Central Banking in the New Millennium*

Mr. Chairman Kohli, Mr. Narang and friends.

I am happy to be here among bank economists to deliver the customary valedictory address of the Bank Economists Conference. I find that the subject chosen for this year is very broad and relates to the whole of the banking sector. I carefully read the papers presented at the Conference and I find the coverage to be comprehensive and analysis insightful as usual. The current year's Conference also had the benefit of special presentations by eminent persons, which added to the breadth of understanding. Governor Dr. Bimal Jalan in his inaugural address gave an outstanding overview of the problems and prospects and highlighted the role of bank economists. In this background, I am not sure whether there would be much that I can add by way of value to the deliberations. Hence, I will briefly respond to the rapporteur's reports of technical sessions and then speak on "central banking in the new Millennium". I am aware that the commercial banks preceded central banks in the world. In fact, commercial banking has a hoary past in India while central banking, as we know now is essentially a product of 20th century. Yet, central banks are playing an important role in the economies and a discussion about banking now may be complete in all respects if the subject of central banking is also covered.

Bank Research in India:

Dr. Chakravarthi in his presentation displayed both his scholarship and conviction in analysing the role of bank research in the new millennium. In particular, the call for synchronizing bank research with corporate goals is note worthy. The research on business prospects of clients, particularly large corporate clients with reference to sensitivity to industry risks is also important. Above all, the importance of managing change and approaches to managing change have been very well articulated.

From the point of view of the Reserve Bank of India, there are three aspects of research that need to be noted by this gathering.

First, Reserve Bank of India (RBI) is reviewing the research programme of its own research departments. Reserve Bank has sought inputs from its operating departments to suggest areas for research. Effort is being made to attain greater interaction between research and operating departments, particularly in ensuring inputs from research to operating departments and obtaining feedback from the latter on the relevance of the research findings.

Secondly, we are also reviewing the working of financial support of Reserve Bank of India to the research programmes including the financing of the endowment chairs. The intention is to ensure fee-based approach instead of cost based approach and the feasibility of capital grant rather than incurring of recurring liabilities. Furthermore, greater academic freedom is sought to be ensured while effective contribution to the research efforts of the Reserve Bank is necessary. The concept of Memorandum of Understanding and time bound support is yet another possible alternative. The Reserve Bank has sought advice from select experts on the issues of financial support from Reserve Bank of India to research and training. A letter has been addressed to select eminent academics on January 8, 2001 and response is awaited.

Thirdly, there has been inadequate interaction or linkage between commercial bank economists and professionals of the economic and statistical departments of Reserve Bank. The Reserve Bank would welcome suggestions from the economists assembled here so that there can be greater interaction for mutual benefit.

Banking Operations:

Dr. Shetty has summed up the complex issues covered in the deliberations on banking operations with his characteristic clarity and analytical rigor. A number of issues on a very wide range of subjects have been covered, and most of them are of contemporary significance. In this address, the response will be confined only to those issues that are relevant to monetary and credit policies.

First, a suggestion has been made that the Cash Reserve Ratio should be reduced to 3 per cent. As already mentioned on previous occasions, the Reserve Bank is committed to a reduction in the reserve ratios. But, the pace of reduction depends on the progress in fiscal adjustment and development of financial markets. The developments in international markets would also be relevant. In fact, Reserve Bank has proposed amendment to the existing legislation which prescribes the minimum ratio of 3 per cent so that Cash Reserve Ratio can be reduced even below that level. Consequent upon Finance Minister's assurances in the last Budget to accord greater flexibility to the Reserve Bank of India, we have proposed amendments to remove the statutory prescription of a Cash Reserve Ratio of 3 per cent and Statutory Liquidity Ratio of 25 per cent. This would give the Reserve Bank necessary maneuverability and flexibility to change the ratios. Significant reductions in reserve ratios from the present levels would also be necessary to speed up the process of movement towards universal banking. The real issue, therefore, is not one of commitment of Reserve Bank, but one of objective conditions that would facilitate such reductions in the reserve ratios as soon as possible.

