many emerging countries have risen sharply. China, for example, has been growing at nearly 10 per cent per annum for almost 20 years. India’s trend growth rate has also risen sharply compared to 20 years earlier. As for volatility, output fluctuations have generally diminished since the mid-1980s, with the United States perhaps showing the greatest improvement. Strong growth for the last 20 years in the United States has been interrupted only by the very mild recessions of 1990–91 and that of 2001–02. In contrast, countries hit by crisis (the Nordics in the late 1980s and East Asia in the late 1990s) experienced rapid output growth and low volatility, but only until the crisis hit.

If these first two sets of facts are rather satisfying, the third and fourth are less so. Over the last few decades, the global financial system has been subject to a growing number and increased variety of disruptive incidents.⁵ Losses due to operational risks in the financial sector have been rising, reflecting not only the decline of prudent governance during recent boom years,⁶ but also the increasing complexity of modern financial systems. The events of 11 September 2001 underlined that terrorism was another continuing source of potential operational risks. A number of high-profile institutional failures (Drexel Burnham Lambert and Barings) have also drawn attention to the potential of such bankruptcies to cause systemic problems, even if such problems have to date been avoided. Short-term price volatility in financial markets, often associated with a drying-up of market liquidity, has at times been another source of disruption. Those that remember the fearful mood at the annual IMF meeting following the failure of LTCM will never forget it. And various systemic events (e.g. the Mexican crisis of 1994, and the subsequent Asian and Russian crises) remind us of the growing capaci-

⁴For more explicit documentation of these facts, see Borio and White (2004) and Borio et al. (2003).

⁵For a fuller analysis, see White (2004a).

⁶See Fisher (1933), who emphasizes the influence of greed and criminality at the end of the financial cycle.

ty of financial markets to transmit shocks, not only across borders, but across markets as well.

But perhaps the single most remarkable development in financial markets over the last few decades has been the prominence of credit and asset price *booms and busts*, often associated with rapid rates of growth of real fixed investment. In the industrial countries, there was a sharp run-up in credit and asset prices, particularly equity and real estate, in the early 1970s. A second cycle began in the mid-1980s, which turned to bust (particularly in the Nordic countries and Japan) in the early 1990s. Moreover, we appear to be well into the boom phase of a third cycle, dating from the upturn of the late 1990s. While rapid credit growth in the industrial countries has been evident throughout this last cycle, equity prices were affected first (leading in particular to very heavy investment in the telecommunications sector) but have since been supplanted by rapidly rising housing prices (and associated heavy investment in residential construction). Indeed, it is not an exaggeration to say that this house price phenomenon now has almost global reach, with a number of emerging market economies (especially China) also showing similar increases. Among the large economies, only Japan and Germany have been spared, presumably because they are still recovering from the bust phase of the last credit, asset price and investment cycle.⁷ Finally, it should be noted that, in many emerging market economies, domestic tendencies to credit, asset price and investment booms were reinforced by capital inflows. Whether subsequent outflows initiated the following busts, or merely aggravated them (White 1998), there can be little doubt that domestic and international forces again complemented each other.

In many instances, though not all, the bust phase of the cycle has been accompanied by a crisis in the financial system. Examples would include the banking crises in the Nordic coun-

⁷The fact that it has taken Japan and Germany so long to recover fully from these earlier experiences of credit excesses attests to the potentially enormous costs of these boom-bust cycles. For a further analysis of such costs, see Hoggarth and Saporta (2001).

tries and Japan in the late 1980s, the Mexican crisis of 1994 and the severe banking problems encountered in East Asia in 1997 and 1998. As a general rule, the resulting costs for the real economy were greatest when banking crises and foreign exchange crises coincided, generally due to currency mismatch problems which led to the bankruptcy of borrowers and, in turn, those who lent to them.⁸ However, it should be noted that, even in cases where the bankruptcy of financial institutions was avoided, the stress put on the financial system by incurred losses was often intense and led to significant economic “headwinds”. In the early 1990s, the economic recovery from recession in the United States, the United Kingdom, Australia and Canada was thought to be held back by such financial forces. In the United States in the 1920s, the willingness of still solvent banks to provide credit was also constrained.⁹

This said, even when the financial institutions themselves remain quite healthy, it is also not difficult to imagine similar headwinds arising from high levels of corporate and household debt, and an associated overhang of the capital stock. Indeed, some would contend that the overhang of corporate debt and unprofitable capital investment in Japan, rather than a reluctance to lend on the part of crippled banks, has been the primary reason for Japan’s very poor economic performance over the last decade. A similar point can be made for Germany, in light of the massive expansion of the construction sector in the early 1990s induced by German reunification. The weakness of corporate investment in Asia (ex China) in the aftermath of the excesses leading up to the Asian crisis is also notable. Finally, and more recently, the weakness of investment (and therefore corporate borrowing) in the United States and continental Eu-

⁸It is important to note that, in most cases, the banks themselves had no direct currency exposure and thus thought that they were safe from the effects of currency depreciation. In reality, they were still exposed indirectly to market risk because their customers were exposed.

⁹For a more rigorous identification of such financial factors influencing subsequent output and investment performance see English et al. (2003).

rope in the aftermath of the shared boom of the late 1990s warrants particular attention. Since credit conditions for much of this period were extremely accommodative, the implication is that the observed headwinds did not have their proximate origins in the financial sector. This observation could imply that the current build-up of household debt in many countries might also have long-lasting constraining effects on the consumer sector, even supposing that financial conditions remain relatively easy.

The fourth observation about longer-term trends is that of growing *external imbalances*. These must be judged unwelcome in the light of historical precedents which have commonly involved recessions as debtor countries adjust (BIS 2003: Chapter IV). The trade deficit of the United States has been trending upwards since the early 1980s. While this trend was interrupted in the late 1980s, it then reemerged to such a degree that the US deficit (mid-2005) now stands at almost 6½ per cent of GDP. Moreover, while the implications for external debt were mitigated for a long while by net services inflows on the US international asset/liability position, these flows have recently turned negative. They are now compounding the effects of the trade deficit on external debt accumulation. Similar external trends seem evident in the case of a number of other English-speaking countries. In contrast, most other regions have recently run either larger external surpluses (continental Europe, Asia) or smaller deficits (Latin America).

The same factual points about financial excesses leading to crises over the last few decades can also be made in a more chronological way. First, there were the sovereign debt crises of the early 1980s followed by the global stock market crash of 1987. Following this, the property bubble burst in many countries in the late 1980s. The Mexican crisis of 1994 was followed by the East Asian crisis of 1997–98. The Russian default of 1998 had repercussions for the Brazilian real, and contributed to the failure of LTCM. In 2001, the NASDAQ crashed and subsequently took a large number of broader indices with it. More recently, massive monetary and fiscal easing has again buoyed the prices of financial assets globally. Nevertheless, the sustainability of

the current global economic recovery continues to be questioned, as will be discussed in Section 2 below. What is going on here?

1.2 Alternative Explanations

What has been referred to elsewhere (Borio and White 2004) as the “*more orthodox*” explanation of these secular trends can be simply put. Recognizing from long experience the problems caused by high and variable inflation, central bankers collectively determined to reduce both. They have succeeded admirably, and we are now reaping the real-side gains associated with that success. Trend growth is now higher, absent the dead-weight losses associated with high and variable inflation, and cyclical fluctuations are now less pronounced. This is because monetary policy no longer has to lean periodically against rising inflationary pressures, with the associated likelihood of tipping the economy into recession. Thus, we have a coherent explanation for two of the four secular trends outlined above.

As for episodes of financial volatility and instability, the orthodox explanation provides two essentially benign interpretations. On the one hand, these could be only transitional problems. Learning to live with low inflation, a more liberalized financial sector, and the phenomenon of constantly improving financial technology is bound to take time. The fact that the financial infrastructure of 20 years ago left a lot to be desired must also be taken into account; in effect, the starting point was not ideal for ensuring financial stability. With time, and ongoing improvements to the financial infrastructure, the frequency and severity of financial disturbances are bound to decline. On the other hand, there is also a train of thought, particularly common in the United States, that higher financial volatility might actually be welcome, since it is the vehicle through which we obtain less real-side volatility. More complete financial markets allow a transfer of risk to those most capable of bearing it. Shocks capable of having disruptive effects on the real economy are, therefore, increasingly being harmlessly dispersed before the real side is affected. In addition, these more developed fi-

financial markets allow a welcome degree of intertemporal income smoothing. Consider, for example, the enhanced capacity in recent years of US householders to maintain consumption through the withdrawal of housing equity. This financial capacity has significantly moderated the economic impact of a sharp deceleration in the rate of growth of wages.

