

Financial Infrastructure and Economic Development: Theory, Evidence and Experience

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Last three decades have witnessed economists' growing interest in exploring for a possible link between financial structure and economic activities. In more recent years, the horizon of economists' inquiry has expanded to include the interrelationship between financial infrastructure and economic development. Financial infrastructure of an economy is defined in this paper to include financial system, legal system, accounting standards, and payment and settlement system. The financial system consists of financial institutions, markets and instruments. An attempt has been made in this paper to address some of the theoretical issues and discuss evidence thereon in relation to the following proposition: there is a direct and symbiotic relationship between sound and efficient financial infrastructure and financial stability and economic development.

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Introduction

Undoubtedly, the canvas of the above proposition is not only very vast but also highly complex. For, the proposition engenders a number of complicated questions such as: does efficient financial intermediation lead to an increase in saving rate and enhancement in efficiency of investment? Is "supply-leading role" as against "demand- following role" or active versus passive role of the institutions like banks significant for development? Is financial infrastructure merely the catalytic agent or one of the endogenous factors affecting the growth? Are microeconomic dimensions of financial intermediation such as transaction costs, scale and scope economies, information asymmetry, innovations/inventions, monitoring, risk and uncertainty management, and so on, important factors affecting growth and development? Does institution matter? Are institution perspective and market perspective in the matter of

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financial intermediation mutually exclusive in the context of increasing technological advancement? Is efficient financial system alone or the entire financial infrastructure sufficient for contributing to the financial stability and sustained economic growth? Do the available theoretical literature and evidence provide satisfactory answers to these questions? By discussing briefly experience and evidence relating to such inquiries with special reference to India, this paper purports to offer broad answers at least to some of the questions.

An evaluation of contributions in theoretical literature and empirical studies provides a rich insight essential for understanding and appreciating the interaction between financial infrastructure and economic aggregates. Accordingly, section I of the paper focuses on select theories/models on the interrelationship between financial system and economic development both at macro and micro levels. An analysis of macroeconomics as also microeconomics of financial intermediation is presented in this part. Incidentally, an evaluation of studies based on the institution perspective and market perspective is found to be supportive of the eclectic theoretical approach. The integrated approach to study the financial intermediation is essential to gain a complete understanding of the interrelationship between financial infrastructure and economic development. The experience of financial sector reform and financial policies is examined in section II. Here it is highlighted how the efficient financial system alone is not adequate enough to ensure financial stability and growth. For, weaknesses in legal system, accounting standards and payment system might pose serious threats to financial stability. Hence the financial stability necessitates the overall efficiency of the financial infrastructure. In the light of discussion in the preceding two sections, development experience of financial infrastructure in India has been traced in section III. An analysis of the policy environment and package of policy measures including those concerned with the financial sector reform is also presented in this part. Broad evidence in regard to link between financial infrastructure and economic growth and development with special reference to India is presented in section IV.

Section I

Financial Infrastructure and Development: A Macro Perspective

The strong and positive correlation between the level of financial infrastructure and economic growth has been widely recognized in the pioneering works of Gurley and Shaw, Schumpeter, Goldsmith, Patrick, Greenwood and Javanovic, Bencivenga and Smith, Diamond and Dybvig, Prescott and Boyd, and Sussman and Zeira. The salient feature of the theoretical literature is, as Mark Gertler (1988) aptly observes, that ‘the theoretical models developed thus far are highly stylized and capable of generating only qualitative prediction’.

Financial institutions as intermediaries between lenders and borrowers mobilize savings and ensure their efficient allocation among the competing economic activities. Such efficient intermediation has positive impact on growth and development. The resultant higher level of growth, in turn, necessitates establishment of sound and sophisticated institutions with horizontal or vertical integration, instruments and markets. Furthermore, smooth integration and development of the financial infrastructure requires an efficient legal, accounting, and payment and settlement system. Clearly the subject of interrelation between financial infrastructure and economic development represents a vast canvas.

Financial Institutions in General Equilibrium –Development Theory

The traditional theory of financial intermediation is based on the classical notion of perfect market *a la* Adam Smith, Walras and Marshall. The concept has attained its formal status in the resource allocation model developed by Arrow and Debreau. In competitive equilibrium, under the assumption of complete market, banks and other financial institutions play only a passive role. In keeping with, the majority of the first generation development economists were greatly influenced by the spirit implicit in Joan Robinson’s observation that ‘where the enterprise leads the finance follows’. The second generation development economists of 1970s became more concerned with the role of financial system in carrying out its allocation and

intermediation between savers and investors. The development economists began to recognize the significance of “supply-leading” role of the financial institutions (Patrick, 1966). Following the experience of adverse selection, moral hazard, information asymmetries and transaction costs, weaknesses in the legal and accounting systems as well as their adverse impact on the growth and development, the economists have begun to attach considerable weight to the role of efficient financial system. Thus, the emphasis has been shifted from demand following to supply-leading role of financial institutions, and thereby from the passive role to the active and dynamic role of the financial intermediaries.

Market Failure – Link between Financial Structure and Economic Development

In the aftermath of the Great Depression of 1929, there has been a flurry of studies on financial markets and their interface with real economic activities. While one set of such studies was mainly concerned with devising an alternative paradigm to the market system, the other set focused on exploring the linkage between performance of the financial markets/ banks/aggregate money supply and output. For instance, Fisher (1933) looked into debt deflation and its impact on down turn in the trade cycle. The borrowing class with high leverage position in the wake of prosperity prior to 1929 was prone to suffer from high risks associated with a sharp decline in net worth, fall in current expenditure and future commitments as a result of price deflation. As drop in prices, output and income was accelerated, debt liabilities far exceeded total assets. In sequel, number of bankruptcies rose significantly. The business down-turn was intensified by the poor performance of financial markets. Fisher’s idea of the link between the financial structure and aggregate economic activity is reflected in a number of subsequent works. For instance, Gurley–Shaw (1955) maintained that financial intermediaries play a critical role in facilitating the circulation of loadable funds between savers and investors. Similarly, Goldsmith (1969) argued that a positive correlation exists between economic development and sophistication of the financial structure. The Keynesian economists, by and large, have not explicitly recognized the critical role of financial

intermediaries in economic development, albeit the financial system implicitly formed an integral part of the Keynesian macroeconomics.

