Mr. Crockett reviews the changing role of central banks Speech by the General Manager of the Bank for International Settlements, Mr. Andrew Crockett, at the Money Macro and Finance Annual Conference held in Durham on 11/9/97.

The BIS Annual Report for 1996-97 observes, with characteristic understatement: "The last 25 years have been an eventful time for central banking". The period since the breakdown of the Bretton Woods system has, indeed, seen enormous changes in the economic and financial environment, and a major evolution in the objectives, indicators and instruments of central bank policy. My objective this afternoon will be to review these changes, and to identify some of the common factors that lie behind them.

The changes in the environment have been of both a macro-economic and a structural character. Macro-economically, the move to floating exchange rates in the early 1970s was followed by a period of substandard economic performance. In the industrial world high inflation rates co-existed with disappointing growth. In the developing world, a borrowing spree was followed by a debt crisis. Not until the last few years have monetary authorities been successful in restoring a more satisfactory degree of price stability, and still the task is not complete. There have also been dramatic changes in financial structure. The process of liberalisation and innovation has led to a globalisation of finance and a quantum increase in intermediation. Coupled with an explosive growth in ever more complex financial instruments, this has presented new opportunities to financial intermediaries, but also created new sources of systemic risk.

The changing environment has both influenced and been influenced by an evolution in the way central banks carry out their role of preserving monetary and financial stability. In the field of monetary stability, attempts to exploit the Phillips curve trade-off produced almost wholly negative results and led to a widespread consensus that the primary objective of monetary policy must be price stability. The intermediate targets of monetary policy objectives have also evolved, with the earlier emphasis on monetary aggregates giving way to exchange rate anchors in some countries and explicit or implicit inflation targets in others. At the level of tactics, market management techniques, which were formerly quite diverse, have tended to coalesce around the use of repurchase operations as a means of controlling very short-term interest rates.

The other main function of central banks, that of preserving financial system stability, has acquired considerably more prominence as a result of financial liberalisation, which has led to the greatest spate of banking sector difficulties since the interwar period. The focus of central banks' approach to maintaining systemic stability has evolved from field-of-activity regulation to a greater stress on capital adequacy, and is still in the process of change. Meanwhile, a number of countries are rethinking the institutional structure of supervision, with some placing responsibility for day-to-day regulation with specialised supervisory agencies and assigning to the central bank the broad, though less well-defined responsibility for systemic stability.

Throughout these changes, a constant feature has been central banks' search for effective means of implementing policy in an environment where economic agents can use new instruments and markets to arbitrage their way around restrictions and controls. The desire to avoid distorting incentives and exacerbating moral hazard has been a guiding principle in this search. The authorities have sought anchors for policy that are compatible with profit-seeking behaviour by private agents in an increasingly competitive market. It is this search that will be the underlying theme of this lecture.

I will begin by noting some of the driving forces behind the changes that have taken place in the financial industry, and how they have manifested themselves. The key consequence for policy, I will argue, is that markets have become more **complete**, thus increasing the scope for

arbitrage by private agents, and decreasing the scope for the monetary authorities to use direct controls to achieve policy objectives. In the next part of my remarks, I will review how approaches to monetary policy have evolved over the past 25 years, in respect of ultimate goals, intermediate targets and policy instruments. After this, I will consider how financial stability has grown as a policy concern, and how the way in which supervision is viewed has evolved. Finally, I will have a few words to say about the international monetary system.

I. The Changing Financial Environment

The driving forces behind the transformation in the financial environment that has occurred in the past twenty to thirty years have been innovation and liberalisation. Technological advances have dramatically lowered the cost of gathering and processing information, while new financial instruments have increased the range of transactions economic agents can undertake. Liberalisation has paved the way for the expansion and restructuring of the financial industry. It has been driven both by the ascendancy of the free market philosophy and by the difficulty of maintaining controls in the face of innovation.

The combined effects of innovation and liberalisation have been dramatic. Geographical barriers have largely disappeared, leading to the emergence of an increasingly integrated global capital market with a sizable group of multinational financial intermediaries operating in all the major centres. Distinctions among different classes of financial intermediary have become blurred, with the relaxation of regulatory restraints, the growth of conglomerate structures, and the increasing ease with which institutions can transform the risk characteristics of their portfolios through the use of derivatives. Another significant development has been the securitisation of assets and the institutionalisation of savings. Together, these trends have greatly increased the volume of tradable financial assets, and the amount of transactions passing through financial markets and settled in clearing systems.