Finally, the orthodox view of widening global trade imbalances links them to improved relative growth prospects in deficit countries and inflows of foreign capital driven by higher expected rates of return. In particular, the relatively rapid rate of productivity growth in the United States has led to capital inflows which have in turn strengthened the dollar and led to a current account deficit (Greenspan 2005). A variation on this theme is that high saving propensities in Asia, in particular, have outstripped the potential for profitable domestic investments (Bernanke 2005). The upshot has been a capital inflow into the United States in particular and, again, an associated current account deficit. Underpinning these orthodox interpretations are the highly liberalized financial markets found in many countries with external deficits. Such financial markets provide many alternative investment opportunities thus promoting capital inflows which drive the current account in turn.

Whichever strand of “more orthodox” thought one wishes to emphasize, the bottom line is that these third and fourth secular trends (increased financial volatility and trade imbalances) are not a source of concern. It also follows that they need not prompt any rethinking of the basic policy lessons learned during the earlier period of high inflation. There is certainly no need to change the basic policy framework. Given that there are evident elements of truth in the orthodox explanation, this conclusion cannot be rejected out of hand.

However, a “*less orthodox*” explanation can also be proposed which, according to taste, can be described as either more complicated or less complicated. It emphasizes the interactions between three profound structural changes that have been ongoing over the last 20 years and that have allowed domestic financial imbalances to build up, with subsequent effects on external

imbalances. The first structural change has been “real side” developments, not least the re-entry of China and other transitional economies into the market economy, which have put persistent downward pressure on global inflation since the late 1980s. The second has been the increasingly single-minded focus of monetary policy on keeping inflation at low levels, with its corollary that “with inflation under control, all is well”. The third development has been the liberalization of financial markets, again globally, with the pace of change augmented by technological progress. The interaction of these three forces provides another set of explanations of the stylized facts. Unfortunately, this less orthodox approach also leads to the conclusion that current circumstances of steady low inflation and robust real growth may not be fully sustainable. Moreover, this approach suggests that a new policy framework may be needed to help stabilize the financial system, since it leads to the conclusion that current problems are not transitional but rather endemic in the new global economy.

Turning first to persistent *disinflationary forces* in the 1990s, it must be recalled that the decade began with widespread recession and large amounts of excess capacity, in Japan in particular. Throughout the decade, there was persistent liberalization in many industrial countries and the growing influence of technological advances on productivity growth, particularly in the United States. Globalization and the impact of massive increases in the supply of many kinds of manufactured goods, especially from China, were a further disinflationary factor, with the prices of many traded goods falling consistently over the decade. The increasing contestability of labour markets in many industrial countries, and the threat of production being moved to lower-cost countries, were further disinflationary influences. Moreover, these additions to global supply were occurring at a time of fiscal retrenchment in many countries, especially those in Europe, and a collapse of investment demand in Japan and Germany, as well as East Asia (ex China) after the Asian crisis. Finally, the longer these forces have been acting to keep down inflation, the more strongly low inflationary expectations have become entrenched. This has

been particularly the case against the backdrop of the effectiveness of new inflation-targeting regimes in some countries, and anti-inflationary rhetoric from central banks almost everywhere.

Yet, paradoxically given this rhetoric, the growing focus of *monetary policy* on resisting inflation in the industrial countries has in fact implied only infrequent occasions when it seemed necessary to raise policy rates. Indeed, an evaluation of real interest rates in the major industrial countries indicates a persistent trend towards easing, with the sharpest declines being seen after 1997. Today, real policy rates in most large countries remain around zero, in spite of record global growth in 2004, and the gap with potential growth rates remains large.¹⁰ In Japan, where the policy rate has been zero for many years, the policy of “quantitative easing” pushed up the Bank of Japan’s balance sheet to 28 per cent of GDP in early 2005, an unprecedented level. The more single-minded focus on inflation has generally implied that policy rates did not need to be tightened materially in upturns. Perhaps still more important, it implied that there could be much more substantial policy easing in the face of actual or potential economic slowing and the associated threat to job creation.¹¹ The implications of these generally low levels of policy rates, as well as the asymmetric nature of policy responses, are returned to below.

It should also be noted that the trend to policy ease, in the face of persistent disinflationary pressures in the industrial countries, has also had repercussions in many emerging market economies. In particular, as the value of the US dollar has trended down since 2001, many

EMEs (particularly in Asia) have intervened heavily in foreign exchange markets to prevent their own currencies from rising in response to capital inflows. While vigorous attempts have been made to ensure domestic sterilization of the associated injection of cash reserves, and thus avoid associated inflationary pressures, these efforts have not been wholly successful. Consistent with this interpretation, real policy rates in Asia (ex Japan) have also hovered around zero for the last few years. Moreover, the subsequent recycling by official reserve managers of these inflows, back into the industrial economies and in particular the United States, has helped push down long rates further. Given the continuing primacy of the US dollar as the global reserve currency, and the dominant role of the Fed, these international developments might be judged consistent with a global trend to easier monetary policies.¹²

These expansionary monetary policies, carried out in an environment of continuing price stability, have certainly contributed to the maintenance of global spending at high levels. They have raised growth in the upturns while reducing the severity of downturns to date. In themselves, both outcomes must be judged welcome. Yet, even before turning to some other longer-term potential side effects, it should be noted that the kind of spending that has been stimulated is not as self-evidently welcome as the effect on aggregate spending. In the Anglo sphere (United States, United Kingdom, Canada, Australia and New Zealand), what has been observed is a decade-long reduction in the household saving rate and a significant increase in consumption as a share of total aggregate demand. In Japan, and a number of other countries (in both Europe and Asia), a similar phenomenon can be recorded. In China, in contrast, the proportion of spending which is now made up by fixed investment is close to 50 per cent. Clearly, very low household saving rates have within them the potential

¹⁰A Wicksellian perspective would contrast the level of the “financial” rate with the “natural” rate, with longer-term estimates of the latter generally related to the potential growth rate of the economy. See BIS (2004: 71–73) for an analysis of the “real policy rate gap”. Perhaps the greatest gap of all is seen in the case of China, where real policy rates are around zero while the real potential growth rate of the economy is thought to be around 9–10 per cent per annum.

¹¹For a fuller treatment of the growing use of both “micro” and “macro” safety net measures in industrial countries in recent years, see White (2004a).

¹²Dooley et al. (2004) describe today’s current exchange rate regimes in Asian countries as being akin to a New Bretton Woods system in which the United States basically determines the supply of money for the fixed rate block as a whole.

for some rebound, and very high investment rates imply the potential for significant resource misallocations. Both imply some limits to the sustainability of the good growth performance seen to date.

The third structural aspect of the less orthodox interpretation has been the *liberalization of the global financial system* supported by associated technological progress. These developments have sharply increased competitive pressures in the financial services industry. Such pressures, in turn, increase the incentives to engage in risky behaviour, particularly if boards of directors increase the emphasis they put on “shareholder value”, and if structural rigidities impede cost cutting. These pressures will be augmented by any safety net provisions that might be in place. It is well known from options theory that the value of guarantees goes up as the environment becomes riskier.

Competitive pressures have led over time to changes in both financial structure and financial behaviour. While the process of adapting to a more deregulated environment will eventually end, as the orthodox interpretation stresses, the process of change could go on for a long while.¹³ Moreover, there is an important argument supporting the view that these are not just transitional problems. Periodic financial crises were part of the landscape prior to the 1930s when heavy financial regulations were imposed for the first time. This clearly raises the possibility that a reliberalized financial structure could permit forms of behaviour that could also pose dangers to sustained economic expansion, and potentially the health of the financial system (Bordo and Eichengreen 2000).

