Market Discipline in Indian Bank: Does the Data Tell a Story

Saibal Ghosh and Abhiman Das*

I. Introduction

The last three decades of the twentieth century witnessed the emergence of a number of issues that spurred intensive discussions amongst economists. In the seventies, policymakers grappled with the breakdown of the Bretton Woods system and the emergence of stagflation in the aftermath of the OPEC-induced oil shock. The eighties witnessed animated debate about the supply-side tax cuts during the Reagan era in the US and the emergence of corporate mergers and acquisitions and junk bonds as major financial phenomena. Finally, in the nineties, economists devoted their attention towards the 'new' (read, ICE)[1] economy and the 'taming' of business cycles. However, although the world quickly adjusted to flexible exchange rates and while wild gyrations in the equity prices of tech-stocks have ceased to make headlines anymore, one phenomenon continues to attract the attention of economists through the decades: fragility of the banking system.

From Sweden to Argentina and from the United States to Japan, banks seem to 'go bust' with monotonic regularity. Between 1945 and 1971, there was only one banking crises in Brazil in 1963 in the sample of 21 industrial and emerging markets (Bordo and Eichengreen, 1999). In contrast, the 1980s and 1990s witnessed the emergence of banking crises with recurring frequency. The IMF, for instance documented 54 banking crises between 1975 and 1997 (IMF, 1998), while the World Bank listed as many as 117 systemic banking crises in 93 countries since the late 1970s till 1999 (Caprio and Klingebiel, 2003). The reasons for the same are not too far to seek. Driven by the twin forces of liberalisation and innovation, the financial landscape has witnessed a virtual metamorphosis over the past three decades. This has resulted in a substantial increase in the importance of the financial sector: permitting the channelisation of a greater proportion of resources and enabling the development of new techniques for mobilisation of savings and allocation of investment. The net effect of these developments have been the unlocking of a greater volume of investible resources and their allocation into high-productivity outlets, promoting faster routes of growth and sounder economic development. On the flip side, however, this transformation of the financial marketplace has extended and tightened linkages

* Research Officer, Deptt . of Economic Analysis and Policy, RBI and Asst. Advisor, Deptt. of Statistical Analysis and Computer Services, RBI. The views expressed and the approached suggested in this paper are entirely personal and not necessarily of NSE or their employers.

[1] ICE is the acronym for **I**nformation Technology, **C**ommunications and **E**ntertainment.

across markets and institutions, increased the uniformity of the information set available to economic agents and encouraged greater similarity in the assessment of information. This, in effect, has meant that weaknesses in the financial system can have serious and far more disruptive economic ramifications than was previously the case and engender contagion effects extending well beyond national boundaries. Evidence in support of the same, both at the international and national levels has been quite abound. At the international level, the Mexican crisis of 1994-95, the East-Asian crisis of 1997-98 and more recently, the Argentine crisis that began in 2001 and is still far from reaching its end is ample testimony to this fact. At the national level, the banking crises in the Nordic countries in the 1980s; the problems in Philippines and Korean banking systems in the 1990s and the financial bubble in Japan whose costs are being felt even today come immediately to mind. The problem has been compounded by the fact that the financial industry itself is in a state of flux. Financial instruments have become more and more complex, with greater power to disaggregate and transfer risk. More importantly, the boundaries between different types of financial market activities (lending, trading, insuring) have become increasingly blurred, as financial instruments have assumed multiple characteristics. Policy makers are, therefore, compelled to look at the industry through the proverbial crystal ball, rather than in retrospect. All in all, there is growing realization that promoting healthy financial institutions, especially banks, is a crucial policy challenge confronting policymakers throughout the world.