Second, there is a reference in the presentation to the open market operations and the Bank Rate. It may be appreciated that with the introduction of liquidity adjustment facility (LAF), the role of Bank Rate changes. Once the medium term objective of eliminating refinance by the Reserve Bank is achieved, it would lead to greater reliance on open market operations including the LAF. This would take the Reserve Bank further towards the objective of greater reliance on indirect instruments of monetary policy.

Third, the presentation has suggested that tightening of prudential regulations should be "slow" so that the banking system is in a position to cope up and comply. The Reserve Bank would prefer the prudential regulations to be introduced at an appropriate pace in order to reach the objective of meeting the financial standards as soon as feasible and not at a slow pace. It is also recognized that the prudential regulations have a tendency to be pro-cyclical as mentioned in my Valedictory address in the previous Bank Economists Conference at Bangalore. Hence, the timing and the extent of progress in tightening would take into account the cyclical factors in the economy. Further, adequate notice has been and will continue to be given to the market participants to enable them to be fully prepared to meet the changing prescriptions in regard to prudential regulations. Finally, there is a very intense consultation process in detailing the application of prudential regulations. This is also undertaken with a view to facilitating the market participants to effectively meet international standards.

There are three more observations that need to be made to this gathering in the overall context of the banking operations in the new millennium. First, a number of suggestions have been made to improve the borrowers' accountability in the banking operations. There is, however, little or no mention by way of lenders' liability that has been spelt out in various discussions. It has been argued by several borrowers’ associations that honest borrowers do not get adequate notice or details of various monetary demands on them. It has also been argued that business values have not been adequately appreciated in the banking operations. Thus, the suggestion made by Dr. Mitra of National Institute of Law for a legislation prescribing lenders' liability is worth exploring.

Secondly, while some suggestions have been made in the discussions relating to Debt Recovery Tribunals, institution-specific recovery position may not be useful in the longer run as financial markets develop, a variety of institutions participate in them and corporates take recourse to multiple sources of funding. It is essential to have comprehensive bankruptcy laws and procedures. An Advisory Committee on Bankruptcy Procedures in India in the Context of International Sandards has already given its views, which have been put on the RBI website. Comments are most welcome on the subject.

Thirdly, Reserve Bank has been seeking an interactive mode from the banking community in regard to evolving systems, procedures and standards. For instance, Bank for International Settlements (BIS) has issued new prudential guidelines a couple of days ago. Reserve Bank has been involved in evolving these standards and the opinion of the banking community in India has been sought on the subject. Similarly, BIS had recently brought out a draft document on Role of External Auditors in Regulation of Financial Sector. More recently, BIS has also forwarded a report on Payments Systems, while Reserve Bank on its website has put up reports of its own advisory groups on Payments Systems and on Banking. There is need for the Bank economists to respond with their suggestions whenever such consultation documents are put up and RBI would welcome and value their advices.

Strategies for Better Banking

The future vision strategies for better banking have been brought out in an outstanding fashion by Dr. Jayantilal Jain. There are, however, some areas on which special focus would be advisable. These are - how will the banks be positioned in the future *vis-à-vis* non-banks? In what way should the banks change their scope and operations in order to survive? In other words, what should be the type of mutation for survival in the fast changing evolution of the financial sector? Finally, what would be the type of considerations that determine the relative emphasis between domestic and global presence for Indian banks? The Committee on Financial System (Chairman Shri.M.Narasimham) in its Report some years ago had touched on the subject and indicated the need for regional, national and international banks in the Indian banking system.

Chairman's Comments

The Chairman Mr. Kohli had referred to two important aspects, namely, the role of investments and the importance of long term paper in the bond market. The Reserve Bank has already recognized the importance of investment in the operations of commercial banks and is trying to ensure that the valuation and regulatory regime are appropriate. RBI is addressing these issues comprehensively to include investments in Union Government Securities, State Government Securities, Government guaranteed bonds, corporate bonds etc. As regards the introduction of long term paper, recent operations in the Government securities market, clearly show the distinct preference for elongation of maturity of government securities, but the search for optimal maturity is still continuing.