Emergence of Money View

The General Theory of Keynes has engendered highly influential literature focusing on the indirect link between financial markets and real economic activities via liquidity preference. Implicit in this approach is the “money view”—the medium of exchange role of money. The ‘money view’ considers the aggregate money supply as the most relevant concept representing the aggregate economic behavior. The money view insists that bank liabilities (money) alone matter. In the process, it broadly ignores the impact of bank loans on real economic activity.

The issues relating to the linkage between money supply, output and prices as well as the empirical mechanism have been debated since long. Among the notable ones, Modigliani-Miller (1958) argued that real economic decisions are independent of financial structure and that investment decisions are independent of credit. According to this theorem, finance is a veil. The monetary policy in such situation can have only transitory impact on real variables through unanticipated changes in money supply. Similarly, the famous work ‘A Monetary History of the United States’ by Friedman-Schwartz (1963) laid a strong foundation of monetarism. The main finding of this study is that the aggregate money supply declined sharply along with output from the start of down-turn in 1929 through 1933. Thus, the role of money supply in causing the Great Depression has been highlighted. Furthermore, this study has given birth to the new era in which money occupies the central place in the macro-economic activity instead of the financial system.

Resurgence of Credit View

Mishkin (1978) and Bernanke (1983) have explored the relative significance of money stock as against financial forces (represented by break-down in banking), in explaining the depth of the depression. In particular, Bernanke has shown that the monetary forces (shown up in the aggregate money supply) alone are quantitatively insufficient

to explain the severity in the down-turn in the business cycle. The collapse of the banking system is relatively important. Thus, the credit view as reflected in Gurley-Shaw model has revived with emphasis on bank loans in stimulating the aggregate economic activities.

Emergence of New Paradigm

The distressing experience of the Great Depression created wide spread mistrust in the efficacy of markets. The subsequent policy making during 1960s and early 1970s has, therefore, attached a significant weight to measures like directed investment, directed lending and regulated interest rates structure. Furthermore, these restrictive policies have been justified on the ground that financial institutions in developing countries are unable to facilitate risky investment as well as risk-sharing of new investments. Besides, the oligopolistic financial institutions are found to be abusing the environment of unregulated interest rates by charging usurious interest rates on the borrowers. In the process, the critical issues of financial intermediation such as operational efficiency, allocation efficiency, financial viability of the institutions, governance, developing instruments, markets and other segments of financial infrastructure needed for the sustained growth of the financial system and economic growth have not received much attention, particularly in the developing countries.

Financial Repression and Efficiency of Financial Intermediation

Several studies including the pioneering one by McKinnon-Shaw (1973) have examined the repercussions of a regulated regime on macroeconomic aggregates. The major finding of such studies is that the interest rate structure regulations, directed lending and investments have distorted the financial markets. The distortions, in turn, affect adversely the saving and investment decisions. The regulated and/or subsidized interest rates structure depresses savings and promotes inefficient investments. This phenomenon has come to be known as financial repression. In the light of such analysis, a strong case for liberalization of the repressed credit markets has been made. In the context of paucity of savings and relatively large demand for investible resources, deregulation of interest rates on borrowing and lending

would lead not only to higher savings but also to more efficient use of funds. On the other hand, development of the financial sector *per se* entails two pronged macroeconomic effects: enhancing efficiency of investment and augmenting savings mobilization and hence scale of investments (Gold Smith, 1969 and McKinnon-Shaw, 1973). Partly under this theoretical influence, there has been a strong move towards liberalization and financial sector reform since the early 1970s in both developed and developing countries. Incidentally, the reform experience has been mixed in different countries depending on the prevalent conditions. The detailed discussion of this issue is presented in Section II.

The endogenous growth literature as contributed by Romer (1986), Prescott and Boyd (1987), Rebelo (1987) and Lucas (1988) provides an insight into savings behavior that enhances and maximizes the growth potential of the economy. The financial intermediaries, by effecting transformation of savings into capital, tend to promote capital investments and also raise rates of growth. As early as 1960s, economists like Schumpeter, Gold Smith, and Patrick underlined the critical contribution of financial intermediaries in stimulating economic growth. However, accent of the recent endogenous growth models (e.g., Greenwood and Jovanovich, 1990) has been on efficiency of financial intermediaries and two way causal relationship between financial development and economic growth. The growth process in the economy brings about a chain effect: fostering participation in financial markets; deepening as well as widening of financial markets; emergence of sophisticated financial structure; selection of efficient investment projects; and finally improvement in allocative efficiency of financial institutions. The resultant financial infrastructure in turn stimulates economic growth and development.

Bencivenga and Smith (1993) have introduced an endogenous growth model with multiple assets. The model considers the effects of introducing financial intermediation in an environment in which agents accumulate capital in liquid but unproductive assets taking into account the future uncertainty. The introduction of financial intermediaries brings about shift in the composition of savings towards capital in less liquid but productive assets, which promote growth.

Furthermore, the presence of financial intermediation reduces the socially unproductive liquidation. The financial intermediaries stimulate economic growth in two ways: (1) by channelling savings of individuals into productive areas of development and (2) by allowing individuals to reduce their risk associated with their liquidity needs. This is possible for financial intermediaries because they enjoy the advantages out of the laws of large numbers and coalition of investors, which enable the financial intermediaries to invest in illiquid but more profitable securities while preserving enough liquidity to satisfy needs of individuals investors (Diamond and Dbvig (1983).

In this connection it is appropriate to refer to a banking model developed by Bernanke and Gertler (1987). The model highlights the role of banks in facilitating the flow of credit in the economy. Interestingly the model demonstrates how the financial health of the banking institution plays significant role in expanding the base of the loanable funds and loan portfolio of the bank. The healthy bank with high net worth (capital and reserves) is able to attract larger volume of deposits. With large deposits base/resource base the bank is in a position to allocate larger fraction of its portfolio to risky loans. The model also reveals how the monetary policy can matter to real economic activity by influencing the flow of bank credit.

Micro-Economic Perspective – Financial Intermediation

As the motives behind saving and investment are very different, it is very unlikely to have any semblance of equality between the two and more so in the absence of financial intermediation. If there is a complete market of Arrow-Debreau type, there exists a complete set of contingent claims. Consequently, the degree of uncertainty is almost absent or very much minimum. However, in a real world situation, the degree of uncertainty from the point of view of individual saver or investor is certainly high since the preference pattern undergoes change depending on the time horizon. It is, particularly, true from a long run perspective for market equilibrium between demand for and supply of savings. Another factor that contributes to uncertainty and risk is the extent of imperfection in financial markets. Notwithstanding

the market imperfection, financial markets are important since they provide signals to the agents to assess the risks arising from fluctuations in the market.