There are two primary ways of monitoring banks. The one traditionally employed in the banking industry is developing, implementing and sanctioning non-compliance with norms of behaviour (regulation) and monitoring these norms (supervision). The other is the corporate governance practice, which helps suppliers of finance to the bank assure themselves of getting a return on their investment. However, the fact that supervisory standards may be lax or even virtually non-existent has been vividly illustrated in some of the crisis-ridden Asian economies. The lessons from the *Barings* debacle and the more recent accounting irregularities in the US have provided graphic evidence that corporate governance standards by themselves might not be adequate to stave off bank failures. A suggestion has, therefore, been made that supervisors should rely on 'market discipline' to supplant the traditional procedures. This enables market assessment of banking firms on a closer and continuous basis, enabling authorities to act sooner (thus avoiding costly delay) in case of any eventuality, because they can marshal independent evidence about the firm's condition.

II. Market Discipline: Definition and Literature

Market discipline is a process by which investors (bondholders/ depositors) assess changes in bank risk and take actions leading to the adoption of those measures needed to control the institution's level of risk. The idea of leveraging market discipline to supplement supervisory efforts and corporate governance practices is by no means new. As Greenspan (2001) has remarked, 'the real pre-safety-net discipline was from the market, and we need to adopt policies that promote private counterparty supervision as the first line of defense for a safe and sound banking system'. The Gramm-Leach-Bliley Act on modernization of financial services enacted in 1999 in the US reveals an increasing emphasis on market discipline. Even the proposed capital Accord of the Basel Committee has designated market discipline as one of the three pillars on which future financial regulation should be based, because '[market] discipline imposes strong incentives on banks to conduct their business in a safe, sound and efficient manner" and expects that the approach 'will encourage high disclosure standards and enhance the role of market participants in encouraging banks to hold adequate capital' (Basel, 1999).

Two types of market discipline have been distinguished in the literature: direct and indirect. *Direct* market discipline refers to the control (or influence) that market participants have over a bank's behavior, including decisions on investment, financing, and operations. Such discipline is exerted through a risk-sensitive financial instrument when a banking organisation's expected cost of issuing that instrument changes with the firm's risk profile. To the extent that banks needs to issue debt on a fairly regular basis, direct market discipline often is thought of as exerted by debtholders rather than by stockholders (Kwan, 2002). *Indirect* market discipline, on the other hand, is pricing information from both the primary and the secondary markets of securities issued by banking organisations that provides a signal of the firm's risk level. When those market signals reflect an assessment of increased bank risk-taking, potential investors, uninsured depositors and other counter-parties of the banking organisation tend to demand higher returns on other bank instruments. Such signals provide useful leads to regulators in order to assess the firm's risk level. Among debt securities, it has been argued that subordinated notes and debentures (SNDs) are particularly well-suited in this respect, because they constitute one of the most junior of all bank debt instruments; that is, they are among the last debtholders in line to be compensated in full in case the bank runs into trouble. Together, the long maturity and the junior status of SNDs suggest that their yields should be more sensitive to the perceived risk of the issuing banking company than yields on other liabilities.

There are a number of potential benefits from enhancing market discipline in a country's banking sector. First, by punishing excessive risk-taking by banks, increased market discipline may reduce moral hazard incentives. Second, market discipline may improve the efficiency of banks by pressurising some of the relatively inefficient banks to become more efficient or to exit

the industry. Third, evidence indicates that markets give signals about the credit standings of financial firms, which, combined with inside information gained by supervisory procedures, can increase the efficacy of the overall supervisory process. Recent research suggests that market information may improve two features of the overall process for regulators by (a) enabling them to identify incipient problems more promptly, and (b) providing them an incentive and justification to take action more quickly, once problems have been identified. It is, therefore, important that market information be incorporated into the process of identifying and correcting problems. Finally, market discipline might be able to supplement traditional supervisory assessments to distinguish 'good' banks from 'bad' ones and therefore, lower overall social costs of bank supervision.