The significance for central banks of these developments in the financial environment is that they have made markets more **complete**, that is, they have greatly increased the ability of market participants to exchange assets and income flows over time, space, and market instrument. Portfolio management is far less constrained than before by lack of access to liabilities or claims with desired pay-off characteristics. This has profound effects for central bank activity, both in the formulation and implementation of monetary policy, and in the preservation of financial stability.

At the macro-economic level, markets can now discipline policies far more quickly and effectively than in the past. Bad policies, or indeed any policies that are unsustainable in the face of profit-maximising behaviour by private agents, will quickly have to be reversed. This means that the authorities always have to consider, in framing economic policies, whether they are credible and how the market will react to them. It is very hard, for example, to spring an inflationary “surprise” that has a positive effect on output; or to set an exchange rate objective that is inconsistent with the underlying stance of macro-economic policies.

Concerning financial stability, more complete markets mean that competition squeezes out rents created by restricted franchises. Financial institutions have less of a cushion of protected profits and are therefore more vulnerable to losses caused by mismanagement or misfortune. This has inevitably increased the emphasis given to the role of the authorities as the ultimate guarantor of financial stability. At the same time, it has reduced the effectiveness of regulation that is not based on market incentives. Financial institutions have a broad menu of techniques that enable them to get around regulations that are intended to increase safety, but are burdensome to the institutions to which they apply.

II. Monetary Policy

(a) Objectives

In the aftermath of the collapse of the Bretton Woods system (and for the United States for some time before that), monetary policy was designed to secure the best trade-off between output growth and inflation. The intellectual basis of policy was the Phillips curve. Eventually, however, the stagflation that marked the 1970s caused both the objective of policy and its implementation to be reassessed.

Today, there is a widespread consensus among central bankers, and economists more generally, that price stability should be the overriding goal of monetary policy. The rational expectations literature, and the lessons of experience, suggest that there is no exploitable trade-off between output and inflation in anything other than the very short run. Moreover, inflation leads to distortions and uncertainties that impair economic performance. Worse, the short-run relationship between inflation and output growth seems to be asymmetric: the output sacrifice needed to get inflation down may be greater than the output gain when inflation is allowed to rise. Taken together, these considerations mean that the best service monetary policy can render for the real economy is to keep inflation credibly at low levels.

In fact, policy has been remarkably successful in recent years in bringing inflation down in virtually all industrial countries. So much so, that a number of issues are now coming to the fore that were previously considered as of second-order importance. These questions include: how to avoid bias in the measurement of inflation; whether inflation should be zero or some low positive number; whether the authorities' objective should be expressed in terms of inflation or the price level; and how quickly one should return to the stated objective after a disturbance.

It is hard to dispute that measurement bias in inflation should be corrected, if possible. That is easier said than done, however. Some biases can be relatively easily removed, such as that arising from infrequent re-weighting of the consumption basket. Others are more difficult to deal with, such as adjusting adequately for quality changes. And some are very difficult to correct, such as properly incorporating new goods and services. Still, with some heroic assumptions it should be possible to arrive at a serviceable estimate. The Boskin Commission in the United States has put the bias at just over 1%; in other countries, the bias is thought to be no more than half that.

Concerning the desirable **level** of (properly measured) inflation, there seems to be a consensus that a low positive number (1-3%) is better than zero.[1] The reasons for this are both *a priori* and empirical. When inflation averages zero over time, the price level must, by definition, be falling for a significant part of the time (and a significant number of individual prices will be falling, even if the general price level is flat). This creates two problems. Firstly, if wages and prices are sticky downward, it may require a higher level of unemployment to stabilise the overall inflation rate at zero than at some higher number.[2] Secondly, since nominal interest rates cannot go below zero, it will become impossible to engineer negative (or even very low) real interest rates to help recovery from a recession. Such considerations have led most observers to favour a low but positive rate of inflation. Those who prefer zero tend to point to the distortionary effects of the tax system,[3] or to the risk that any positive number can be revised up, as justifying the more ambitious target.

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1 Fischer, Stanley: "Why are Central Banks Pursuing Long-Run Price Stability?" in "Achieving Price Stability", A Symposium sponsored by the Federal Reserve Bank of Kansas City, Jackson Hole, Wyoming. Published by the Federal Reserve Bank of Kansas City, 1996.