Central Banking

As mentioned in the beginning of this address, compared to commercial banks, central banking is a later phenomenon and is in fact essentially a 20th century phenomenon, though Bank of England can trace its origin back to over 300 years, while Bank of France over 200 years. In 1900, there were only 18 central banks whereas now there are 172. No doubt, the League of Nations in the inter-war period encouraged the establishment of central banks. By 60s and 70s, however, central banks became national symbols like national airlines and evolved at the rate of one and only one per country.

In our country, the debate on central banking is considered to be one of the oldest in the world traceable to Sir James Steuart in 18th century. Lord Keynes was involved in the recommendations relating to central banking in India, which ultimately led in the establishment of Imperial Bank/State Bank of India. RBI itself took a long time to come to fruition and perhaps the longest incubation period for any central bank in the world!

Contrary to popular impression, not all central banks were publicly owned. Both Bank of England and Reserve Bank of India were originally privately owned banks and both were nationalized in the late 1940s.

In fact, in terms of ownership, scope, nature of functioning and their importance, central banking has been changing from time to time. Though there have been advocates of free banking such as Hayek, and some others who felt that there was no need for a central bank but expected a continued existence for central banks such as Milton Friedman, the fact remains that the central banks continued to grow in importance in most parts of the world in the latter half of twentieth century, attaining preponderant status since a couple of decades.

By now, the central banks are considered as bastions of professionalism and centres of stability in macro-economic policy. They have projected a tradition of avoiding partisanship with the ability to command public support.

Of course, there are detractors of central banks. A former Prime Minister of a central European country quipped "when prices rise, governments are blamed; when prices are stable central banks take credit. How can central banks ever be wrong?"

By and large, there is a consensus that a central banker's dream is growth without inflation, while the nightmare is inflation without growth.

But quite often a question is asked : who is a central banker? It has been remarked in a somewhat semi-serious fashion, that the central banker is "neither a fish nor fowl; neither academic nor a banker".

India has been no exception in terms of recognizing the importance of central banks as also the criticality of price stability as one of the basic objectives of the functioning of central banks. The credibility and reputation of RBI in public arena, intellectual circles, financial markets, and multinational institutions are admittedly high. Therefore, any discussion about the future of banking in the new millennium will be incomplete without a discussion on the future of central banking in general and a specific reference to India.

A useful way of approaching this issue would be to address five interrelated questions, viz.,

What happens to central banks in the new economy?

How much of banking will central banks deal with?

How national will a central bank be?

How central will a central bank be?

Will there be central banks at all in future?

What Happens to Central Banks in New Economy?

Information Technology (IT) has certainly introduced significant structural changes in all economies though in varying degrees. Information Technology affects productivity in different sectors very rapidly and influences price levels also. It becomes very difficult for central banks to capture these rapid developments in terms of data. There is also increased uncertainty. In this situation, the conduct of monetary policy becomes more complex.

It is argued that it is possible, just possible, in future, that the new economy can introduce final settlements on real time basis by private sector without use of central bank money, using digital or electronic money. All transactions including those of financial assets can be "priced" in terms of that unit of account. This can in a sense easily become international through internet and if the creditworthiness of participants is verifiable straightaway, the final settlement can occur in real time with finality. Money in any form is a unit of account. In pricing, while relative prices will represent the reciprocal or economic value, the absolute level of prices will still be influenced by total quantity of money in existence. Asset pricing has an added dimension of interest rates and inflation rates. Pricing of foreign currencies has one more dimension of cross country interest/inflation rates. Therefore, technology cannot change the basic functions of money in an exchange economy, viz., unit of account, medium of exchange and a store of value.