As to recent changes in financial structure, the growth of financial markets in recent years has been remarkable, as has the process of globalization and consolidation within the financial industry. The upshot of these developments is that the financial system is now much more compli-

cated, opaque and fast moving than ever before. For example, risks can now be quickly transferred off balance sheets, but their final resting place can no longer be easily established. Nor can the resilience of the system to shocks be easily determined. These changes have also implied a marked increase in the variety of credit sources and, generally speaking, reductions in both the costs of financial services and the intermediation costs of credit. Clearly, there are both advantages and disadvantages attached to these recent developments. These must be carefully assessed and weighed before passing on the policy conclusions.

As to changes in financial behaviour, Borio et al. (2003) document the extent to which financial systems are “inherently procyclical”; that is, perceptions of value and risk move up and down with the economy as does the willingness to take risks. This tendency can be seen clearly in a large number of financial measures. Credit spreads, asset prices, the ratings of rating agencies, internal bank risk ratings and such accounting measures of expected losses as loan loss provisions all move procyclically. Moreover, this procyclicality then interacts with the real economy in ways that can amplify economic fluctuations. In an upswing, the greater availability of credit leads to higher asset prices which then serve as collateral for more borrowing. Moreover, similar incentives may lead to higher levels of fixed investment, which increase demand in the short run and promise increased profits over time.

To some degree, such behaviour patterns are perfectly natural and desirable. If, in an upturn, real prospects for gain are improving, markets should recognize this. However, problems of “excessive optimism” can easily arise if markets extrapolate good times in an unwarranted way. There are many precedents for this in history.¹⁴ A classic modern example would be to

¹³It is now generally accepted that periods of financial deregulation can be particularly dangerous periods, leading to financial instability, and that major technological breakthroughs might have similar side effects.

¹⁴ Evidence that this is a long-standing failure of the human psyche is to be found in the Bible in the Book of Genesis. In the parable of Pharaoh’s dream, the story of the seven fat years and the following seven lean years leads to the conclusion that, while we might hope for the best, we should prepare for the worst.

misinterpret a cyclical upturn as marking the beginning of a permanent “New Era”, perhaps reflecting some technological improvement. In fact, history is replete with such examples.¹⁵ The danger then becomes that disappointed expectations revert too far in a pessimistic direction, and that balance sheet exposures slow spending further. On the one hand, this could reflect a spontaneous drawing-back by an overextended household or corporate sector. On the other hand, an exaggerated unwillingness on the part of the financial sector to provide credit could also be the problem. And, as Bernanke (1983) reminds us in his reflections on the Great Depression in the United States, a combination of both forces could produce a result more damaging than just the sum of the parts.

In addition to a general tendency for liberalized financial systems to be more prone to boom and bust behaviour, these tendencies could become more evident in the context of easy monetary policies. At the heart of the matter is the “search for yield” when nominal risk-free rates are very low, a problem that could well be compounded by lingering elements of money illusion after a period of high inflation. Moreover, it now seems well documented that the appetite for risk in financial markets rises as policy rates are reduced.¹⁶ Being able to borrow at very low interest rates provides incentives to credit creation, carry trade behaviour and leverage, all of which have been increasingly evident in financial markets in recent years. In particular, it is clear that credit expansion has been highly correlated with asset price increases in each of the three medium-term cycles referred to above.

Asymmetric monetary tightening and easing also has significant implications. In the upswing, bubble-like tendencies emerge, but meet with relatively little resistance from monetary policy. Moreover, the expectation that monetary easing

will be the response to any emerging difficulties could possibly accentuate such risk-seeking behaviour. In effect, it provides a kind of macro safety net to go along with the more traditional micro ones (e.g. deposit insurance, LOLR, too big to fail).¹⁷ As noted above, the subsidy value of all these safety net provisions rises along with the degree of risk in the system. Given the combined incentives provided to procyclicality by a liberalized financial system and a generally accommodative but asymmetric monetary policy, the build-up of financial imbalances and the recurrence of bouts of financial instability would not seem surprising.

This line of thinking also leads to a less orthodox explanation of the secular trend to growing global trade imbalances. Those countries with the biggest external deficits (United States, United Kingdom, Australia and New Zealand) also tend to have the biggest internal imbalances. Rising asset prices in such countries (recently, for housing in particular) have led to higher perceptions of wealth, and more spending. Domestic absorption has thus, gradually, exceeded domestic production and the external deficit has risen accordingly. But this observation must then logically raise the question of why countries with external deficits are more prone to internal imbalances than other countries. The evident answer is that these countries have been the most advanced in developing complete, liberalized financial markets.¹⁸ Moreover, it could also be argued that such countries have also tended to have the easiest monetary conditions¹⁹ and, in the United States at least, the most overt tendencies to the asymmetric conduct of monetary pol-

¹⁵The introduction of toll roads, canals, railways, the automobile, and urban electrification were all associated with expectations of massive profit increases. Many years later, the users of the new technology profited from it, but the original providers almost universally failed to do so given the extent of competitive pressures.

¹⁶See, for example, Tsatsaronis (2000).

¹⁷See White (2004a) for a fuller description of the increasing use and changing character of safety net instruments. In particular, as markets have become more important, there has been a trend to more “generalized liquidity infusions” to deal with market disruptions.

¹⁸Recognition of this fact raises still more starkly the trade-off between the allocational efficiency of liberalized financial markets (at a moment in time) and their possible instability (over time).

¹⁹One measure of this is the “real policy rate gap” as defined in Footnote 12 above. As documented in BIS (2004: 71–73), this gap is significantly greater in the United States than either continental Europe or Japan.

icy with all the associated problems of moral hazard.

Nevertheless, evaluating the implications of the interacting structural changes identified by the less orthodox approach, a puzzle remains. Continuing low inflation is relatively easily explained. So too is the observed tendency for occasional but recurring financial crises, and growing trade imbalances. But focusing on the reality of intermittent “busts”, how can one reconcile this approach with the remarkable steadiness of real growth in the industrial countries in recent decades? One possible explanation is the success to date of aggressively asymmetric monetary policies designed to lean against the economic downturns associated with the end of financial cycles. Consider that policy rates in the United States were lowered sharply at the beginning of the 1990s in response to the property collapse and the weakness of the banking system.²⁰ In 1997, when traditional macroeconomic considerations would have called for a tightening of policy, rates were left unchanged in the light of the Asian crisis. In 1998, still further into the upturn, policy rates were lowered in response to the Russian debt moratorium and the LTCM crisis. After the collapse of the NASDAQ, rates were again lowered aggressively and have only recently begun to rise again.

The success of policy in stabilizing the economy in each of these individual cases could, however, have had some unwanted side effects. The first is that existing imbalances were never addressed. Rather, each new phase of expansion either wound up expanding initial imbalances (say, external trade or internal debt imbalances) or served as the starting point for expanding asset prices in some new financial market; first equities, then bonds, then yield spreads, then houses and so on. The second side effect is essentially arithmetical. If policy rates are to be lowered more aggressively in downturns than they are raised in upturns, then they will be

pushed eventually to the limit of the zero nominal bound. According to this way of viewing recent developments, the legacy of the three structural changes identified above raises serious concerns. Should there be a belated unwinding of financial imbalances, cumulated over a long time period in response to asymmetric policy easing, they could not easily be resisted by further monetary easing given that policy rates are already so low. Moreover, with initial inflation levels also so low, such developments might easily tip some economies into outright deflation. In effect, the legacy of repeated insurance policies taken out in the context of benign (supply-side) disinflationary forces could eventually prove to be a more malign debt deflation.

Such considerations serve to raise the two questions discussed in Sections 2 and 3 below. First, what evidence is there that the global economy is currently exposed to some of the dangers noted above? Second, assuming that one accepts the less orthodox interpretation of recent events as plausible, if not necessarily compelling, where might prudent policymakers think about going from here?