2 Akerlof, George, William Dickens and George Perry: "The Macroeconomics of Low Inflation", Brookings Papers on Economic Activity, No. 1 (July 1996), pp. 1-59.

3 Feldstein, Martin: "The Costs and Benefits of going from Low Inflation to Price Stability", in C. Romer and D. Romer (eds.), Monetary Policy and Inflation, Chicago. University of Chicago Press, 1996.

It is the fear of slippage that also motivates the suggestion to express the price stability objective as a constant price **level** (rather than a zero or constant rate of inflation). The idea is that the impact of an inflationary (or deflationary) surprise in one period should be offset in the succeeding period by a policy aiming at reversing the initial shock. In this way, the price level would be constant through time, enhancing the credibility of monetary policy and facilitating the development of very long-term contracts.

One obvious objection to the pursuit of a policy of literal price level stability, namely that it would require deliberate deflation following any inflationary disturbance, can be overcome by expressing the price objective in terms of a rising trend through time. Nevertheless, perhaps surprisingly, there is still little support in central banking circles for expressing the inflation objective in terms of the price level, rather than its first derivative. This may be because, if there is believed to be an optimal inflation objective, whether zero or a low positive number, it seems odd to adjust it as a result of past events.

The last element of objective setting for central banks is how quickly they should seek to return to an inflation target once having been forced away from it. There seems to be an emerging consensus, reflected, *inter alia*, in statements by the Bank of England, that a period of 1-2 years is appropriate, this being the time it takes for a change in monetary policy to have the bulk of its effect in prices. To attempt a quicker restoration of price stability would risk overshooting, while to go more slowly would tend to undermine credibility. It should be noted, however, that this recommendation holds clearly only for minor departures from the objective. If the actual inflation rate is a long way away from the desired rate, there is no consensus on whether gradual or shock therapy is to be preferred. Much depends on the political circumstances, as well as on surrounding economic policies (e.g. fiscal policy) that affect credibility.

(b) Anchors

Just as difficult as setting the objective of monetary policy has been settling on the means for achieving it. A variety of approaches have been in vogue at various times in the past twenty or thirty years.

Pure discretion has acquired a bad name because, at least in countries with non-independent central banks, it is seen as a cloak for politically-motivated decisions. Such decisions have sometimes been a crude attempt to buy votes by easing of monetary policy before elections, the benefits of monetary relaxation coming relatively quickly and the costs of higher inflation emerging only later. More frequently, however, they have involved an attempt to use a presumed output/inflation trade-off to strengthen employment prospects; or an unwillingness to tighten monetary policy until evidence of inflationary pressures was already apparent in the data. Whatever the motivation, a fully discretionary policy has often lacked the strategic coherence to prevent inflation accelerating.

Monetary targeting became popular in a number of countries in the 1970s, on the back of Milton Friedman's dictum that "inflation is always and everywhere a monetary phenomenon".[4] The powerful intuitive appeal of the money-inflation link was undoubtedly helpful in mobilising support for a rigorous anti-inflation policy in the United States, United Kingdom and elsewhere in the late 1970s and early 1980s. Nevertheless, one of the key requirements for such a policy, namely a stable demand for some monetary aggregate, has not been adequately fulfilled in recent years (at least in most countries). One by one, central banks that had adopted monetary targets

4 Friedman, Milton: "What Price Guideposts?", in George P. Schultz and R.Z. Aliber (eds.): "Guidelines, Informal Controls, and the Market Place: Policy Choices in a Full Employment Economy", Chicago and London.

in the 1970s, dropped or downgraded them in the 1980s and 1990s. Nowadays only Germany and Switzerland place strong reliance on monetary aggregate targeting, and even they apply such policies with a significant measure of judgment.

Exchange rate targeting has a long history. The gold standard involved stabilising the domestic price level in terms of gold, and the Bretton Woods system linked national currencies to the dollar. More recently, exchange rate anchors have been used effectively by a wide range of countries. Their value in restoring discipline and credibility is hard to doubt. But they have two major disadvantages that have become evident in recent years. Firstly, when capital markets are integrated, any country adopting a strict exchange rate peg subordinates its monetary policy to that of the anchor country. This works well when monetary policy requirements are in harmony; less well when there are divergences, as the United Kingdom discovered in 1992. Secondly, if a country adopting a currency peg fails to master domestic inflationary pressures, it may find that its balance of trade deteriorates and eventually reaches a point of unsustainability. The decision to adjust or abandon an unrealistic peg has proved to be one of the most difficult of economic policy decisions – in part because so much has typically gone into seeking to achieve credibility through adherence to the peg.