The majority of the literature on market discipline focuses on the experience of the US banking industry. These studies have primarily followed three different approaches. The first set of studies have chosen the price-(or yield) based approach. In particular, they employ yield spreads (the difference between the market yield on bank sub-ordinated debt and a risk-free asset like Government paper) as an indicator of the market's perception of bank risk. Overall, the studies support the hypothesis that yields on uninsured deposits contain risk premia. This, in effect, implies that uninsured depositors charge higher interest rates to riskier banks. A second set of studies adopts the quantity-based approach by analysing to what extent a bank is able to raise (uninsured) debt. For example, it was observed that in the 1990s, relatively weak banks were unwilling (or unable) to issue sub-ordinated debt in bad times. This, in effect, would indicate that that the risk-premia for weak banks to issue sub-ordinated debt was substantially high. The final set of studies combine both the price- and quantity-based approaches. These papers examine market discipline by looking at the effect of depository's institution risk on both the pricing and growth of uninsured deposits. Overall, these studies find that riskier banks pay higher interest rates, but, at the same time, attract smaller amounts of uninsured deposits.

While the literature on market discipline in the banking sector is quite extensive, the same for emerging economies is admittedly limited. A case study of market discipline for Colombian banking sector reveals that depositors prefer banks with stronger fundamentals and that banks tend to improve their fundamentals after being 'punished' by depositors. A more comprehensive study for three Latin American countries (Argentina, Chile and Mexico) observed that even small, insured depositors exert market discipline by withdrawing deposits from weak banks.

III. Market Discipline and Indian Banking

It needs to be recognized that the potential benefits of market discipline could be particularly important in emerging markets, where financial systems are predominantly bank-based and India is no exception to the rule. However, there has been very little research regarding the existence or otherwise of market discipline in emerging economies such as India. This is surprising, more so in view of the fact that, over the last decade, India has undertaken a process of liberalization of the banking sector, driven by the need for 'creating a market-driven, productive and competitive economy' in order to 'support higher investment levels and accentuate growth' (Government of India, 1998). More importantly, it seems appropriate to conduct a study of market discipline for India, since it has made significant efforts to promote the role of market forces in regulating banks. Illustratively, over the last few years, bank supervisors have undertaken steps towards improving the quality and availability of information on banks. These disclosures have gradually been enhanced over the years in order to provide a clearer picture of banks' balance sheet to market players in order to enable them to make informed decisions. The import of market discipline has been recognised by the Reserve Bank wherein it has been observed that 'processes of transparency and market disclosure of critical information describing the risk profile, capital structure and capital adequacy are assuming increasing importance in the emerging environment. Besides making banks more accountable and responsive to better-informed investors, these processes enable banks to strike the right balance between risks and rewards and to improve the access to markets. Improvements in market discipline also call for greater coordination between banks and regulators' (Jalan, 2002).

A recent study addresses this topic by examining the existence of market discipline in the Indian banking sector (Ghosh and Das, 2003). In particular, the study considers two specific aspects of market discipline, *viz*., (a) do bank fundamentals influence depositor willingness to entrust deposits at a particular bank? and, (b) do differences among bank groups affect the degree of market discipline in the banking sector?

Towards this end, the study utilizes several periods of data for 72 commercial banks (cross-section), comprising of 27 public sector banks, 20 private sector (including 8 new private banks) and 25 foreign banks, for which consistent data is available from 1996 through 2002 (time period), the most comprehensive time frame for which data on the concerned variables are available. The data on 'outlier' foreign banks (those with exceedingly high capital ratios and/or single bank branches) and several old and new private banks (which have since been merged/amalgamated) have been excluded from the sample. The data is annual in nature and the relevant information has been culled from published sources.