The characters of individuals and critical aspects of the individual financial institutions in the process of financial intermediation such as liquidity preference, safeguard against risk associated with liquidity needs, transaction costs, choice and monitoring of the projects, governance, regulation/supervision, information asymmetries and incentives, adverse selections, moral hazards and asset/liability-risk related aspects, legal and enforcement systems, accounting standards etc. are also essential elements in explaining the behaviors of savers and investors as well as coordination between saving and investment in the economy. In short, a reference to microeconomics of financial institutions, instruments, markets, and other segments of the financial infrastructure is equally important and instructive in understanding and appreciating the linkage between financial infrastructure and economic development.

Gurley-Shaw (1960), Benston-Smith (1976), and Fama (1980) argue that financial intermediaries like banks, insurance companies, and mutual funds are there to transform financial contracts and securities. For, conditions like indivisibility and non-convexities in transaction technology necessitate the service of intermediaries to undertake the transformation. For instance, banks transform such as demand deposits (divisible in amount, in maturity and with low risk) into non-marketed loans (large in amount with indivisibility, longer maturity, high risks). Thus banks are specialized in providing financial services of divisibility, term and risks transformation. One might argue that individuals with adequate knowledge of markets might also undertake the type of asset transformation, which banks are supposed to perform. But the missing point in this argument is the importance of scale and scope economies involved in transfer technology. Thus, Benston and Smith (1976) observe that the *raison d'être* for financial intermediaries is the existence of economies of transaction costs. If they perform supply-leading role, they go beyond these economic demands. Developments in the transfer technology, telecommunication, computer, and also innovations in financial

services and instruments would bring about radical changes in the extant transaction costs.

Miscellaneous Micro Factors

Other areas of operations where financial institutions enjoy distinct economic advantages include systematic screening of projects, efficiency and effectiveness in monitoring project finance, ensuring end use of credit and recovery of loans and so on. As seen in the preceding paragraph, they enjoy substantial costs advantages on account of the operation of the scale and scope economies. Furthermore, they are endowed with the comparative advantages of having reliable and credible information on the nature and quality of the projects, its execution, cash flows, credit worthiness of individual borrowers and its future prospects. With these distinctive advantages, financial institutions are arguably in a position to prevent adverse selection of projects, moral hazard, and opportunistic behavior of borrowers during realization of projects. In this connection it is plausible to argue that individual investors and rating agencies can also undertake the screening and monitoring activities. However, in such cases, individual investors will have to incur exorbitant costs to undertake such activities. Indeed, the models developed by Helloing (1991), Broacher (1990), Holmstrom and Tirole (1993), Diamond (1984) emphasise the important role of the financial institutions in screening and monitoring the project finance. They also stress that the effectiveness and efficiency of the financial institutions in these areas of operations are the significant contributory factors for economic growth and development.

Theory of Firm Approach

Busman and Zebra (1995) have extended the monitoring model of Diamond (1984) by including transportation costs. As a matter of fact, the transportation costs represent an element of horizontal differentiation. The model demonstrates that the horizontal differentiation could be an important source of feed-back effect between economic development and financial development. This model belongs to the theoretical approach known as industrial organization approach to financial intermediation. Such models

provide useful insight into issues pertaining to cost effectiveness, innovations, risk management, market failures and effectiveness of monetary policy. The focus of these models is on the responses of the financial institutions as independent entities to different kinds of environment. Broadly in these models the banking sector is not treated as a passive player as is done in the standard approach to the monetary policy. As a matter of fact the banking sector is viewed as the active and independent entity reacting optimally to the changing environment in the economy. For instance, the industrial organization approach to modeling the financial institutions like banks considers the banks as firms specialized in generating spectrum of financial products and services to their customers' changing and growing preferences. By using the inputs (men and materials) the banking firms produce output in the form of portfolio of assets and liabilities as well as diversification by transforming shorter position in liability portfolio into long-term position in the loan/ asset portfolio. From the perspective of balance sheets of financial institutions, financial transactions are only the visible counterpart to the financial services provided by the banking firms. The cost of providing these services in relation to their earnings involves a number of economic functions such as exploiting scale and scope economies, asset/liability risk-return management, product differentiation, innovations/inventions, selling costs management, corporate governance and so on. These and other related aspects need to be considered alongside assets-liability structure and balance sheet size in order to assess the operational and allocative efficiency of the financial intermediaries.

Integrated Approach

An integrated approach encompassing macro considerations, micro aspects of financial institutions including scale and scope economies and asset/liability risk management, etc or industrial organization approach and balance sheet approach would be essential to comprehend the inter-relation between economics of growth and financial infrastructure. The above discussion of select theoretical models reveals clearly that micro and macro aspects of financial intermediation are not mutually exclusive. The efficient financial performance as measured in terms of cost effectiveness, productivity,

profitability, sustainability and so on hinges on both micro and macro factors. From a macro perspective, efficient operations of financial intermediaries in a given environment, contribute to efficient life cycle allocation of household consumption and efficient physical capital to its most productive use (Merton-1993).

Eclectic-Theoretic Approach

The theoretical models briefly discussed above, can broadly be classified into two categories: (1) those dealing with institutional perspectives – organizational matters, functional matters, at both macro and micro levels etc., and (2) those dealing with market perspectives - issues relating to marketing of financial products and forms of markets, full equilibrium and partial equilibrium conditions, perfect/imperfect markets and so on. There is a vast body of literature dealing distinctly with each group. But in the present context of increasing use of advanced technology, rapidly growing financial innovations, rising trend in portfolio diversification and asset/ liabilities/risk management, it is very difficult to maintain a separate identity of different bodies of literature. The theoretical literature concerned with financial intermediation is likely to become inseparable in the dynamic conditions. Thus, the eclectic or integrated theoretic approach seems to be appropriate in understanding and assessing the role of financial infrastructure in growth and development. Metron (1995) in his model on dynamics of financial evolution has viewed the financial institutions as financial intermediaries performing important latent economic functions. Their economic functions are concerned with creating and testing new products before they are seasoned enough to be traded in a market. The resultant interactions between financial institutions and financial markets reinforce and improve the efficiency of their functions. Ultimately this process pushes the financial system – consisting of institutions, markets and instruments — towards an idealized goal of full efficiency.