In response to the perceived shortcomings of monetary and exchange rate targets, and of unconstrained discretion, attention has been given in recent years to **inflation targeting** and **central bank autonomy** as a means of strengthening the likelihood that price stability objectives will be met. At first sight it might seem tautological to use an inflation target to achieve an inflation objective. In fact, there is rather more to it, as the practice in the United Kingdom shows. The idea is that a public commitment to an inflation target, coupled with the maximum of transparency in describing the authorities' forecasts and decision-making process, enables a discretionary approach to be applied with less risk that monetary policy decisions will be biased toward leniency. If, in addition, the central bank is made fully independent to pursue a clearly-defined goal, political interference will be avoided.

A growing list of countries have adopted the inflation targeting approach in recent years, including Canada, New Zealand, Australia, the United Kingdom, Sweden and Finland. The practical implementation of the approach has varied in a number of respects, including who sets the target (government or central bank); whether it is expressed as a range or a fixed point; the price index employed; the use of adjustment or "override" mechanisms, and so on. These differences, however, are less significant than the common principle on which targets are based. So far, targets have been rather successful, though the approach has yet to be tested under adverse conditions.

(c) Tactics

Just as there has been convergence in the goals and the strategy of monetary policy implementation, so too there has been in matters of tactics. Twenty or thirty years ago, a variety of operating tactics were used, including control of some measure of the monetary base; variations in reserve requirements; discretionary discount window intervention; open market operations, at a variety of maturities; direct lending controls; and moral suasion.

Nowadays, direct controls on lending have been abandoned in virtually all countries. Reserve requirements have been reduced to very low levels, to avoid distorting patterns of intermediation, thus making control of the monetary base an imprecise instrument. Use of the discount window and bond market intervention have similarly fallen out of favour. Central banks now generally use very short-term reversible transactions ("repos" and "reverse repos") to inject or withdraw cash from the money market. The maturity of these transactions is typically either overnight or for a few days.

Short-term money market operations enable central banks to maintain control over overnight interest rates. Longer-term interest rates are then influenced by expectations of how central banks are likely to adjust overnight rates in the face of economic developments. This, in turn, places a premium on credibility and effective signalling of policy intentions.

The use of interest rates as the principal operating instrument does not mean, it should be stressed, that the volume of money and credit is considered unimportant as a determinant of inflationary trends. Rather, it reflects the view that "noise" in the demand for bank reserves is better accommodated by some short-term flexibility in the growth of liquidity than by fluctuations in overnight interest rates; and by the belief that judicious management of overnight interest rates will enable the authorities to achieve the desired degree of control over credit volumes in the medium term. At the same time, it is also part and parcel of the process that has led central banks to place relatively more weight on prices (interest rates, exchange rates) than on quantities in the formulation and implementation of policy. There are several reasons for this, ranging from the socio-political climate to structural economic factors such as the development of financial markets.

II. Financial System Stability

Besides the achievement of price stability through the appropriate use of monetary policy, the other major focus of central bank activity is the preservation of stability in the financial system. As first articulated by Bagehot, this involves a willingness to act as a lender-of-last-resort to the banking system, to counteract the possibility of a "run" developing on a solvent but illiquid institution, and to avoid the risk of a contagious spread of financial distress. Central banks have always had an important role in maintaining systemic stability, but it is only comparatively recently that economists generally have become aware of the analytic issues involved.

Following the crisis of the 1930s, there was growing agreement, first in the United States and later elsewhere, that the stability of the financial system should be based on two pillars: firstly, explicit or implicit support to protect depositors at banking institutions; and secondly, a structure of regulation that would reduce the risk of banks getting into trouble in the first place.

For the first twenty-five years or so of the post-war period, banking system stability attracted relatively little attention. Economic conditions were favourable, which limited the scope for troublesome bad-lending decisions. Just as important, restrictions on market access and regulation of permitted activities enhanced franchise values and provided protection against losses.

Essentially, entry into banking was restricted, both by natural economies of scale and by regulatory restraints. Competition within the banking industry was limited by tolerating cartel-type practices and by rules, such as interest rate and credit expansion ceilings, that protected existing firms. Such practices greatly reduced the probability of bank failure. The value of the banking franchise made stockholders and managements unwilling to take risks with the continued viability of firms under their control. And if serious losses did occur, rescue by other firms was likely, either in order to acquire a valuable franchise, or as part of an implicit quid pro quo for the maintenance of their own favoured status.