2 Current Exposures: Do They Warrant a Policy Response?

Viewed from the perspective of the less orthodox approach, a number of indicators do point in the direction of their being significant internal and external imbalances in the current global economy. Here, imbalances are defined as persistent deviations from long-term norms.²¹ To the extent there was a tendency for these imbalances to revert to the norm, implicitly a statement that these significant imbalances were also unsustainable, there would also be the potential for some slowing of global economic

²⁰It is noteworthy that the easing at the beginning of the 1990s, and that after 2001, were significantly greater than would have been called for by a Taylor rule. See BIS (2002).

²¹As will be discussed in Section 3, the *simultaneous* observation of a number of such imbalances has historically been a useful predictor of subsequent financial crises and slowdowns in output growth. See Borio and Lowe (2002).

growth. Whether this unwinding was gradual and more likely to be benign, or rather more rapid and disorderly, would depend very much on real/financial interactions that are hard to predict. In particular, the dampening effects on inflation of the positive supply shocks noted in Section 1 might, or might not, be overwhelmed by the aggressive easing of monetary policy over the last few years. And the financial system might prove more or less resilient in the face of macroeconomic shocks, given the offsetting forces of more risk-taking versus better risk management and supervision.

With respect to *internal imbalances*, in the United States and a number of other countries (primarily but not exclusively in the Anglo sphere), the principal indicators of potential difficulties would be the currently historically low ratio of household saving and an associated historically high ratio of household debt. The capacity of modern financial systems to facilitate the withdrawal of equity from higher house prices has given strong support to both trends. Moreover, even as the supply of credit has risen, the demand for this credit has been encouraged by historically low interest rates. While debt service requirements have generally not risen sharply, and asset levels greatly outstrip liabilities, both of these positive factors might be considerably reduced were interest rates to rise back to more normal levels. Moreover, it must be recognized that the liberalization of financial and other markets has fostered the transfer of risk to households in many new ways,²² and it is not obvious that they have had the expertise to adequately²³ limit their prospective exposures.

²²First, consider the trend away from defined benefit pension schemes to defined contribution schemes. Second, consider the extent to which pension funds (and insurance companies) have deviated from “immunisation” principles in recent years. Both trends threaten the security of post-retirement income. Third, consider the growing use of variable pay and contract employment, which threaten the security of household income prior to retirement.

²³In the United States, for example, there has been a marked increase in the use of variable rate mortgages, albeit from low levels, particularly by people on lower incomes who would not have been eligible to receive a mortgage carrying a higher fixed rate. The use of “interest only”

In continental Europe, corporate and government debt levels both remain very high measured against historical norms. The former reflects, in part at least, heavy corporate borrowing associated with the period of strong investment in the “New Era” environment of the late 1990s. The latter reflects many decades of large government deficits, followed by an inadequate degree of retrenchment in the late 1990s in spite of the incentives provided by the Stability and Growth Pact. In Japan, corporate debt levels are much reduced and household balance sheets remain strong. Yet the level of government debt is historically high and a massive deficit increases it each year. In China and a number of other Asian countries, the debts of many state-owned enterprises (SOEs) will eventually prove unserviceable and will have to be written off at the government’s expense. Given the recent very high level of credit growth and investment spending in China, it is possible that some more recent loans will also prove unserviceable, the ultimate indicator of capital misallocation.

Debt, *ceteris paribus*, acts as a claim on future revenues and slows spending over time. To some degree this can be offset by the positive effects of higher wealth on spending. However, it needs to be stressed that a large part of what statisticians (and common sense) define as wealth at the level of the individual is no such thing at the aggregate level. Higher house prices are simply a change in relative prices and do not increase wealth in aggregate. In effect, the higher price of a house (of benefit to the owner) is exactly offset by the discounted costs of higher rents in the future (either explicit, or implicit for owner-occupied dwellings). Any associated increase in net spending generated by such “wealth” is a borrowing from the future that will have to be repaid. If house prices fall, the home owner, who borrowed against higher equity, will have to retrench. If house prices do not fall, then those purchasing more expensive housing services will have to economize on something else.

mortgages has also been rising sharply. Finally, the proportion of US houses purchased as rental properties has also been growing rapidly—a trend also seen in the United Kingdom and Australia.

In contrast, real wealth is generated by increased saving, investment and/or increases in total factor productivity. Only with respect to the third of these factors are there some grounds for optimism, at least in the United States. Finally, the “headwinds” posed by debt must be evaluated against the backdrop of unfavourable demographic trends in many countries. These will slow the rate of growth of potential and make it increasingly likely that debt burdens will enter the realm of “unsustainability”.²⁴ This could lead to an increased likelihood of financial disturbances as creditors seek to “outwit the crowd and pass the bad or depreciating half-crown to the other fellow”.²⁵

It must also be noted that the current prices of many assets, both financial and real, also look high against the benchmark of historical valuations. This also implies some scope for unwinding, with attendant risks. In spite of recent, measured, upward movements in the US policy rate, the US long bond rate has fallen significantly, and long rates in Europe have fallen even more. Corporate spreads have also narrowed, driving those on high-risk bonds to historical lows. Spreads for sovereign issues have moved similarly. Valuations for equities in industrial countries, based on actual earnings, are lower than they were in 2001, but still remain well above historical averages. And, while valuation levels still look reasonably modest in EMEs, the price increases seen over the last year or so have been very great. As for residential property, there has been, as noted above, almost a global trend to sharply higher prices.

With respect to each of the prices cited above, idiosyncratic arguments have been presented to justify what is being observed in the light of underlying fundamentals in that particular mar-

ket. However, a complementary but simpler explanation also suggests itself. All these prices are high because of strong demand supported by very low global policy rates. In effect, existing ample liquidity is being used to purchase “illiquidity”. This interpretation is also consistent with the very low level of implied volatility (uncertainty) in options markets, made more extraordinary given the increased uncertainties about the future currently being expressed by many economists. In practice, liquidity is being sold in the form of put options by those eager to receive premia inflow in an environment of very low interest rates. However, if this is part of the explanation for higher asset prices, it must also be asked why recent moves to tighten policy in the United States have not had more effect. One explanation is that “measured tightening” lowers rather than eliminates the expected rates of excess return from purchasing such assets. Indeed, it is not inconceivable that well-anticipated tightening of this sort might even induce more leverage to maintain expected rates of return.²⁶ If so, and this is highly speculative, the eventual reversion of asset prices towards more normal levels would be sharper, and the interaction with higher debt levels more contractionary.

If a case can be made for being concerned about current internal financial imbalances, *external imbalances* are also receiving greater attention. In particular, the US trade deficit is now increasingly accepted as being unsustainably large,²⁷ and the services deficit will also widen as interest rates rise back towards normal levels. The root cause of this deficit seems to have been the secular shift down in the household saving rate analysed above. The US fiscal deficit, which is currently very worrisome, was in fact improving throughout the 1990s even as the current account was worsening. Nor can relatively high investment levels in the United States be the principal contributing factor. In

²⁴Sustainability is defined here in the rather narrow sense of the primary deficit needed to stabilize the relevant debt/GDP ratio. This required primary deficit depends on the gap between the real rate of interest on the debt and the potential growth rate, multiplied by the initial ratio of debt to GDP.

²⁵As described by Keynes (1936: 155) in his famous chapter on “The state of long-term expectations”.

²⁶See Kaufmann (2005).

²⁷After years of benign neglect, this issue is now attracting a great deal of academic attention. See Obstfeld (2004), Obstfeld and Rogoff (2004), Bergsten and Williamson (2004) and Roubini and Setser (2005).

fact, business investment collapsed in the early years of this decade, but the current account continued to worsen. If household consumption has been the principal counterpart to foreign lending, debt service will eventually prove more onerous than had borrowing been directed to productive investments capable of generating foreign currency returns.