In terms of the econometric methodology, reduced-form equation has been estimated, where the dependent variable (quantity or price) has been regressed on a set of bank-specific, banking-industry (or systemic) and macroeconomic variables. The bank-specific variables are guided by the CAMEL methodology[2] and covers the five major parameters of bank operations. These variables are included with a lag to account for the fact that the risk characteristics of banks is known to depositors with a certain delay. The systemic variables seek to ascertain the impact of significant policy changes impinging on the banking sector. Finally, the macro-economic variables control for the influence exerted by the state of the overall economy. Since market discipline can be exerted either through the quantity or the price channel, the dependent variable accordingly, can either be a quantity or a price variable. The quantity variable has been proxied by logarithm of first difference of time deposits, since this is the major and stable component of aggregate deposits. On the other hand, the price variable has been proxied by the ratio of interest paid on deposits to total deposits (also called the implicit deposit interest rate). Going by the research hypothesis, examining whether riskier banks attract lower deposits (quantity channel) or alternately, provide higher interest rates on deposits (price channel) is expected to provide insights regarding the existence of market discipline.

The findings of the analysis revealed that, while bank-specific factors have an important bearing on the dependent variable in case of public sector banks, systemic factors, and in particular, policy announcements, in addition to bank-specific indicators, tend to be dominant in case of private banks. For foreign banks, the macroeconomic condition tends to overwhelm bank-specific factors in explaining depositor behaviour. Nonetheless, the capital ratio is a key determinant of depositor behaviour for Indian banks, in general. In case of public sector banks, bigger banks (defined in terms of their total assets) does not translate into higher deposit growth, suggesting that depositors are not particularly sensitive to the 'too-big-to-fail' effect. For private and foreign banks, there exists evidence of contagion effects influencing the deposit accretion process. In sum, depositors 'punish' banks for risky behaviour, either by withdrawing deposits or by extracting higher price on deposits. This provides supports towards the existence of market discipline in the Indian banking sector.

Two additional issues assume relevance in this context: first, does the existence of market discipline differ between insured and uninsured depositors? The significance of the question stems from the fact that assuming a credible deposit insurance scheme, one can expect insured depositors to have fewer incentives to monitor bank risk-taking *vis-à-vis* uninsured ones. Second, does the divestment of Government ownership in public sector banks have any bearing on

[2] CAMEL is the acronym for **C**apital adequacy, **A**sset quality, **M**anagement, **E**arnings and **L**iquidity.

market discipline? Dilution of Government shareholding in public sector banks enables greater private participation, thereby *possibly* exerting greater prudence in their functioning. The findings revealed that (a) insured depositors exercise market discipline not so much by withdrawing their deposits from banks, but more by compelling them to pay a higher price on deposits and (b) lowering of Government ownership in public sector banks seems to have had limited effect on market discipline. Both these results seem intuitively appealing. As regards the first one, bank deposits in India are perceived as having an implicit Government guarantee in comparison to alternate avenues of deployment of resources. Consequently, although depositors tend to prefer a low-risk, low-return source of parking their funds (like bank deposits), they tend to discipline banks by extracting a higher price on such deposits. As regards the second one, it needs to be borne in mind that the amendments to the Banking Companies (Acquisition and Transfer of Undertakings) Acts, 1970/80 in July 1995 have permitted public sector banks to raise capital up to 49 per cent from the market. This, in effect, has implied that the divestment process in public sector banks has been driven by the need to augment their capital base, with the Government, being the majority shareholder, still having a major say in the functioning of bank boards. Consequently, although the Government shareholding in public sector banks has declined, it has not had a significant impact on market discipline. The proposed amendments to the Banking Companies (Acquisition and Transfer of Undertakings) Bill, 2000 which seeks to reduce the minimum shareholding by Government in nationalised banks to 33 per cent is a welcome step in this regard.

IV. Policy Concerns

While the concept of market discipline is promising, several practical concerns require careful consideration. At the top of the list is its impact on risk-taking. The intent of market discipline is to constrain a bank from indulging in too much risk, because the market imposes higher financing costs on riskier transactions. However, a profit-maximizing bank can be expected to trade off risk and return at the margin. Thus, higher financing costs would not necessarily constrain risk-taking *per se* if those costs could be fully compensated by a higher risk-adjusted return.

The second limiting issue is that for market discipline to be effective, investors must have timely and accurate information. This requires a high degree of transparency and an effective disclosure policy at banking organisations. Needless to state, policymakers are keenly aware of these requirements and are actively pursuing policies to enhance transparency and to improve disclosure in banking.