Two forces came to the fore in the 1970s and subsequently that made this regulatory approach unsustainable. One was the growing influence of the free market philosophy, and the accompanying dismantling of controls and restrictive practices. This affected the **willingness** of public authorities to limit competition in the name of stability. The other was the development of new financial instruments that enabled market participants to replicate virtually any kind of contract, regardless of regulatory restraints. This affected the **ability** of policy makers to influence financial activity through regulatory controls. Interest ceilings on demand deposits were circumvented by the development of NOW accounts; exchange controls spawned the development of Euro-currency

accounts; and the growth of derivatives markets provided transactors with a multiplicity of ways of creating contracts with equivalent pay-off characteristics but different forms.

The breakdown and eventual abandonment of direct controls required renewed attention to the issue of how to make the financial system resilient. The search was made more urgent by the fact that banks' capital strength had (predictably enough) weakened during the period when their protected franchise generated guaranteed profits. This weaker capital position was highlighted by a number of episodes in the 1970s and early 1980s, notably the Third World debt crisis that erupted in 1982.

The vulnerability of banking systems in industrial countries that was revealed by the 1980s debt crisis led to a renewed focus on **risk-based capital adequacy** as a means of strengthening systemic resilience. Bank regulators had, of course, always had rules for capital holding by the institutions they supervised, but these were not harmonised across countries, and in many jurisdictions, they were in the form of crude capital/asset ratios. What was different about the regulatory approach developed in the 1980s is that it was founded on international agreement, and it focused on the concept of capital as a cushion against risk.

The Basle Committee on Banking Supervision had been created in 1974, with the initial task of identifying which country's supervisors should be responsible for the activities and soundness of internationally active banks. In the mid-1980s the Committee turned its attention to the development of capital standards for such banks. When finally promulgated in 1988, these standards divided banks' assets into five risk categories, running from sovereign securities of industrial countries (with a zero risk weight) to ordinary commercial credits (with a 100% risk weight). Supervisors from G-10 countries agreed to see that internationally-active banks under their jurisdiction held capital at least equivalent to 8% of risk weighted assets.

The Basle Capital Accord, which has subsequently been updated and amended, was a substantial step forward for bank regulation. It meant that required levels of capital were more closely related to the reasons for which banks hold capital, that is, to cover the risks in their portfolio. At a practical level, it led to a marked strengthening of major banks' capital ratios, which had become dangerously low.

But although the Basle Capital Accord took regulatory practice a significant way towards the market, it did not take it the whole way. The limited number of risk categories obviously (and deliberately) did not capture the full spectrum of creditworthiness. And the "building block" approach to the calculation of risk did not allow for the risk-reducing (risk-enhancing) properties of diversification (concentration).

Much recent thinking has focused on **incentive-compatible regulation** – using the market's own internal forces – as the most promising next step strengthening the financial system. It is banks' shareholders and management that have the strongest interest to measure risk accurately (at least if they expect to be around to bear the consequences of their actions). An internally generated measure of risk should be better than one derived from formulaic risk-weights generated by supervisors. There is, therefore, a strong case for supervisors to use the calculations developed by firms themselves, at least if they can be satisfied that the risk assessment model is adequately robust.

This is the approach that the Basle Committee in fact followed when the capital accord was amended to include market risk in addition to credit risk. The difficulties of extending the approach to credit risk are considerable, since a loan portfolio does not have a market value whose variability can be tracked over a series of observations. Nevertheless, the concept is similar, and the best financial firms are now beginning to apply a similar methodology to the calculation of credit risk as they do to market risk.

Does this mean that decisions relating to prudential capital requirements can be left to private institutions? Not quite. Although private institutions are, in principle, best placed to measure the riskiness of their own portfolio, they are not necessarily the best judge of how much capital they ought to hold. This is because when a public authority acts as a lender-of-last-resort, or ultimate guarantor of systemic stability, that authority is providing part of the "capital" that the banking system needs to safeguard stability. In the absence of regulatory rules, financial institutions would be tempted to economise on capital holding, reasoning that the authorities would either come to their assistance, or shoulder the consequences of systemic failure. So even if the task of **measuring risk** can be largely privatised, the task of deciding the appropriate **level of capital holding** may still require a public policy judgment.