To date, the quantity of inflows of longer-term private capital to the United States has remained adequate. Nevertheless, their quality has been steadily deteriorating. Durations have been shortening, and flows have increasingly been into “safe” assets like Treasuries or GSEs (Fannie and Freddy and the like) thought to have a government guarantee. Central banks (particularly in Asia) have in recent years provided the largest share of the required financing for both the US current account and fiscal deficits. Dooley et al. (2003, 2004) have suggested that this support is likely to continue for many years. However, Roubini and Setser (2005) and others have suggested a long list of reasons why central banks might choose to limit that support going forward. Some of these have to do with the domestic desirability of intervention to keep their own currencies from going up against the US dollar; after all, such intervention could lead to overt inflation or internal financial imbalances. Other concerns focus on the issue of the optimality of the currency allocation of their foreign reserves. Suppose Asian central banks, or others such as oil producers, were to judge their percentage allocation of foreign exchange reserves to dollar-denominated assets as being excessive. Public sector “rebalancing” could in itself have effects on G3 exchange rates. Were private sector investors, currently also with long dollar investment positions, to seek to rebalance as well, then the implications for exchange rate movements could be greater still. The bottom line is that changes in investor preferences are not inconceivable and this could catalyze an unwinding of external balances as well.

If one accepts the concept of internal and external imbalances, and agrees that currently observed deviations from historical norms are significant, the next question is how a reduction of these imbalances might affect global real

growth and price levels in various countries. As noted above, given the complicated nature of the problem, point predictions have little value. On the one hand, a general easing of domestic demand pressures in low-saving countries, allied with the opposite trend in high-saving countries with excess capacity, might redress many of the imbalance problems without doing great harm either to global growth or to the maintenance of generally low inflation everywhere. A lower dollar would probably be the product of such trends, which would also have the advantage of mitigating disinflationary pressures in the United States (arising from the assumption of more saving) and inflationary pressures elsewhere (arising from less saving). On the other hand, were continued rapid consumption growth in the United States to spark an eventual flight from dollar-denominated assets, the feedback effect on policy rates and asset prices might in turn have unwelcome effects on the global economy. A similar conclusion might follow from a “hard landing” in China.

If the precise nature of the outturn is unclear, the policies needed to shift the balance in favour of a more benign outturn are somewhat more evident.²⁸ Higher saving rates in deficit countries, like the United States, would be encouraged by higher policy rates. Indeed, presenting both an opportunity and a challenge, tightening monetary policy in the United States might eventually lead to stronger effects than in the past because of the interaction between debt service requirements and asset prices. Fiscal tightening in the United States would also be very welcome. Both steps would contribute to re-establishing both internal and external balance, hopefully in the context of a gradual decline in the real effective value of the US dollar. In China, steps to slow a dangerously overextended investment sector have already been taken, though it is not yet evident whether they have been successful in restoring internal balance. As for external balance, it seems clear that Asian countries in general should have higher real

²⁸A fuller description of current policy options is provided in BIS (2005: Conclusions).

exchange rates, though the particularities of how this might be achieved are less clear. Evidently, if policy is to be directed to slowing domestic demand in what are currently the two poles of global growth, the United States and China, complementary steps must also be taken to speed up growth elsewhere. In particular, continental Europe, Japan and emerging Asia (ex China) must again become sources of demand growth. In all these areas, and in China as well, structural reforms to encourage growth in the non-tradables sectors is desperately required for both internal and external reasons.

As evident as these policy prescriptions might appear to some, there is a reasonable likelihood that they might not be implemented. Fiscal tightening in the United States is by no means assured. Complementary easing in Europe and Japan is constrained by the legacy of already high government debts and other commitments. Structural reforms will take time and will encounter resistance from entrenched interests; look at the difficulties being encountered in implementing the EU Services Directive. Moreover, export-oriented growth strategies in Asia will probably contribute to there being less upward movement in Asian nominal exchange rates than there should be. These impediments to desired policies could result in a still greater build-up of the internal and external imbalances just identified. These imbalances in turn would pose an ever more serious threat to global output and employment going forward.

3 Towards a Domestic Macrofinancial Stabilization Framework

The three structural/regime changes identified in Section 1.2 clearly have delivered many economic benefits. Nevertheless, it is hypothesized that they also have certain harmful side effects—in particular credit, asset price and fixed investment cycles—that can eventually feed back negatively on both growth and employment. The policy challenge is to reconcile the

secular gains in efficiency with the periodic costs of disruptions arising from a kind of financial overreach. There would be two key elements in making a domestic macrofinancial framework operational. First, there must be a convincing assessment that systemic imbalances are emerging that have the capacity to impose economic costs. Second, given such an assessment, incentives must be in place to ensure that policies will be implemented to offset such dangers in as market-friendly a way as possible.²⁹

3.1 Key Elements of a New Domestic Framework

How can we best *evaluate whether systemic imbalances are building up* that require a policy response? In principle, one wishes to measure changes in the expected losses, measured as the product of the probability of financial stress (PFS) and the economic losses given stress (ELGS). Unfortunately, neither is easy to calculate with accuracy.³⁰ The underlying analytical problem is the complexity associated with real-financial linkages (going in both directions), the interactions of heterogeneous participants in real and financial markets, the likelihood of responses to shocks that are likely to change over time, and the non-linearities imposed by bankruptcy considerations and regulatory constraints. Moreover, making efforts to predict expected losses even more difficult, both PFS and ELGS could well be evolving in response to structural developments, but with even the direction of the effects being subject to dispute. For example, some contend that the PFS might be raised by new kinds of risk-taking made possible by new technology. Others argue that it seems more likely to be reduced given the new culture of

²⁹Much of this is drawn from White (2004b) and Borio (2003).

³⁰It should finally be noted that many of the micro data which attempt to measure PFS are inherently very misleading. External ratings, internal ratings and market-based measure of credit risk are all likely at times to be affected by the waves of optimism and pessimism (“procyclicality”) referred to above.

risk management engendered by the Basel 2 process. ELGS might also be rising in the light of the continuous monetary stimulation given to the system, and the rising risk of bankruptcies due to higher debt levels. But, it could also be argued that ELGS might have been reduced by the progressive implementation of codes and standards that improve the functioning of financial institutions, markets and payment systems under stressful conditions. Perhaps the only thing that is clear, as surveyed in a recent paper by Sorge (2004), is the astonishing increase in analytical work being carried out on these difficult questions.

Regardless of the difficulties faced by more academic researchers, many official agencies are paying increasing attention to data that indicate future financial vulnerabilities. Their ultimate motivation has been the recognition that the economic costs associated with recent financial crises have commonly amounted to many percentage points of GDP. The IMF, for example, has suggested a list of Financial Soundness Indicators for individual countries and now uses them actively in conducting Financial Sector Assessment Programs. While a major step forward, this work suffers from the same problems noted just above. Being effectively micro data aggregated up to macro dimensions, they can provide only limited information about the distribution of risks within the system or the interplay between market participants that can cause one kind of risk (say market risk) to be transformed into another (say credit risk or liquidity risk). A parallel can be drawn with the stress tests now being regularly conducted by major financial institutions. They rarely, if ever, consider the possibility of other major players being similarly affected to shocks and reacting in the same way.

Some researchers at the BIS have recently tried to address a number of these issues. Borio and Lowe (2002) look at factors driving PFS and demonstrate that financial crises in industrial countries have generally been preceded by a combination of above trend growth in credit and asset prices. In another paper, they apply their methodology to emerging markets and find that overvalued real exchange rates also play an ex-

planatory role. Goldstein and Turner (2004) rather emphasize how the ELGS in emerging market countries can be affected by currency mismatch problems. Evidently, all of this work is at an early stage, but has been promising enough to indicate that further work might well prove very useful.³¹ To say that we have not had the techniques to identify emerging problems in the past is not to say that we cannot develop such techniques looking forward.

What would be the core elements of a macro-financial stabilization framework, one that would *ensure an appropriate response* when financial vulnerabilities were identified? The first point to note is that it would preserve the traditional microprudential standards that are designed to improve the soundness of financial institutions, financial markets and the underlying legal and payments infrastructure. This would contribute to reducing PFS and ELGS as noted above. Yet, a macrofinancial stabilization framework would also imply an additional set of concerns directed to ensuring the stability of the financial system as a whole.