Lihui-Lin *et al* (2001) argue that financial intermediaries should be viewed against the backdrop of a financial system. Financial institutions produce “ matching” between markets and participants. The traditional financial intermediaries act like manufacturers and/

or wholesalers while the financial markets act like retailers. Even this distinction becomes absurd in the case of electronic banking and use of Internet device in financial transactions. The financial intermediation based on highly advanced technology encompasses both production process and marketing of financial products and services. Such financial intermediation representing integration of institution perspective and market prospective can only be studied by employing an integrated approach. Incidentally, a major part of the traditional theory of intermediation by treating market mechanism as exogenous, has not recognized fully the value addition generated by the process of marketing.

Clearly, there exists a two-way causal relationship between development of the financial system and development of the economy. It is possible to explain the sub-optimal level and rate of growth of savings, and investment as also financial weaknesses and low efficiency of the institutions in the developing countries. It is observed that financial repression is one of the important factors responsible for the sub-optimal performance of the financial system in these countries. In view of this, financial sector reforms in many developing countries are designed to eliminate ill effects of “financial repression.”

Section II

Experience with Structural Reform Policies

As stated earlier, the McKinnon-Shaw hypothesis has had a far-reaching influence on the financial policy making in a number of developing economies, *inter alia*, in terms of easing of the regulated interest rates structure, directed lending and investment, and imparting a diversified ownership pattern of financial institutions. However, experience with the structural reform policies especially in the developing countries has been mixed with notable failures in Latin American countries. Following financial reforms in 1980s and 1990s in Mexico and other southern cone countries, their banking sector experienced chaotic situation and even collapse. Fry (1995) has analysed the international experience in financial sector reforms over the past two decades and identified five important pre-requisites for

success of financial reforms: (1) adequate prudential supervision and regulation of commercial banks, efficient legal and accounting systems and also other financial infrastructure facilities, (2) reasonable degree of price stability, (3) fiscal discipline, (4) profit maximizing competitive behavior of the commercial banks, and (5) taxation system that does not impose discriminating (explicit or implicit) taxes on financial intermediaries. The liberalization and structural reform not based on the conscious and critical assessment of the situation could not yield expected results Gibson and Tsakalotos (1994).

Williamson and Maher (1998) have reviewed the experience of financial sector reforms in 34 countries and found that the benefits of financial liberalization are greater the higher are the financial depth and efficiency in allocation of investments. The financial sector reforms do not, however, support decisively improvement in savings as predicted by McKinnon–Shaw. Dobson-Jacquet (1998) has also observed that the effect of financial liberalization on rate and level of savings is less robust in reality. Therefore, contribution of financial liberalization to growth and development lies more in quality of resource allocation than in quantity of resources potentially available. As per Pagano (1993), there are three important channels through which the efficient financial sector can influence the long-term growth, viz: (1) increase in the proportion of savings transferred to investment spending; (2) improvement in social marginal productivity of investment; and (3) augmenting the private saving rates. The survey results of King and Levine (1993) also reveal that the benefits of the financial sector reforms accrue to the economy as a whole in the form of faster economic growth. According to Levine (1996), efficiency in financial intermediation affects favorably net return to savings and gross return on investment.

Financial Infrastructure and Economic Development

The overall efficiency of the financial system is closely linked with the efficiency of the legal system, accounting standards, and payment and settlement system. Weaknesses in enforcement mechanism for financial contracts, lack of standardized accounting system or transparency deficiencies in payment and settlement system hinder the growth of financial sector and hence economic

development. Similarly, there has been evidence of early recovery from the financial crisis with efficient and sound financial infrastructure. Besides, success or failure of financial reforms in a given country depends to a large extent on the efficiency of financial infrastructure. Indeed, prior to the introduction of financial sector reform, there is an imperative need for refinement in the legal system, particularly in the areas of bankruptcy laws, secured transactions, enforceable contracts, banking Act for prudential supervision and regulation. Financial infrastructure also plays a vital role in not only stimulating but also sustaining the economic growth (John L. Walker, 2001). For instance, a legal system based on common law being more flexible and dynamic is found to be more effective in contributing to the overall efficiency of the financial infrastructure as compared with the system based on civil law. Such a system provides for more diversified ownership structures and development of capital market. Alongside the sound legal system, transparency and credible accounting standards are emphasized. The recent episodes of accounting irregularities in the US corporate sector highlight the imperative need for evolving a system of credible accounting standards and extensive transparency to improve the efficiency of the financial infrastructure. The payment and settlement system constitutes one of the most significant segments of the financial infrastructure facilitating smooth transactions with minimum risks for the economy. Besides, an efficient payment and settlement system has a decisive bearing on efficacy of the monetary and credit policy.

Financial Infrastructure, Financial Stability and Economic Growth

Confidence of the participants in various segments of the financial infrastructure forms the essential pillar for financial stability in a country. The extent of confidence and trust of the participants is, thus, dependant, among other things, on the presence of sound and strong financial institutions, efficient financial markets, and financial infrastructure. Financial stability also requires establishing links between financial markets and the macro economy; and within the financial markets among different participants. Finally, credible crisis management system is essential for ensuring financial stability. Effective execution of the task necessitates exchange of information,

proactive remedial measures, and coordination among the financial policy-making bodies, namely, central bank, government and supervisory authorities (if they are separate entities).

In an interesting review of empirical literature, Simson Johnson (2002) focused on the relationship between economic prosperity and quality of institutions in an individual country. In particular, the issue is whether an effective legal system, regulatory/supervisory system enforcing laws, prudential norms relating to protection to depositors /investors rights, transparency, stability and viability of the financial institutions contribute to economic growth and development. It is demonstrated beyond doubt that institutions do matter and countries with strong institutional set-up experience relatively high long-term growth. Johnson also highlighted contribution of efficient institutions to the success of financial sector reforms in Poland as against Czech Republic. While designing reform packages and policies thereof, Poland took care of protecting the investors' rights by introducing certain effective regulatory measures. In contrast, Czech Republic established far fewer institutional protections to the investors' rights, relying more on market forces. Outcome of these two models of financial sector reform is quite revealing. Czech Republic model was not only less successful but also suffered series of financial crisis. On the other hand, Poland's financial sector reform turned out to be quite successful. Johnson's study of the East-Asian financial crisis also reveals that countries with strong institutional set-up have handled the crisis much better than those with weak institutional set-up.