Third, the different channels through which depositors obtain information regarding bank fundamentals might impact market discipline unevenly. Depositors might access such information from a variety of sources, of which bank balance sheet is just one such. Alternative sources of information acquisition such as newspaper reports, internet or even financial advisors also exist. The differential access to these different sources can shed more light on what mechanisms promote more efficient market discipline.

Fourth, owing to paucity of data on data on deposits according to different size classes or according to insured *versus* uninsured deposits at the bank-level, the study could not examine the behaviour of these two classes of depositors in isolation or even whether the behaviour of these two classes differs across bank groups. A much richer data set, incorporating this aspect into the study, can throw light on the inter-linkage between market discipline and deposit insurance.

V. Concluding Remarks

Despite its potential advantages, market discipline can only complement, not substitute supervision, because the stake of the Government and the market participants in the financial system are not perfectly aligned. Even for the U.S., where market discipline is arguably the strongest, evidence suggests that neither supervisors nor rating agencies nor equity investors are unambiguously more timely and accurate in their assessment of risk than others. All three groups produce valuable complementary information that contributes towards improving the performance of large banks (Berger *et al.*, 2000).

Thus, while there are clear limitations of the usefulness of market discipline, the global trend is towards placing increased emphasis on market discipline in the supervisory process. The idea is not that market monitoring can effectively replace official supervision, but that it has a potentially powerful role within the overall regulatory regime. In particular, it has the advantage of exploiting the synergies between supervision and market discipline and thereby increasing the efficacy of the overall supervisory process. In a recent contribution, Caprio and Honohan (1998) remind us, in a similar vein 'broader approaches to bank supervision reach beyond the issues of defining capital and accounting standards, and envisage co-opting other market participants by giving them a greater stake in bank survival. This approach increases the likelihood that problems will be detected earlier…[it involves] broadening the number of those who are directly concerned about keeping the banks safe and sound'.

References

Basel Committee on Banking Supervision (1999). *A New Capital Adequacy Framework.* BIS: Basel.

Berger, A.N., S.M.Davies and M.Flannery (2000). Comparing Market and Supervisory Assessments of Bank Performance: Who Knows What When?. *Journal of Money, Credit and Banking*. 32, 641-667.
Bordo, M. and B.Eichengreen (1999). Is our Current International Financial Environment Unusually Crisis Prone?. In D.Gruen and L.Gower (*eds.*) *Capital Flows and the International Financial System*. Reserve Bank of Australia: Sydney.
Caprio, G. and P.Honohan (1998). Restoring Banking Stability: Beyond Supervised Capital Requirements. *Journal of Economic Perspectives.* 4, pp.43-64.
Caprio, G. and D.Klingebiel. (2003). Episodes of Systemic and Borderline Banking Crises. (www.worldbank. org).
Ghosh, S. and A.Das (2003). Market Discipline in the Indian Banking Sector: An Empirical Exploration. *NSE Research Initiative*. NSE: Mumbai.
Government of India (1998). *Report of the Committee on Banking Sector Reforms* (Chairman: Shri M.Narasimham). Government of India: New Delhi.
Greenspan, A. (2001). The Financial Safety Net. Remarks to the 37th Annual Conference on *Bank Structure and Competition*. Federal Reserve Bank of Chicago, Chicago, IL.
International Monetary Fund (1998). Financial Crises: Characteristics and Indicators of Vulnerability. in *World Economic Outlook* (May). IMF: Washington DC.
Jalan, B. (2002). Indian Banking and Finance: Managing New Challenges. Speech Delivered at the *Bank Economists' Conference*, Kolkata.
Kwan, S. (2002). The Promise and Limits of Market Discipline in Banking. Federal Reserve Bank of San Fransisco. *Economic Letter*. December.
Llewellyn, D.T (2001). A Regulatory Regime for Financial Stability. Working Paper No.48. Austrian National Bank.