Perhaps the most important change would be an enhanced need for supervisors to recognize that they might sometimes face a “fallacy of composition problem”. That is, recommending what seemed right for a single institution might well exacerbate system-wide problems were other institutions to do the same thing. A good example might be recommending the sale of risky assets to meet “capital requirements”. Clearly, if broader based selling reduced market prices, and thus the value of remaining assets, everyone might finish with less capital than before. Further, given a macrofinancial focus, the monitoring of the component bits of the financial system would also have to change to ensure a greater focus on weaknesses likely to have knock-on effects elsewhere. One implication is that banks, as providers of liquidity, should rightly receive more attention, and that

³¹A notable aspect of the Borio–Lowe work is that their asset price data could not include house prices, since such historical data were simply unavailable at the time. A recent joint conference by the BIS and IMF was directed towards resolving this critical data problem.

bigger institutions need closer monitoring than small ones. Indeed, to reflect these externalities, capital requirements might even be calculated differently. Finally, given the growing importance of markets, both to provide financing and to transfer risks, market monitoring and the evaluation of structural developments would have to be further enhanced. This conclusion is supported if we note that the financial institutions themselves are now crucially dependent on market-based services of various kinds. In fact, a number of steps in this direction have already been taken.

A first guiding principle for a macrofinancial framework would be that both regulatory and monetary policies should be applied more symmetrically over the cycle. This suggestion has parallels in prescriptions for fiscal policy that emphasize running surpluses in upswings to “preserve some room for manoeuvre”. In the case of regulatory policy, more symmetry would imply that more capital should be built up in good times. Not only would this help restrain credit excesses, but it would also allow capital to be run down in bad times³² to cushion the economy from associated credit constraints. Tightening monetary policy in the face of excessive credit growth would also attenuate the worst excesses and could also obviate the need for radical easing later that might trigger the zero lower bound problem. This would not be an inconsequential advantage should an unwelcome degree of disinflation emerge in such an environment.

The practical implementation of a more symmetrical regulatory policy might be carried out in various ways. Were the regulators to be quite confident in predictions that systemic risks were rising to dangerous levels, they could have recourse to discretionary action. Cash reserve ratios, liquidity ratios, loan-to-value ratios, risk weights for regulatory capital, collateral require-

ments, margin requirements and repayment periods could all be tightened. Indeed, such actions were commonly used by central banks in industrial countries 20 to 30 years ago, and have been used to good effect more recently in Hong Kong SAR and Singapore. In contrast, were the authorities to be more doubtful about their capacity to predict stressful events, they might rely more on some simple rule to enforce more prudent behaviour. Goodhart and Danielsson (2001) suggest relating prudential norms to the rate of growth of loans or asset prices. These prudential norms could affect the pricing of risk, provisions for losses (for expected losses) or the accumulation of capital (for unexpected losses). In Spain, a system of “dynamic provisioning for losses” has already been brought in. Provisions must now rise with loan levels on the assumption that losses in the future will be similar to those experienced in the past, measured over the full economic cycle.³³

As for a more symmetrical monetary policy, this too might rely on either discretion or a rule. Examples of the former might be seen in the recent behaviour of a number of central banks. In recent years, both the Bank of England and the Reserve Bank of Australia have raised policy rates in the face of rising house prices and debt, even though projected inflation was not obviously inconsistent with target ranges. The Sveriges Riksbank, for similar reasons, did not lower interest rates as much as might have been expected given the extent to which they were actually undershooting their inflation target. As for rule-based behaviour, Goodhart (2004) and others have made a number of suggestions in this regard. The two pillar approach of the ECB could also be noted, though the suggestion here would be to use the monetary pillar to resist financial excesses in general rather than inflationary pressures in particular.³⁴

³²The reference in the text to “fallacy of composition” problems might seem almost like an invitation to forbearance should bad times put pressure on capital ratios. The way to reconcile a macro perspective with avoiding forbearance is to ensure that levels of capital rise earlier in the upswing.

³³Most provisioning to date assumes that loan losses over the next year will be similar to last year. Such simple extrapolation lies at the heart of procyclical risk assessment.

³⁴In fact, this seems increasingly to be the way the ECB views the “monetary pillar” of their approach. See Issing (2005).

The above comments refer to substantial issues in formulating policy but, in the real world, processes and institutional arrangements are also important. A second guiding principle for a macrofinancial framework would therefore be the need for closer cooperation on financial stability issues between the various interested government agencies. As to policy processes, an important first step would be an agreement among involved agencies that an imbalance problem was emerging. This might be followed by orchestrated statements of concern.³⁵ On the one hand, this alone might prompt both creditors and debtors to rethink their investment strategies. On the other hand, the threat of a potential policy response might also lead them to review their strategies. Should it eventually be thought necessary for the official sector to actually act, in a discretionary way, recourse to prudential regulation might come first if it were thought that the health of the financial system was in any way being impaired. Conversely, monetary policy might be used first if concerns primarily had to do with the growing exposures of debtors, while the financial system itself was still thought to be in a good state of health.

As to institutional arrangements, the most important problem to avoid is macrofinancial stability issues falling between the cracks. That is, the agencies involved see problems building up, but assume that somebody else will do whatever needs to be done. One practical way to avoid this would be to set up a committee of senior representatives of central banks, regulatory agencies and Treasuries to monitor events and identify problems. Interestingly, such a committee exists at the international level, the Financial Stability Forum, whose secretariat resides in Basel, but there is no domestic counterpart in many countries. In countries where committees having similar representation have been set up to facilitate crisis management and resolution, the simplest approach would be to widen the mandate to encompass crisis prevention as well.

³⁵This recommendation for statements of concern, followed by action if needs be, parallels much of the literature on the efficacy of foreign exchange intervention.

3.2 Impediments to a New Framework and How They Might Be Removed

In addition to questions that might be raised about the desirability of the individual suggestions made above, there are many *practical impediments* to the implementation of a domestic macrofinancial stability framework. Some are of a general nature, while others apply more specifically to prudential authorities and still others to monetary authorities. As will be discussed further below, how strongly one feels that these impediments should be removed depends critically on how strongly one believes that there is a systemic problem to be dealt with in the first place.

As to the general problems, the existence of normal bureaucratic inertia and preference for the status quo needs no further comment. But, in addition, it must be admitted that there remains considerable uncertainty as to whether the massive structural changes seen recently in the financial area are likely to be the source of significant systemic problems or not. Recall that both an orthodox and a less orthodox view were reviewed above, and the former has many respected adherents. Arguments can be put forward that recent trends towards marketization, globalization and consolidation all increase the risks of systemic problems. Yet, reasonable arguments can also be posited in the opposite direction, with the overall resilience of the financial system to numerous recent shocks being cited as the final proof that all is well. The expression “so far, so good” has always had a particular resonance, at least until the crisis hits.

Moreover, it is not only the official community that would need to be convinced of the desirability of a new framework. Periods of financial excess in the private sector are also periods of gains for many who will resist giving them up. Intellectually, the idea that the public sector knows better than the collective wisdom of the market will be strongly disputed. Practically, a whole host of lobbyists, lawyers and enlisted media will be engaged to argue the case that “this time is different”. And to this must be added another force for hesitancy linked, paradoxically, to an eventual acceptance that a problem could be developing. It is a fact that such an

intellectual turning point is only likely when the imbalances are already very well developed. Thus, steps to mitigate them are feared because they might catalyze the very crisis everyone wishes to avoid. This is a further general impediment to action.

There are further, specific impediments to prudential authorities conforming to the general suggestions made above. The first one is that they do not have a long tradition (culture) of concern about issues having to do with macroeconomic stability. Thinking systematically about the health of the financial system as a whole, rather than individual institutions, is already a big leap. Extending this further to recommend changing the setting of regulatory instruments, when the financial system seems in good health but corporate and household lending looks excessive, could easily be a leap too far. Second, in practice, most prudential authorities do not have the powers ascribed to them above, and obtaining such powers would not be easy. Consider, for example, the traditional opposition of both the accounting profession and the tax authorities to forward-looking provisioning for expected losses. And finally, there is again the “fallacy of composition” problem. How could the prudential authorities convince individuals to act in ways that seemed to conflict with their own best interests? And even if some could be convinced, how could they be assured that others would not free-ride on their decision? One implication of this is that the prudential net would have to be cast very wide. Another is that the use of monetary policy might also have to be contemplated in the face of growing financial imbalances.