Section III

Indian Experience with Financial Infrastructure and Economic Development

Last five decades have witnessed concerted efforts of the Government of India and the Reserve Bank of India to develop and promote the financial infrastructure in the country. The driving force underlying the persistent endeavor in respect of the financial infrastructure seems to be the planners and policy makers' belief in the concept of 'supply-leading' role as against the 'demand following' role of the financial intermediaries. The policy thrust since 1969 and

till the mid-1980s had been relatively on achieving equity in regional distribution of banking facilities in general and institutional credit in particular as compared to the sustained growth and stability of the financial infrastructure such as viability and soundness of the institutions. With the financial sector reform introduced since the early 1990s, there has been a paradigm shift in the financial sector and the necessity of reform measures in the legal, accounting and payment systems alongside the financial system has come to the fore. At present what is required is to identify gaps in the segments of financial infrastructure and devise appropriate policy measures as well as the strategy for effective implementation. It is towards such an end, the following discussion starts with agricultural finance.

Agricultural Finance–Institutional Development

Owing to the then predominantly agricultural basis of the Indian economy, there has been the imperative need to expand and coordinate the credit facilities available to agricultural sector. Recognizing this distinctive feature of the Indian economy, the Reserve Bank of India Act 1935, has itself laid down in section 54 that the Bank should set up a special Agricultural Credit Department (ACD).

Accordingly, the ACD was set up with the establishment of the Reserve Bank of India in 1934. The major findings of the preliminary reports prepared by the Department were: (i) money lenders were by and large the sole financiers of agriculture with negligible finance by institutional agencies like cooperatives; (ii) legislation needed to be framed for regulating the money lenders; (iii) credit extended by money lenders was subject to high interest rates and other usurious practices; and (iv) land mortgage corporations might be set up for meeting the long term credit needs of the farmers.

Several other expert committees subsequently addressed the issues pertaining to augmenting the agricultural credit and strengthening the multi-agency set-up for agricultural finance. For example, the Committee of Direction of the All-India Rural Credit Survey (1951-52) suggested for supplementing cooperative credit by commercial banks. However, a majority of the expert committees on agricultural credit held the view at least till the early 1980s that the

major responsibility of providing credit to agriculture should be that of co-operatives.

Since inception of the Five Year Plans, a number of steps have been taken by the Bank/Government of India to augment the institutional credit flow, *inter alia*, through provision of national agricultural credit (long term operations) funds, national agricultural credit (stabilization) fund, geographical expansion of commercial banking facilities to rural areas and directed lending at concessional rates.

The major institutional arrangements for agricultural credit, which have been created over a period of time consist of establishment of new institutions and supportive policy measures: gigantic cooperative credit structure, Agricultural Refinance and Development Corporation, rural branch network of State Bank of India and 14 leading commercial banks following their nationalization in 1955 and 1969 respectively, Regional Rural Banks (RRBs) to focus upon the targeted rural groups, National Bank for Agriculture and Rural Development (NABARD) by merging the erstwhile Agricultural Refinance and Development Corporation and ACD of the Reserve Bank, comprehensive branch licensing policy and branch expansion programme, and service area approach. In the co-operative sector, at the apex level, there are state cooperative banks and their branches. The district or central cooperative banks and their branches form the middle layer of the structure. A sizeable number of primary agricultural societies at the village level are at the bottom level of the cooperative of credit structure in the country. The cooperative institutions account for 30 per cent of rural deposits, and 44 per cent of outstanding loans and advances of the banking system. About 55 per cent of the short-term production loans for the agriculture sector have come from the cooperative credit institutions. A number of other initiatives have been taken in recent years to improve the flow of the institutional credit in the rural areas: launching of new tranches of Rural Infrastructure Development Fund (RIDF), enhancement of the reach of schemes relating to Kissan Credit Card (KCCS), Self- help and Micro-Credit. Thus, a vast network of rural branches of commercial banks, RRBs, cooperative banks/credit societies and other

financial institutions like chit funds money-lenders and indigenous bankers are engaged in financing rural economic activities. During 1990s, a comprehensive framework of prudential regulation and supervision of urban cooperative banks as well as other cooperative institutions has been put in place to strengthen their financial viability.

Commercial Banking Sector

The accelerated progress in spread of banking has taken place from 1969 when 14 major commercial banks were nationalized. The number of bank offices has since risen from a little more than 8000 in 1969 to 68000 in 2000. The population per bank office has declined substantially from as high as 64000 to as low as 15000 during the period. There has been a spectacular growth in rural branches from 1833 in 1969 to 32654 in 2001. In sequel, deposits of the scheduled commercial banks as per cent of national income (at current prices) recorded a significant increase to 55.7 per cent in 2001 from 15.5 per cent in 1969. The per capita deposits have gone up from Rs.88 to Rs.9770. Similarly, the per capita credit has increased from Rs. 68 to Rs. 5228 during the period under consideration. The flow of credit to the hitherto neglected sector, i.e., priority sectors expanded sizably from 14 per cent of total bank credit to 35.4 per cent during the period under review. As the commercial banks' credit, under policy intervention, has begun to flow to agriculture and other priority sectors, the credit flow to medium and large-scale industries has shown a sizeable decline since the late 1960s. This trend could also be attributed to the introduction of credit discipline in the field of industrial credit since the mid-1960s.

Industry and Commercial Sector Financing: Institutional Development

In order to provide long and medium term industrial finance, particularly in the absence of a vibrant capital market, a vast financial structure consisting of development financial institutions, investment institutions, insurance companies, mutual funds, other non-banking financial institutions and credit guarantee institutions in addition to the commercial banking network has come up both at State and all-India levels mainly under the initiatives of the Government of India and the Reserve Bank.

There has been a general aversion on the part of the commercial banks to extend medium and long-term finance to the industrial sector due to the strong influence of the British banking practices and the lessons from banking failures. Way back in 1931, the Central Banking Enquiry Committee recommended for formation of provincial industrial credit corporations given the prevailing constitutional position. The Committee also did not rule out the desirability of formation of all-India industrial finance corporations. Further, the Committee suggested that sound and conservative banks such as the Imperial Bank should adopt the German System of mixed banking (i.e., universal banking). The Committee also recommended for investment by banks in debt instruments and equities. However, the material progress in industrial financial infrastructure has taken place only after independence. Following the Act passed by the Constituent Assembly, IFCI was established in 1948. Subsequently, similar institutions came up in provinces under the State Financial Corporations Act, 1952 with a focus on small-scale industries.