At a more practical level, the question is whether the age of digital money has set in. Digital money is generally defined as the monetary value of government or privately issued currency units stored in electronic form in an electronic device. Currently, the credit cards utilising the unit of currency issued by government are used on Internet. The credit card is, however, inferior to cash in terms of cost, convenience and, most important anonymity. The digital money needs a device on the part of the two counterparties, while in the case of cash, it is the cash itself that is the device and two hands are enough to complete the transactions. Thus, cash is unaccountable since it freely moves, while the digital money will have to be designed to be unaccountable. In an accountable system, every transaction between a payee and payer is accountable to a third party, irrespective of the timing of accountability and a tracing of the two parties to the transaction. Non-accountable systems should allow for use of free movement of value, just like physical cash. In discussing the digital money, it is useful to make a distinction between on-line digital money and off-line digital money. On-line digital money requires simultaneous verification, while off-line does not. A distinction is also made between token based money and ledger based money. Token based systems exchange value through a denominated electronic token, which is in the nature of note or coin consisting of serial number and denomination of value in electronic form. Ledger based systems involve a balance ledger which can be increased or decreased as transactions are made.

Technology may be available for digital money and according to Research Study 24 of World Gold Council (Nov.2000), a beginning is already made by what is known as Paypal Payment System, Millicent and Mondex. For wider acceptance it may require an underwriter who issues digital money or a digital bearer certificate.

There are also issues relating to problems of money laundering and intellectual property rights, which complicates the large scale introduction of digital money which would replace central bank money. The main problem would be one of widespread access to the devices that would enable large-scale use of digital money for a long time to come. It may also require a trustee to hold the reserves. The IMF and Bank for International Settlements are working on various aspects of digital money.

On the whole, it appears that the digital money off-shoot of Information Technology will make the tasks of central banks more complex, but is unlikely to totally replace or supplant central bank money. In brief, the digital money may be close to free banking but it may be wild to suggest that it would totally supplant central bank over a period of time.

More generally, new economy can impact on the leverage of the central bank. Central banks' main importance is as a supplier of base money, constituting cash and bank reserves. Cash being the ultimate medium of exchange and commercial settlement, central banks have a leverage hugely disproportionate to their balance sheets. Even credit cards and smart cards could operate as money substitutes, but as long as the ultimate settlement is through central bank money, there may be some erosion, but no serious undermining of the importance of central banks.

In India, digital money issues and even of money substitutes will have to be addressed in due course. In any case, complexities in conduct of monetary policy arising out of I.T. economy will have to be addressed simultaneously with immediate challenges related to structural transformation and reforms in financial sector.

How Much of Banking will Central Banks Deal With?

There are several banking related aspects that a typical central bank deals with currently. It will be useful to review them to explore the possibilities of changes.

As issuer of currency, the central bank's role in future could be made complicated if not redundant by evolution of money substitute or digital money.

Whether the national currency itself will continue to be as important as it is now, is another issue, which will be dealt with at greater length a little later.

As banker to government, the central bank usually operates more as a legal agent than actually performing the functions. To the extent a central bank provides overdrafts, or credit to government, it is in a way going beyond the mere commercial banking functions. The thrust of reforms has been to distance the commercial banks from the government in terms of providing what may be termed as accommodation finance. In brief, the role of a central bank as a banker to government may not change and in any case may diminish rather than increase with redefined and somewhat reduced role of government in the economy.

The role as a banker to banks is admittedly an important role. In this regard, there are several aspects of the relationship between central bank and a commercial bank viz. the holding of reserves, provision of liquidity facilities etc. It is widely recognised that the role of banks in financial intermediation is becoming less and less important. To that extent, the role of central banks would diminish but the management of overall liquidity in the system may have to continue to be critical for the economy and hence the continued significance of central banks and its operations through banks.

As regards regulation of banks, there are divergent views. While a case has been made out that supervisory functions over banks should be removed from a central bank to ensure the independence of central banks, it is argued that the intimate knowledge that is required of a central bank to be the lender of last resort is lost. Thus, it is argued that the central bank's capacity to ensure financial stability may be undermined if regulation of banks is taken out of their jurisdiction. There is no final view that has as yet emerged.