What impediments could prevent central banks from operating as the new framework would suggest? The most obvious problem is that the objective of monetary policy in many countries has been defined as low inflation, generally narrowly defined as some version of the consumer price index (CPI). Thus, if inflation were under control and the new framework suggested that policy rates had to rise, there is a chance that the policy target would be under-

shot. Some worry that this would undermine the credibility of the whole regime.³⁶ At the very least, there would have to be a public explanation of what would look like an inconsistency. A second problem, already observed, would be securing an intellectual acceptance of the need to focus on the simultaneous observation of a number of indicators before changing policy rates. To date, there has been a disconcerting tendency for policymakers to equate the proposed macrofinancial stability framework with “targeting asset prices”. Since there are many well-known objections to this latter proposal,³⁷ acceptance of the former framework clearly suffers from this association.

Given enough conviction that a macrofinancial framework was needed, it might be *possible to remove these impediments* to action. Consider the assertion above that policymakers would be biased towards inaction by uncertainty as to whether systemic problems were truly building up. In effect, they would tend to balance off the known costs, in terms of output losses associated with tighter policy, against the uncertain losses associated with future systemic problems. In fact, this argument might easily be turned on its head given acceptance of a minimax optimizing strategy that puts greater weight on avoiding “truly bad outcomes”. Moreover, the bias to inaction could be further reduced by more research indicating the extent to which internal governance and market forces had historically contributed to procyclical financial behaviour. Another promising research approach would be to improve further the financial vulnerability indicators suggested by Borio and Lowe among others.

As for getting the private sector to support the idea of a new framework, a process of public education would be useful. It is worth recalling

³⁶In the limit, some might contend that the authorities were no longer interested in keeping down inflation. However, it is hard to see how this could be concluded from policy actions that were even tighter than those needed to control inflation.

³⁷Which asset price to target? At what level? Would bursting the bubble in one sector cause major damage elsewhere in the economy? How to sell the policy to the public?

that during the 1960s and much of the 1970s there was little public support for fighting inflation, but now the desirability of such policies is commonly acknowledged. The fact that so many central banks already publish a financial stability review indicates that this process of education is already under way. Moreover, a clear commitment to leaning against financial excesses might also change people's behaviour, inducing more prudent recourse to credit and speculative behaviour. This would be analogous to the way in which inflationary expectations became much more tightly anchored after central banks announced their commitment to reducing inflation and keeping it low.

Turning to the particular impediments to action facing prudential regulators, the current culture of microprudential surveillance could be supplemented with *macroprudential* concerns focused on systemic exposures. More regular contacts between central banks and regulators, together with Treasury counterparts, would help to build a common culture based on shared objectives, mutual trust and a similar understanding of emerging problems and possible solutions. Kapstein (1992) describes just such a process as being responsible for the continuing success of the Basel Committee. If this could work at the international level, where initial suspicions are evidently larger, it could surely also work at the national level. As for providing adequate powers to regulatory authorities, this could require legislative follow-up. However, this would be much less of an issue given a broader public acceptance of the need to deal with the problems identified. All this said, the capacity of participants in a liberalized financial system to evade regulatory actions cannot be underestimated. This forces one back to a consideration of the role of monetary policy.

The principal impediment to using monetary policy to resist financial excesses is that it can be seen to conflict with the desire to stabilize inflation at a low positive level. Perhaps the first heretical point to raise is whether this should be the objective of policy at all, given the reality of ongoing positive supply-side shocks. There was

a lively debate about such issues prior to the First World War,³⁸ and the issue needs to be addressed again.³⁹ As noted above, excessive zeal in resisting "good deflation" (supply driven) could over time rather result in fostering conditions that might lead to a "bad deflation" (demand driven). But presuming maintenance of this objective for the time being, perhaps a regime of *augmented inflation targeting* might be suggested. This would still allow concerns about financial excesses to be expressed in terms of price objectives, albeit over a rather longer policy horizon. In effect, leaning against such tendencies might cause an undershoot of near-term inflation objectives. However, not doing so risks a boom-bust cycle that could result in an even bigger undershoot of prices. As a practical matter, a central bank would normally continue to focus on controlling inflation over traditional horizons. However, it would also make it clear, through its public monitoring of financial vulnerability indicators, that policy would occasionally have to be conducted in a way that reflected these longer-term concerns about prices. Evidently, this would imply some convergence in the subject matter of a central bank's Inflation Review and its Financial Stability Review⁴⁰ and perhaps even some organizational changes as well. Given the real-financial interactions that lie at the heart of the analysis in this paper, it is by no means clear that such changes would be undesirable.

³⁸For an overview, see Selgin (1997).

³⁹An historical overview indicates that periods of falling prices were not generally characterized by depressed output and growth. In this regard, the early years of the Great Depression, 1930–33, were truly outliers. See BIS (1999).

⁴⁰Sveriges Riksbank has already begun inserting boxes on financial vulnerability indicators into its regular inflation review.

4 Towards an International Macroeconomic Stabilization Framework

In a sense, it is odd that domestic financial imbalances are not higher on policymakers' list of priorities, since international imbalances have been a source of concern for centuries. Indeed, earlier versions of the international monetary system were all designed to prevent such imbalances from getting dangerously out of hand. Against the backdrop of the so-called "impossible trinity", the gold standard incorporated a process (not always smooth) of automatic adjustment of trade imbalances. It retained a fixed exchange rate and free capital flows while giving up monetary independence. Under the Bretton Woods system, countries kept fixed exchange rates and independent monetary policies but gave up free capital flows. The IMF essentially played the role of policeman, disciplining in particular countries running large external deficits. Subsequently, after increasingly free capital flows brought an end to the Bretton Woods system, floating exchange rates were assumed to be the mechanism through which trade imbalances would be reduced before they attained disorderly proportions. Given the size of recent current account imbalances, dominated by a current account deficit of 5½ per cent of GDP in the United States, this last supposition is being increasingly challenged. Principal worries are that a sharp decline in the demand for dollar-denominated assets might generate instability in global financial markets, or that protectionist pressures might rise sharply.

The underlying problem is that we no longer have a coherent system that somehow forces countries to alter their relative degrees of domestic absorption, and associated exchange rates, so as to reduce external imbalances in an orderly way. A number of important creditor countries, particularly in Asia, have taken significant steps to hold down the value of their currencies against the dollar, thus impeding the needed downward adjustment of the dollar on an effective basis. In sum, we do not really have a floating rate system. Moreover, the IMF has

never had much influence over creditor countries, and currently has little influence over the biggest debtor country, the United States. In sum, we are not back in the land of Bretton Woods either. While it is logically possible that policy measures consistent with resolving domestic imbalances might resolve external imbalances as well, this should not be assumed. In any event, it is not likely to happen. This leads to the question of whether there are institutional changes that might be recommended to strengthen the international adjustment process. Three possibilities might be considered.

First, consideration could be given to going back to a more rule-based system. A number of academics and others have suggested reverting to the gold standard or to the establishment of a single international currency. More realistically, one might recommend a small number of more formally based currency blocks (say, based on the dollar, euro and renminbi/yen), but clearly they would have to float more freely against each other. Nor would such a system avoid the possibility of excessive capital flows, based on misguided optimism about one currency block or another, leading to disruptive exchange rate changes and associated international resource misallocations.

Second, consideration could be given to a system more like that of Bretton Woods, but with the IMF accorded substantially more power to force both creditors and debtors to play their appropriate role in the international adjustment process. An associated requirement might be augmented resources for the Fund, to avoid countries feeling they had to build up their own foreign exchange reserves to very high levels as a form of "self-insurance". By way of opening a discussion of such issues, Mervyn King (2005: 4) recently said, "I am not convinced that the future of the Fund is primarily as an occasional lender of last resort for middle-income countries suffering financial crises". Of course, convincing countries to voluntarily give up sovereignty in this fashion would not be an easy sell.