Today, the industrial financial set-up includes a wide spectrum of institutions such as Industrial Finance Corporation of India, 18 State Financial Corporations, Industrial Credit and Investment Corporation of India (now ICICI Bank), Industrial Development Bank of India, Industrial Investment Bank of India, Power Finance Corporation, several industry specific or trade-specific companies/corporations, Small Industries Development Bank of India, Export-Import Bank, Unit Trust of India, other private mutual funds organizations, Life Insurance Corporation of India, General Insurance Corporation, private insurance companies, several State Industrial Development Corporations, Deposit Insurance and Credit Guarantee Corporation, Export Credit Guarantee Corporation, non-bank finance companies including companies for housing finance, investment finance, loan, lease and hire-purchase, mutual benefit companies, infrastructure finance companies, Discount and Finance House of India, Securities Trading Corporation of India, Primary Dealers, Bombay Stock Exchange, National Stock Exchange and regional stock exchanges.

Financial Instruments

The majority of savers in India have low income and hence their saving potential is limited. Such small savings need to be pooled for financing indivisible (large) capital investment. Herein, the basic need is to engineer a variety of saving instruments to suit preferences of different individuals and institutions. Faced with this challenge, the banking industry in India has introduced various types of deposit schemes in course of time, *inter alia*: cash certificates, annuity or retirement schemes, farmers' deposits scheme, insurance linked deposits, housing deposits scheme, automatic extension deposit scheme, and suvidha deposit scheme. Alongside, banks have come out with different instruments to finance the economic activities. Similarly, a host of other instruments have come in vogue such as debentures, equities, bonds, treasure bills, government dated securities, stock investment, zero coupon bonds, tap stocks, term money, repos, intercorporate deposits, commercial papers, certificates of deposits, mutual fund schemes, insurance schemes, swaps, futures, options and so on.

Strategy for Developing Diversified Financial Markets System – Promoting Integration

The basic theoretic approach underscores the need for a diversified system of financial markets coupled with an institutional infrastructure of banks and non-bank financial institutions. The network of diversified markets enhances efficiency in resources pooling, resource allocation, and thereby maximize return and minimize risk besides providing risk sharing opportunities for investors and borrowers. According to Mr. Greenspan, Chairman of the US Federal Reserve System, coexistence of domestic bond market and banking system helps each to act as a backstop for the other. In short, it lays foundation for effecting an appropriate integration of the markets.

Over the years, the Reserve Bank and the Government of India as policy-makers and regulators have been making concerted efforts towards establishing sound practices and procedures in different segments of the financial markets, *inter alia*: inter-bank call market,

commercial paper market, certificate of deposits market, Government securities market, private corporate debt market, equity market, foreign exchange market, and derivatives market. Particularly, the decade of 1990s have witnessed both quantitative and qualitative changes in the financial markets; quite a few new markets have been added and the financial markets in general have been widened and deepened significantly. The market specific developments are discussed in the following paragraphs.

Equity Market Development

The equity market in India has a long history. However, in the 1990s and beyond it has witnessed far-reaching changes. The National Stock Exchange has been set up in 1992. The Bombay Stock Exchange (BSE), which is the oldest stock exchange in Asia, has been thoroughly modernized. The number of regional stock exchanges has gone up from nine at the beginning of 1980s to 24 in 2000. The number of listed companies has recorded a substantial rise from 2,265 in 1980 to 7,500 in 2000. Besides, there is the OTC exchange of India.

In recognition of the imperative need for a strong and powerful watchdog for securities industry, Securities and Exchange Board of India (SEBI) was set-up in 1988. The SEBI Act, 1992 encompasses the entire gamut of securities industry covering, inter alia, the activities of stock brokers, sub-brokers, merchant bankers, underwriters, registrars to issue and transfer agents, insider trading, mutual fund, debenture trustee, disclosure norms, credit rating.

Several steps were undertaken to ensure a vibrant capital market with healthy market practices. The statute was amended in July 1987 permitting corporate membership of stock exchanges. The restrictions on rights and bonus issues were withdrawn. New or established companies are now able to price their issues according to their assessment of market conditions. All the listed companies are required to publish quarterly financial accounts. For ensuring greater transparency, negotiated and cross deals are not allowed presently. Besides, screen-based trading, uniform and rolling settlement cycles in all exchanges, and banning of deferred products in cash segment have been introduced.

Debt Market

A well-functioning debt market acts as a mechanism of monetary policy transmission and provides access to funds at competitive rates. There are mainly three segments of debt market, viz., government securities market, public sector unit (PSU) bonds market, and private corporate sector bonds market. The aggregate outstanding debt amounted to Rs.8,50,000 crore and formed 37 percent of GDP in 2001. Government securities market constitutes the major segment of debt market while private corporate bonds/debenture market accounts for a small proportion. In the recent period, around 90 per cent of corporate debt instruments have been privately placed. Both government and corporate debt instruments are being traded in the stock exchanges.

Over the years, the Reserve Bank has introduced numerous measures to enhance efficiency and impart stability of the market, e.g., exposure and valuation norms, and asset-liability management guidelines. Besides, there has been a phased deregulation of bank's investment limit in non-government debt instruments. In addition to risk weights for interest rate risks, investment fluctuation reserves have been mandated. Legal changes have also been announced in the budget for 2002-2003 to create conducive atmosphere for securitization of assets.

It is encouraging to note that the Fixed Income Money Market and Derivatives Association of India (FIMMDA) and Primary Dealers Association of India (PDAI) are working broadly as self-regulatory organizations (SROs) for the development of bond and money markets in India. These bodies are involved in evolving standard practices and code of conduct for market players.

Government Securities Market

Government securities accounted for 75 percent of the total outstanding debt stock and nearly 95 per cent of the volume traded in the secondary market. Currently, government securities are being traded on the stock exchanges as also through negotiated dealing system involving members of stock exchanges. Two depositories, viz.,

National Securities Depository Limited and Central Securities Depository Limited maintain records of securities holding in dematerialized form.