Important public policy decisions are also involved in dealing with financial institutions which, for whatever reason, find themselves with an inadequate capital. Low levels of capital can lead to the phenomenon of "gambling for resurrection" – banks pursuing risky strategies in the knowledge that shareholders will get the benefit of good outcomes, while bad outcomes will impose losses on third parties.

Thus far, I have discussed financial stability in terms of the health of the institutions that go to make up the banking system. But there is another dimension that has received increasing attention from central bankers over the past 10-15 years. It concerns the market **infrastructure** that underpins financial transactions, and in particular the payment and settlement system. While this might seem an unexciting subject to economists, it is in fact of great practical importance. At a conservative estimate, more that $5 trillion per day passes through the settlement system, most of it representing large-value financial transactions cleared by a relative handful of major clearing banks. If one of these institutions became unable to meet its obligations in the clearing, the consequences could be dramatic.

Because this is the case, it is worth taking a moment to understand the issues that arise. Broadly speaking, there are two sets of problems. Easiest to understand are the problems facing **users** of payment and settlement systems – that is, those who trade in financial markets and then have to use the systems to settle their deals. Almost every deal has two sides – one party pays, the other party delivers whatever is being bought. For these users, the difficulty arises where there is no mechanism to co-ordinate the two sides. The party paying is thus exposed to the risk that the counterparty fails to deliver, and vice versa. In other words, there is often no mechanism to ensure delivery-versus-payment. In securities markets this is by now a relatively familiar issue. More recently, the need to tackle the similar problem which arises when settling foreign exchange deals has come to be appreciated. In both cases the value of the deals being settled is so substantial that the resulting settlement risks can be of a size to cause systemic concern.

The second set of problems concerns one particular category of system users – namely banks, who also typically **provide** the payment and settlement systems. Until quite recently, the standard form of settlement was end-of-day net settlement. That is to say, all the payments and receipts between banks were allowed to accumulate during the day, to be settled by a transfer of the smaller, net amount at the end of the day. Banks liked this arrangement because it meant they could hold smaller balances on their accounts at the central bank. But its systemic weakness was that it usually required participants in the clearing to grant unsecured, uncontrolled and unlimited credit to other participants during the period until final settlement occurs. It is quite common for the credit thereby extended to a single counterparty to exceed a bank's entire capital. Implicitly, the participants in the clearing are assuming that the central bank would be forced to come to the rescue if problems arose.

Over the past few years, considerable effort has been devoted to alleviating these sources of systemic risk, and solutions are now being implemented. Solutions to protect users of the systems include introducing improved delivery versus payment mechanisms for securities markets and the possible introduction of some new form of multi-currency settlement arrangement for foreign exchange markets. Solutions to protect system providers include the introduction of tighter internal controls within traditional end-of-day settlement systems or, in an increasing number of cases, the replacement of such traditional systems by so-called RTGS arrangements. In these real-time gross settlement systems, individual transactions are settled one-by-one throughout the day rather than being allowed to accumulate, thereby attempting to get to the heart of the problem by removing the exposures between banks. As a result of these major efforts, payment and settlement arrangements all over the world are – gradually – becoming safer.

IV. International Monetary Arrangements

The nature of international monetary arrangements has also changed dramatically over the past two and a half decades. Once again, the driving force has been the growing power of market forces, and the recognition on the part of monetary authorities of the need to work with these forces, rather than to resist them.

The Bretton Woods system, which lasted until the early 1970s, was based on decisions reached by collective agreement among governments. **Exchange rates** were fixed within narrow margins, with changes being possible only by international agreement in conditions of "fundamental disequilibrium". **International liquidity** was externally supplied through gold, reserve currencies or, latterly, collective decisions to allocate Special Drawing Rights (SDRs). The **adjustment mechanism** worked through governments managing domestic demand so as to keep their current accounts close to balance (capital account restrictions were tolerated or even encouraged).

By the beginning of the 1970s, the difficulties of maintaining such a government-led system were becoming increasingly apparent. International transactions were growing in importance, and countries were less willing to have their domestic macro-economic objectives subordinated to considerations of fixed exchange rates and balance-of-payments equilibrium. This issue came to a head in the late 1960s, when the United States was not prepared to adopt restrictive domestic policies to stem a dollar outflow when it was trying to finance domestic social reforms and the Vietnam war at the same time; and its partner countries were unwilling to accept the domestic inflationary consequences of a continued peg to the US dollar.