Third, consideration could be given to informal cooperative solutions, mutually recognizing

interdependencies and the need to avoid circumstances that could lead to systemic disruptions. At the very least, this would require representatives of large creditor countries to share views with debtors as to whether problems were emerging and, if so, what policies might help resolve them. This is probably the most plausible way forward in current circumstances. However, similar to dealing with domestic imbalances, the impediments to action arising from different perceptions of systemic risk, different cultures and analytical models, and simple national interest (“turf wars”) should not be underestimated.

tion the benefits of the more stable macroeconomic environment we have experienced over the last 20 years and the policy framework that has produced it. On the other hand, evidence of emerging strains is not difficult to find and future problems cannot be ruled out. What is being suggested here is that financial imbalances, both domestic and international, need more systematic attention, and that this might be accomplished through an evolutionary adaptation of the current policy framework. While there are clearly impediments to this happening, none would seem insuperable, at least to those who believe that there is a problem that needs fixing.

Conclusion

All policy choices involve trade-offs and judgment, and policy in this area is no exception. It is hard, on the one hand, to ques-

References

- Ahearne, A., J. Gagnon, J. Haltmaier, and S. Kamin (2002). Preventing Deflation: Lessons from Japan’s Experience in the 1990s. International Finance Discussion Papers 729. Board of Governors of the Federal Reserve System, Washington, D.C.
- Bergsten, F., and J. Williamson (2004). Dollar Adjustment: How Far? Against What? IIE Special Report 17. Institute for International Economics, Washington, D.C.
- Bernanke, B.S. (1983). Non-monetary Effects of the Financial Crisis in the Propagation of the Great Depression. NBER Working Papers 1054. NBER, Cambridge, Mass.
- Bernanke, B.S. (2002). Deflation: Making Sure ‘It’ Doesn’t Happen Here. Remarks before the National Economists Club, Washington D.C., 21 November.
- Bernanke, B.S. (2005). The Global Saving Glut and the US Current Account Deficit. Remarks at the Sandridge Lecture, Virginia Association of Economics, Richmond, Virginia, 14 April.
- BIS (Bank for International Settlements) (1999). *69th Annual Report*. Basle.
- BIS (Bank for International Settlements) (2002). *72nd Annual Report*. Basle.
- BIS (Bank for International Settlements) (2003). *73rd Annual Report*. Basle.
- BIS (Bank for International Settlements) (2004). *74th Annual Report*. Basle.
- BIS (Bank for International Settlements) (2005). *75th Annual Report*. Basle.
- Bordo, M.D., and B. Eichengreen (2000). Is the Crisis Problem Growing More Severe? Paper presented at the Sveriges Riksbank conference on “Asset prices and monetary policy”, Stockholm, June.
- Bordo, M.D., and A. Filardo (2004). Deflation in a Historical Perspective. Paper presented at the BIS conference on “Understanding Low Inflation and Deflation”, Brunnen, 18–19 June.
- Borio, C.E.V. (2003). Towards a Macroprudential Framework for Financial Supervision and Regulation? BIS Working Papers 128. BIS, Basle.

- Borio, C.E.V., and P. Lowe (2002). *Asset Prices, Financial and Monetary Stability: Exploring the Nexus*. BIS Working Papers. BIS, Basle.
- Borio, C.E.V., and W.R. White (2004). *Whither Monetary and Financial Stability? The Implications of Evolving Policy Regimes*. BIS Working Papers 147. BIS, Basle.
- Borio, C.E.V., W. English, and A. Filardo (2003). *A Tale of Two Perspectives: Old or New Challenges for Monetary Policy?* BIS Working Papers 127. BIS, Basle.
- Dooley, M., D. Folkerts-Landau, and P. Garber (2003). *An Essay on the Revived Bretton Woods System*. NBER Working Papers 9971. NBER, Cambridge, Mass.
- Dooley, M., D. Folkerts-Landau, and P. Garber (2004). *The Revived Bretton Woods System: The Effects of Periphery Intervention and Reserve Management on Interest Rates & Exchange Rates in Center Countries*. NBER Working Papers 10332. NBER, Cambridge, Mass.
- English, W., K. Tsatsaronis, and E. Zoli (2003). *Assessing the Predictive Power of Measures of Financial Conditions for Macroeconomic Variables*. Paper presented at the BIS Autumn Economists Meeting, October. Basle.
- Fisher, I. (1933). *The Debt-Deflation Theory of Great Depressions*. *Econometrica* 1 (4): 337–357.
- Goldstein, M. (2002). *Managed Floating Plus*. Institute for International Economics, Washington, D.C., March.
- Goldstein, M., and P. Turner (2004). *Controlling Currency Mismatches in Emerging Markets*. Washington, D.C.: International Institute of Economics.
- Goodhart, C. (2004). *Some New Directions for Financial Stability*. School of Economics, Financial Markets Group, London. Per Jacobsson Lecture, 27 June.
- Goodhart, C., and J. Danielsson (2001). *The Inter-temporal Nature of Risk*. 23rd SUERF Colloquium on “Technology and Finance: Challenges for Financial Markets, Business Strategies and Policymakers”. Brussels, October.
- Greenspan, A. (2005). *Current Account*. Remarks at Advancing Enterprise 2005 Conference, London, 4 February.
- Hoggarth, G., and V. Saporta (2001). *Costs of Banking System Instability: Some Empirical Evidence*. *Bank of England Financial Stability Review*, Issue 10, Article 5, June.
- Issing, O. (2005). *The Monetary Pillar of the ECB*. Revised paper initially prepared for the conference “The ECB and Its Watchers VII”. 3 June.
- Kapstein, E.B. (1992). *Between Power and Purpose: Central Bankers and the Politics of Regulatory Convergence*. *International Organizations* 46 (1): 265–287.
- Kaufmann, H. (2005). *An Uncertain Path for the Next Fed Chairman*. *Financial Times*, 2 August, p. 11.
- Keynes, J.M. (1936). *The General Theory of Employment, Interest and Money*. London: Macmillan.
- King, M. (2005). *The International Monetary System*. Remarks at Advancing Enterprise 2005 Conference, London, 4 February.
- Laidler, D. (1999). *Fabricating the Keynesian Revolution: Studies of the Inter-war Literature on Money, the Cycle, and Unemployment*. Cambridge: Cambridge University Press.
- Obstfeld, M. (2004). *External Adjustment*. NBER Working Papers 10843. NBER, Cambridge, Mass.
- Obstfeld, M., and K. Rogoff (2004). *The Unsustainable US Current Account Position*. Revised paper prepared for the NBER conference on G-7 Current Account Imbalances: Sustainability and Adjustment. July.
- Roubini, N., and B. Setser (2005). *Will the Bretton Woods 2 Regime Unravel Soon? The Risk of a Hard Landing in 2005–2006*. Mimeo. New York University, February.
- Selgin, G. (1997). *Less than zero. The Case for a Falling Price in a Growing Economy*. IEA Hobart Papers 132. Institute of Economic Affairs, London.
- Sorge, M. (2004). *Stress-testing Financial Systems: An Overview of Current Methodologies*. BIS Working Papers 165. BIS, Basle.

- Tsatsaronis, K. (2000). An Indicator of Investors' Attitude towards Risk. *BIS Quarterly Review*, Basle, February.
- White, W.R. (1998). International Contagion: What Is It and What Can Be Done about It? In *Capital Adequacy Regulation as an Instrument for the Regulation of Banks*. Special volume of *Swiss Journal of Economics and Statistics*. Basle: Helbing & Lichtenhahn. pp. 722–733.
- White, W.R. (2004a). Are Changes in Financial Structure Extending Safety Nets? BIS Working Papers 145. BIS, Basle.
- White, W.R. (2004b). Making Macroprudential Concerns Operational. In *Proceedings of the Symposium on Financial Stability Policy—Challenges in the Asian Era*. De Nederlandsche Bank, Amsterdam, 25–26 October.

KIEL ECONOMIC POLICY PAPERS

1. Monetary Management of Transition in China: Balancing Short-Run Risks and Long-Run Optimality
Markus Diehl, Rainer Schweickert
Kiel, June 2005. €9.
2. Procyclicality in the Financial System: Do We Need a New Macrofinancial Stabilization Framework?
William R. White
Kiel, September 2005. €9.

For more information on the Institute's publications see <http://www.ifw-kiel.de/pub/pub.htm>