While the Reserve Bank regulates the issue of government securities, corporate debt securities fall within the purview of SEBI. The development of government securities market has been one of the primary concerns of the Reserve Bank for a variety of reasons, inter alia: (i) A deep and liquid government securities market facilitates public borrowing and avoidance of automatic monetisation; (ii) It provides the backbone of most fixed income markets across the world; (iii) It enables use of indirect instruments of monetary policy; and (iv) It makes available instruments with zero credit risk to institutions and high net worth individuals for parking their surplus funds. With a view to catering to the different investor preferences for government securities, the Reserve Bank has experimented with various types of instruments such as fixed coupon bonds, zero coupon bonds, floating rate bonds, bonds with put and call options, etc. Most of the bonds are of the fixed coupon variety though recently floating rate bonds have also been issued.

The institution of Primary Dealers (PDs) has been adopted in India in 1996 for developing both primary and secondary markets in government securities. PDs obligations include giving annual bidding commitment, underwriting the primary issuance, and offering two-way quotes. In return, the PDs are extended liquidity support by the Reserve Bank and access to call money market as borrowers and lenders. Gilt Mutual Funds dedicated almost exclusively to investment in government securities were also established in 1996.

Money Market Development

One of the prerequisites for developing a vibrant market for bond/dated government securities is the existence of an active money market since the latter supports the former through availability of liquidity. The money market in India has its both formal and informal segments. The Reserve Bank of India, commercial banks, cooperative banks, insurance companies, mutual funds, term lending institutions are the main participants in the formal market. A host of non-banking

companies like loan companies, chit funds, nidhis, indigenous bankers, and moneylenders constitute the informal market.

During the last two decades, a number of measures have been taken to widen and deepen the market, particularly in line with the Committee to Review the Working of Monetary System (Chakravarty Committee, 1985) and Working Group on the Money Market (Vaghul Committee, 1987). Rationalisation of term structure of interest rates, progressive deregulation of interest rates, introduction of several financial instruments, establishment of Discount Finance House of India, Securities Trading Corporation of India and Primary Dealers, etc are some of the important measures adopted during the 1980s to improve the functioning and efficiency of the money market. Recently a number of steps have been taken to develop a short-term Rupee yield curve. The call money market is being developed as a pure inter-bank market with a phased withdrawal of non-bank market participants. For improving the system of clearing and settlement, a Clearing Corporation of India Ltd (CCIL) has been established.

Credit Rating and other Confidence Enhancing Legal Measures

Credit rating is one of the important tools to instill confidence among investors in financial markets. SEBI is the regulator of credit rating agencies. Credit rating of all public issues including debentures with maturity exceeding 18 months has been made compulsory. Amendment to the Indian Stamp Duty Act, 1899 has exempted dematerialized debt instruments from stamp duty. The recent amendments to section 47 of IT Act facilitating securities lending and borrowing operations will ensure safe and smooth settlement through the Clearing Corporation of India Ltd. The most remarkable legislative measure in the recent times has been 'The Securitisation and Reconstruction of Financial Assets and Enforcement of Security Interest, 2002', strengthening creditors' right to foreclosure and enforcement of securities by banking and financial institutions. The other noteworthy legal and institutional steps were the Government Securities Act, replacing the Public Debt Act and facilitating wider participation in government securities market, and the Fiscal Responsibility Bill, introducing STRIPS, Negotiated Dealing System

(NDS) and Real Time Gross Settlement System (RTGS), among others.

Historically, a number of committees and commissions with their foresights and insight contributed to the legal framework of the Indian financial system: The Indian Central Banking Enquiry Committee (1931) for a comprehensive banking legislation covering organization, management, audit, and liquidation of banks, Banking Commission (1972) for suggesting suitable changes in banking legislation, and Committee on Banking Law (P.V. Rajmannar Committee) for its report on Negotiable Instrument Act, Real Property Security Law, Personal Property Security Law, Documents of Title to Goods, and Narasimham Committee on the financial system for identifying various gray areas in financial laws and regulations.

Accounting Standards

A sound accounting system is essential to ensure reliability of information for customers, regulators, shareholders, planners and policy makers while evaluating strength and weaknesses of financial players and institutions. In this regard, the recent initiative of the Reserve Bank has been setting up of the Standing Committee on International Financial Standards and Codes. The standing committee, in turn, constituted 10 advisory groups in the areas of banking supervision, bankruptcy law, corporate governance, data dissemination, fiscal transparency, payment and settlement system, and securities market regulation. The recommendations of the standing committee are in various stages of implementation.

Prudential Supervision/Regulation

While evolving a credible accounting and auditing standards in line with the best international practices is important, equally important is their compliance on an on-going basis. This necessitates presence of a sound and efficient regulatory and supervisory system. In regard to the supervision of banking and non-banking financial institutions, a system of on-site and off-site supervision has been put in place. Micro-prudential norms for monitoring institution-specific idiosyncratic risks and macro-norms for identifying and containing systemic risks have

been adopted. The micro-prudential framework uses a set of indicators enabling: 1) peer group analysis based on critical financial ratios and (2) development of bank-rating systems. Such monitoring approach employs CAMELS model based on capital, assets, management, earning, liquidity, and systems. In addition, Prompt Corrective Action Framework based on micro-prudential indicators such as capital to risk-assets weighted ratio, net non performing assets and return on assets has also been operationalised. This system is meant to trigger corrective action at the earliest possible sign of weaknesses and prevent deterioration in financial viability and growth.

The refined risk-based supervisory /regulatory approach on the lines of the second Basle risk supervisory norms is being developed and is likely to be put in place shortly. Furthermore, a comprehensive management system and credit information system are being developed. The present genre of risk based supervision-prudential regulation is essentially a macro-level supervision. The Securities Exchange Board of India (SEBI), Insurance Regulatory and Development Authority, and Department of Company Affairs (Ministry of Finance & Company Affairs) are also engaged in evolving regulatory mechanism to monitor operations of capital market, insurance sector, and other non-banking non-financial companies respectively. Alongside the regulatory/ supervisory role, the regulatory authorities in India also shoulder the responsibility of discharging promotional and developmental role with a view to ensuring stable environment for sustained growth of financial institutions.