The critical role of a central bank in payment system is well recognised. The Bank for International Settlement has circulated a discussion paper a couple of days ago on the Payments and Settlement systems which *inter alia* focuses on the importance of payments system and need for coordination between securities regulators and regulators of payments system. Whether payment system should be owned and operated by a central bank is a matter of dispute but that banks are the backbone of payments system and that a central bank has a critical role in regulating and ensuring a reliable, efficient and safe payments system is undeniable.

In the area of maintaining price stability, the role of a central bank is undisputed though several issues continue to remain unresolved viz., whether price stability should be the sole or one of the objectives; what is appropriate rate/range of inflation; what is a dependable measure of inflation and the role of asset prices; the relative importance of rules and discretion; trade off between employment and output; increasing asymmetry between market perceptions of economic fundamentals and that of public authorities, especially central banks; and above all independence versus accountability of central banks. What is strikingly new, however, is the increasing preoccupation of central banks in recent years with maintenance of overall financial stability – in the face of increasing globalisation of financial flows and threat of contagion.

On the issue of role of a central bank as manager of public debt, there is an increasing recognition of the need to contain public debt. Furthermore, there is a consensus on the need to divest the central bank of such functions to avoid conflict with monetary policy objectives. The magnitude of public debt operations relative to the size of economic activity is progressively coming down and even if the obsession with regard to reducing the fiscal deficit is contained, the magnitudes of fiscal deficit may not increase in future. In any case, central bank is unlikely to continue to be vested with public debt functions in the long run. Incidentally, it may be worth noting that elimination of fiscal deficit and generation of fiscal surpluses is posing a problem to central banks in regard to availability of instruments for open market operations.

In brief, the traditional roles of banker to government, banker to banker, may continue *albeit* with less significance while the role of regulator of banks could, in some cases be hived off. The preoccupation with prices is the *raison d'être* of a central bank though more emphasis may be warranted in future on growth objectives or anticyclical policies. What is new, in the new millennium, would certainly be a shift in focus to maintenance of financial stability and a corresponding concern with macro economic management. A greater attention to global dimension for a central bank seems to be inevitable, and thus dealings with banking will claim proportionately less resources of a central bank.

In the Indian situation, it is clear that banks will continue to play a unique role, as in the case of many large sized developing economies, and hence the continued role of the Reserve Bank. No doubt, with spread of universal banking, other regulators will also have significant dealings with banks. Moreover, in its relationship with commercial banks, the major role will have to be in the context of the payments system. As a regulator, it is well known that over the last few years, the supervisory functions over banks have been brought under a separate Board for Financial Supervision (BFS), a somewhat independent unit within the aegis of Reserve

Bank. In fact, Dr. Rangarajan who spearheaded the BFS recognised the principle behind hiving off. As expressed by Dr. C. Rangarajan (1994) in The Future of Central Banking – The Tercentenary Symposium of Bank of England 1694-1994 - "therefore, I feel that the responsibility of banking supervision being carried on to the central bank might make it more difficult in my opinion to gain the kind of independence that we are talking".

It is not clear whether total separation of supervisory functions and its merger with a mega-regulator is warranted at this stage but, greater autonomy to supervisory functions *vis-à-vis* monetary policy functions is clearly desirable in India also. As regards the role as a debt manager to government, there is an overwhelming view in favour of separating out, not in the medium term but in the long run and the necessary enabling legislative amendments have been proposed by the RBI.

The role of the RBI in the development of financial markets, especially overseeing payments and related settlement systems, regulation of money markets, government securities markets and forex markets etc. is gaining in importance. Given the inexorable process of integration of financial markets and linkages with global markets, RBI's attention will be increasingly towards financial markets and financial stability. In brief, Reserve Bank's focus, relative to the past will have to be more on the stability in financial markets/system and price stability, while emphasising credit delivery for financing growth and somewhat less on banking operations *per se*.

How National Will a Central Bank Be?