Meanwhile, capital flows were increasing in volume as international financial markets expanded, and market participants found ways around pre-existing capital controls. The result was that private markets had growing means (and incentives) to challenge officially-maintained exchange rate pegs. Central bank reserves were increasingly inadequate to resist such pressures, despite the introduction in 1970 of a Special Drawing Rights (SDR facility) at the IMF.

As is well-known by now, the combined effects of these trends was to bring about the demise of the fixed exchange rate (Bretton Woods) system in 1973. Thereafter it was quickly recognised that the most effective role for central banks and other public authorities was to make the new market-driven system work as efficiently as possible, working with rather than against the grain of market forces.

Each of the three main elements of the international monetary system is now "market-led".[5] Exchange rates are floating, except where governments have taken a conscious decision to use the exchange rate as an anti-inflationary anchor, or where they are pursuing other goals (e.g. monetary union in Europe). Liquidity is demand-driven, with creditworthy governments able to borrow the reserves they need, and private markets being much more important to the availability of liquidity than central banks. And the adjustment mechanism is largely the consequence of market forces and private capital flows, which now provide the disciplining mechanism that previously operated through intergovernmental discussion and pressures.

The fact that market forces are now more important in the operation of the international monetary system has probably avoided some types of problem, but it has highlighted others. For example, exchange rates have often fluctuated over wider ranges than can be justified by fundamentals. Inflation has sometimes reached dangerously high levels (e.g. following the oil price increase in the 1970s). And some countries have found themselves in a vicious circle of currency crisis and domestic financial strains.

The conclusion from this experience has been to underline the essentially unitary nature of financial stability. The growing links among markets mean that domestic economic stability, the stability of the international monetary system, and the robustness of financial institutions and markets are closely tied together. The achievement of international stability therefore depends on actions on a number of fronts: the pursuit of effective stability-oriented macro-economic policies; adequate prudential supervision of financial institutions and markets, and a co-operative approach by monetary authorities where their domestic policies "interface", i.e. in exchange rate relationships and the agreement of international regulatory policies.

V. Concluding Comments

What of the future? Where are the trends that have been described in this paper likely to lead? And how can public policy best equip itself to provide the stable financial environment that is most conducive to the development of the real economy?

Predictions are always hazardous, but certain propositions can be made with reasonable confidence. **Firstly**, financial innovation will continue at a rapid pace, and global financial markets will become even more integrated, efficient and complete. The capacity of governments to resist market trends or pursue unsustainable policies will shrink further. **Secondly**, as a consequences, there will be a premium in firm, transparent and credible anchors for policy. Achieving price stability will be easier (though not easy) if market participants know what the authorities are trying to achieve and how they are going about it (**and** if there is an effective market discipline on the authorities to prevent backsliding).

A **third** proposition which it seems safe to advance is that there will be an intensified search for ways to ensure systemic stability while fostering a competitive and efficient banking system. The plethora of financial system crises in recent years[6] has amply illustrated the costs of lax practices in the financial sector. At the same time, there is a recognition that any indiscriminate expansion of safety net arrangements creates moral hazard problems, while excessive regulation leads to inefficiencies. My expectation is that regulatory economics will become a fruitful area of research for central bankers and financial supervisors. The goal will be to develop a regulatory structure that has as its anchor the replication of market disciplines, while at the same time providing protection

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5 Padoa-Schioppa, Tommaso and Fabrizio Saccomanni: "Managing a Market-Led Global Financial System", Banca d'Italia, Mimeo.

6 Goldstein, Morris: "The Case for an International Banking Standard", Institute for International Economics, Washington, April 1997.

against the systemic transmission of instability. Transparency and disclosure have an obvious role to play here.

Fourthly, and lastly, the international monetary system. Here, too, the power of market forces seems likely to grow. This has the potential for beneficial consequences insofar as bad policies are disciplined and good policies are rewarded. But it would be naive to suggest that market forces always get it right. My expectation is that efforts will need to be devoted to promoting greater stability in the market-led international monetary system. The bulk of these efforts will be in the direction of improving policies (and their mutual consistency) and making markets more transparent (e.g. through better information). But it cannot be excluded that more direct measures will be required to limit damaging exchange rate fluctuations or contain the cost of currency crises.

Taken together, this presents a full agenda for central bank policy-makers. I noted at the outset of this lecture that "the last twenty-five years have been an eventful time for central banking". The years ahead promise to be no less eventful.