Payment and Settlement System

The payment and settlement system forms one of the basic segments of the financial infrastructure. The Reserve Bank has taken a number of initiatives to improve the efficiency of payment and settlement systems broadly in line with the core principles enunciated by the Group Ten Report (BIS). According to the Report, the safety and efficiency of the payment systems is governed by 10 core principles including well founded legal basis, clear rules and procedures, clearly defined risk management systems and procedures, prompt settlement during the day, timely completion of daily

settlements under multilateral netting system, using claims on central bank as assets for settlement, high degree of security, operational reliability and efficient contingency arrangements, practical means of payments, publicized criteria and open access, and effective, accountable and transparent governance.

Section IV

Indicators of Financial Development

As observed in the preceding paragraphs, influence of financial infrastructure is reflected in the behaviour of macro-economic aggregates like savings and investment as well as their composition. In particular, the increasing trend in saving and investment could, *inter alia*, be attributed to the development in the financial infrastructure over a period of time. The gross domestic saving (GDS) as a percent of GDP registered a consistent improvement from 9.9 percent in the 1950s to 12.7 percent in 1960s, 17.5 in 1970s, and further to 19.4 per cent in 1980s before attaining the peak of 23.0 percent in the 1990s. At present, the GDS/GDP ratio is hovering around 22.0 percent to 23.0 percent. In tandem with the GDS rate, the gross domestic capital formation (GDCF) as a percent of GDP moved up from 11.3 percent in the 1950s to 17.6 percent in the 1970s, 21.2 percent in the 1980s and further to 24.4 percent in the 1990s.

The significance of the financial infrastructure, in general, and the role of financial intermediation, in particular, can be better appreciated by observing the shift in the composition of GDS. The share of household financial saving in total saving increased from 51.6 per cent in early 1970s to 66.7 percent in the late 1990s. Correspondingly, there had been a downward shift in the share of physical saving from 48.4 percent to 33.3 percent. Bank deposits constituted the major proportion of total financial saving. This period also witnessed a significant rise in contractual savings, e.g., in the form of fixed deposits, company deposits, provident funds and insurance funds. The growing financial saving could be attributed, *inter alia*, to financial diversification, geographical spread of banking, accessible financial assets with a spectrum of yields in terms of risks,

returns and maturities. The growing scale of operations of the financial intermediaries has facilitated pooling of independent risks.

The movements in finance ratio (FR), defined as a ratio of financial issues to national income, reflect, among others, developments in the financial system in relation to the real sector. A high FR indicates greater widening and deepening of the financial system. The FR, which was as small as 0.01 in the 1950s grew to as high as 0.37 in the 1980s and further to 0.46 in the 1990s. The closely related ratio to the FR is the financial interrelation ratio (FIR). This represents the total volume of financial assets in the economy in relation to stock of physical assets. The FIR has gone up significantly over the years from 0.11 in the 1950s to 2.41 in the 1980s and further to 2.39 in the 1990s. The two ratios – FR and FIR – taken together reflect substantial geographical spread, functional specialization and diversification of the financial sector. Yet another indicator of financial development is the ratio of new issues, which indicates the amount of primary issues in relation to capital formation and thereby tracks the extent of financial needs of the non-financial sector met up by the financial sector. The ratio has increased from 0.18 in 1951-52 to 1.42 in the 1980s and further to 1.32 in the 1990s. Similarly the intermediation ratio, which represents the extent of institutionalization of financing, shows the importance of financial institutions relative to non-financial institutions in raising resources to finance investment. The ratio stood at a negative of 0.39 in 1950-51. Thereafter, it went up to 0.71 in the 1970s and further to 0.82 in the 1990s. The financial assets of scheduled commercial banks as percentage of GDP went up substantially from 31 percent in 1980 to 43.5 percent in 2000. The financial assets of financial institutions like IDBI, ICICI, EXIM Bank, IFCI, SIDBI, registered a sharp increase from 11.6 percent of GDP in 1980 to 25.6 percent in 2000. The market capitalization in 1981 accounted for merely 3.8 per cent as against 47 per cent in 2000. The market capitalization as percentage of scheduled commercial banks' financial assets rose from 12.2 per cent in 1981 to 107 percent in 2000. The real GDP growth in India recorded a progressive increase from a low of 2.9 per cent in the 1970s to 5.8 per cent in the 1980s and further to 6.4 per cent in the 1990s (excluding 1990-91 and 1991-92). Similarly, the rate of growth of net fixed capital formation has

risen from 3.6 percent in the 1970s to 4.2 per cent in the 1980s and further to 5.3 in the 1990s. The contribution of productivity to growth has been about 4 per cent, fluctuating significantly from negative contribution in the 1980s to positive contribution in the 1990s.

Section IV

Concluding Observations

Faster expansion of financial structure in relation to GDP growth is found to facilitate the growth process at least in the early phase of economic development. This is corroborated in the case of India, wherein financial institutions have played a 'supply-leading role' until recently. In particular, the Indian banking industry has witnessed remarkable geographical spread and functional diversification mainly due to policy intervention. The progressive institutionalization of savings, shift in its composition as also in investment pattern are attributable, *inter alia*, to the development of financial infrastructure over the last five decades. The evidence and experience also corroborate the following oft-quoted hypotheses. The efficient financial system can influence the long term growth through three important channels, namely, 1) increase in the proportion of saving transferred to investment spending, 2) augmenting private saving rate and 3) improvement in the social marginal productivity. The financial intermediaries stimulate economic growth in two ways: (1) by channeling the individual saving into productive areas of development and (2) by allowing the individuals to reduce risk associated with their liquidity needs. In the Indian case, the trend in three major financial indicators, viz., gross domestic saving as percentage of GDP (about 23 per cent), share of household saving in total saving (around 86 per cent) and proportion of financial saving to aggregate saving (about 50 per cent) could partly be explained in terms of vast network of financial infrastructure developed over a period of time. The concerted efforts directed towards expanding institutional set-up, developing spectrum of saving instruments, and diversified markets, reducing risk perception and uncertainty, ensuring liquidity and safety to the savers/investors and so on, have definitely contributed to the growth of household saving. The relatively low saving of both private corporate and public sectors has been contributed, among others, by low investment efficiency. The

gaps and gray areas in the segments of financial infrastructure reflecting its operational inefficiency, might have also adversely affected the investment efficiency. Contribution of the financial liberalisation to economic growth and development has been more by way of enhancement in the quality of resource allocation rather than through augmentation of quantity of resources potentially available in the economy.

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