There is currently a widespread respect for independent central banks and a strong consensus in favour of granting of autonomy to central banks. Clearly, the independence is from government's influence and case for autonomy is also in a similar context. However, it is interesting to observe that with increasing globalisation of financial flows and prospects of contagion threatening the financial stability of a country for actions or inactions of central banks in other countries, there is increasing emphasis on coordination among central banks, in particular in regard to standards relevant to financial sector such as regulation, accounting and governance. There is an issue that could justifiably be raised in this context. Is it possible that central banks would become more and more autonomous *vis-a-vis* other national authorities, but at the same time more and more aligned with international standards? In other words, as a consequence of these developments, are central banks likely to become less national and more international or global?

Yet another question is : Will there be in future, a national currency for all the countries that have one now? Euro has certainly heralded the era of regional currencies. There are several reasons why regional currencies may become more common. Given the recent experiences in volatility in exchange rates, there may be greater preference to avoid adverse impact of such volatility through regional arrangements. There is also the ease of undertaking of e-commerce in any currency at any time with any counter-party that could add to the attractiveness of a regional currency. It is useful to recall what Prof. Goodhart (2000) said about this in Mumbai.

"A combination of continuing volatility in real exchange rates, combined with a growing ease of undertaking e-commerce in any currency at any time with any counter-party, could lead to a growing pressure for the greater use of a regional currency. South America, as well as North, may become even more explicitly a dollar area, while Europe and Africa adopt the Euro. Asia presents more of a problem in this respect. One, super-power temporarily fallen on hard times, and two emerging giants, can neither fall in behind a single hegemony, as in the Americans, nor benefit from a rapprochement, such as achieved by France and Germany. The future of international monetary policy in Asia banks, looks at least from a distance, particularly opaque"

Of course, one could move into realm of speculation and pose a question : Will China and India follow the example of France and Germany and have a currency, in true buddhist tradition of 'Shanti' or "Asio". Is it conceivable that a large and continental economy like India or China would opt for any change in the *status quo* in terms of its national currency?

Often, being truly national is equated with being totally owned by the national government. It is useful to note that many central banks were not government owned till they were nationalised about a half a century ago. The Bank of Canada, the Bank of France and Bank of England were nationalised in 1938, 1945 and 1946, respectively while Reserve Bank of India became totally government owned in 1949. In fact, there are some central banks, which even as of today, are not fully owned by the respective national governments. There are a few who have majority or controlling ownership of their respective governments, while there are a few in which there is no ownership stake for the national government. While in Japan and

Mexico, Government owned 55 per cent and 51 per cent, respectively, in Austria and Belgium it was just one-half. In Italy, the central bank is owned by other public companies, in U.S.A. by member Banks of the Reserve System and in Switzerland, cantons and private shareholders are the owners. Though the organisational form could be Joint Stock Company or under a special statute, the latter is more prevalent. In almost all the cases, there are special restrictions on eligibility for ownership and dividend payout.

It is possible to argue that in respect of developing countries there is a need for strong presence of public sector and that private ownership ought not to be considered. However, Dr. Anand Chandavarkar (1996), an eminent economist and a respected former RBI official has expressed himself in favour of serious consideration of some diversification of ownership, particularly in developing countries.

"A crucial but little discussed element in the professionalism of central banks in developing countries is the weakness of hands-on market contacts and the tendency to equate expertise too uncritically with academic credentials and analytic skills to the neglect of market-based judgmental skills, insights, and on-the-job experience. The market orientation and market discipline of central banks in developing countries would only be enhanced if they were to be partially privatized and listed on the stock exchange, an overlooked option which merits serious consideration"

How Central Will a Central Bank Be?

There is universal recognition of the central role played by a central bank in the economies, and particularly economic policies, though as already mentioned it is a relatively recent phenomenon. How long will it last?

On the basis of conventional wisdom, one can say that it would depend on how operationally independent it is from Government; how proficient it is in forecasting and judging; and how credible are its actions.

In terms of specifics, it would depend on several factors, many of which have been dealt with in this address already.

First, how much of 'banking' will it be involved in?

Secondly, what happens to the role of a central bank's currency?

Thirdly, would a central bank still be a debt manager?

Fourthly, what would be its role in the management of foreign exchange rate? – especially, if there were acceptance of appropriateness of only corner solutions in the context of possible emergence of three dominant currencies.

Fifthly, what would be a central bank's role in overall macro-economic management, especially in terms of research, analysis, communication, opinion-making etc.?

Sixthly, to what extent will it have formal or informal role in advocating and maintaining overall financial stability? If it were not to be that of the central bank, which other institution could play the role?

In the context of developing economies, several additional factors would be relevant to a discussion on future role of central banks.

First, what role should a central bank play in nurturing and influencing reform in the financial sector in the interests of enhancing efficiency and promoting stability of financial sector?

Second, what would be the developmental role in the context of development of financial markets themselves?

Third, who takes the responsibility for ensuring credit delivery if it were not the central bank? Such credit delivery may have a developmental dimension or cyclical dimension or socio-economic dimension, such as linkages of formal finance with informal finance.

It is perhaps obvious that answers will depend upon the country and the evolving circumstances, and clearly the centrality of a central bank is unlikely to be common to all countries.

To illustrate it in the Indian context, the current focus of the central bank on development and regulation of financial markets would not have been envisaged a decade ago. Exchange control has yielded place to exchange management. Initiatives have been taken by the Reserve Bank to establish a Clearing Corporation in the context of infrastructure for forex markets, money markets and government securities market. Regulation and supervision of not only banks but non-bank financial companies and financial institutions have become major preoccupations of the central bank.

The change that has recently occurred in Reserve Bank's operational orientation mentioned above is reflective of fundamental changes in policy, especially in monetary and credit policy, involving a movement away from direct instruments and administered interest rates to indirect instruments, appropriate incentive framework, transparency and participative approaches.

But, the fundamental changes in policy are in many ways evolved and refined as much out of RBI's research and analysis as out of its experience and also of compulsions of developments in the external sector. Indeed, like close links between academic and knowledge based industry which characterised the success of information technology, close interaction between research and policy in RBI has, on all accounts, led to enhancement in quality of decision making and hopefully to the need for caution and humility in approaching policy changes or meeting crises or increasing uncertainties. The policy makers do need theory since indeed there are no facts without theory for even in noticing facts, there is an unstated or unconscious theory. There is evidence to show that academia also benefits from interaction with policy makers since the institutional dynamics and social dimensions are more acutely felt by hands-on experience of policy makers. All these thoughts lead one to concede that central banks may not be central in the way they used to be but they would still be very central for our lifetime, at least in countries like India.

Will There be a Central Bank At All?

As mentioned before, the twentieth century saw really the birth of central banks, as they are known today, and grew in numbers and in eminence by the beginning of the new millennium. However, explorations into the current developments in this address seem to provide some pointers, *albeit* tentative to the survival or otherwise of central banks.

First, it is not easy to rule out a reduction in number of central banks in future.
Second, central banks will also be less of providers of seignoreage revenue to governments.

Third, new economy will make the tasks of central banks far more complex than before. If digital money really takes over, and this is a very distant possibility, central banks may have to explore new role say, coordination among central banks or multilateral legal framework for digital money etc. or even being a regulator of production and distribution of private money instead of being supplier of money. In the past twenty years, many of what were unquestioningly accepted as public goods have been proven to be commercial goods. Furthermore, what were considered public monopolies have been subjected to unbundling, competition, privatisation and regulation on account of advances in technology. So is production of ‘money’ necessarily immune from the impact of changes in public policies in regard to production of other goods and services?

Conclusions

To conclude, the perennial question for central banks, which have always been troublesome are what is money, how to measure it and does it really matter? In the new millennium, central banks face the same questions but the answers seem to be changing too rapidly for us to fully comprehend!

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