

The Economics of Safety Nets: Insights from India's Deposit Insurance Fund

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Varda Sardana, Assistant Professor, Jaipuria Institute of Management, Noida, Uttar Pradesh, India

Shubham Singhania, Assistant Professor, Jaipuria Institute of Management, Jaipur, Rajasthan, India

Abstract

Purpose: This study investigates the sufficiency, income sources, and influencing factors of India's Deposit Insurance Fund (DIF). It evaluates the fund's solvency, analyzes income streams, and proposes measures to strengthen sustainability. By examining the interplay between premium income, investment returns, and recoveries, it emphasizes the need for policy interventions like a target reserve ratio to enhance resilience.

Research Methodology: The study employs descriptive analysis covering 24 years (1999-2000 to 2022-2023). It assesses the DIF's solvency, the contribution of income sources such as bank premiums, investment income, and recoveries from failed banks, and explores determinants affecting premium and investment income.

Findings: India's DIF has shown consistent growth, with its sustainability relying on sound income management and strategic policies. While premium income has declined in recent years, investment income has increased, reducing the gap between these major income sources. The growing dependence on investment returns underscores the need for optimizing fund management. High tax burdens negatively impact overall income, constraining reinvestment potential and returns.

Originality: The study offers a long-term, data-driven analysis of the DIF, revealing shifts in income dynamics and the underexplored impact of taxation. It contributes novel insights for emerging economies on maintaining fund adequacy and designing responsive policy frameworks.

Policy Implications: Adopting a target reserve ratio could improve crisis preparedness. Tax relief on fund income would support reinvestment and boost returns. Policymakers should address declining premium trends and enhance investment strategies to ensure solvency and meet future obligations effectively.

Keywords: Deposit insurance, Deposit insurance fund, Banking, DICGC, India.

1. INTRODUCTION

Safeguarding the depositor interest, in the face of a bank failure, is of utmost importance. The inability of a bank to meet its obligations towards depositors can lead to a contagious run on banks, and have severe repercussions for the entire financial system (Cecchetti, 2008). It is during such situations that deposit insurance comes to the rescue. By instilling confidence among depositors about the safety of their claims, deposit insurance reduces their incentives to indulge in panic-stricken withdrawal of deposits, thereby averting possible bank funding shocks and crisis (Diamond & Dybvig, 1983).

Criticized extensively for contributing to enhanced risk-taking by banks and weakening of market discipline (see Merton, 1977; Demirgüç-Kunt & Detragiache, 2002; Kim et al., 2014; Ngalawa et al., 2016; Morrison & White, 2011; Demirgüç-Kunt & Huizinga, 2004; Wagster, 2007; Calomiris & Jaremski, 2016; Kusairi et al., 2018; Gupta & Sardana, 2021), deposit



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insurance continues to be regarded as one of the crucial pillars of bank safety net, with more than ninety countries adopting the scheme (International Association of Deposit Insurers [IADI], 2024a). This owes to the explicit benefits of the scheme in the form of protection of unsophisticated depositors, promotion of fair banking competition (Bernet & Walter, 2009; Chernykh & Cole, 2011), supplementing the efforts of financial inclusion, and stimulating the inflow of foreign funds (Huizinga & Nicodeme, 2006; Altunbas & Thornton, 2013).

However, a deposit insurance system (DIS) is as good as the fund that it entails, since fulfilment of its promise to the depositors necessitates the availability of sufficient money in its reserves. The credibility of the system and the confidence reposed in it is influenced by the level and sources of the deposit insurance fund (DIF) (Liu et al., 2016). In normal circumstances, when a country's financial system is healthy, the incidence of bank failures is rare. It's common to witness weak or failed banks being acquired by other strong banks, without calling on the services of the deposit insurer and the DIF(Campbell et al., 2009). But, a banking crisis, derived from exogeneous shocks, often comes unannounced. This makes it imperative to have a DIF strong enough to settle the claims of depositors punctually, thereby upholding the faith in the banking system (IADI, 2014).

The funding method of a DIF is an essential element of the deposit insurance design features and is influenced by the institutional and supervisory environment of the nation (Demirgüç-Kunt & Kane, 2002; Kim et al., 2014). An ex-ante funding allows the deposit insurer to accumulate the fund before the need for the fund arises. This accumulation takes place through one-time or regular contributions by the fund administrator, or the insured institutions, or taxpayers. On the other hand, an ex-post funding requires the fund to be built after a need for the fund dispersal arises. In this case, the DIF is build up through collections from the surviving insured institutions, contributions by the government and general taxation. Both of these methods have their pros and cons. To exploit the benefits of these two divergent funding mechanisms, certain countries depend on a hybrid funding, wherein a certain portion of the fund is built up in advance, and the remaining portion is collected through special levies after a bank failure (IADI, 2024b).

The International Association of Deposit Insurers (IADI) Core Principles on deposit insurance (IADI, 2014) prescribes the establishment of a deposit insurance target fund ratio, also known as the DIF reserve ratio, for keeping track of the adequacy of the DIF. The level of insurance coverage, the cost of premiums (Campbell et al., 2009), the soundness of the banking system, as well as the number and size of insured institutions are some factors that play a role in determining a reasonable level of the DIF required to withstand the banking shocks and fulfil obligations towards the stakeholders.

Although there is consensus among policy makers and regulatory institutions that the scheme of deposit insurance is required and needed in countries, there is no single agreement on how they should be funded. While some policy makers believe that these funds should be pre-funded, but other policy makers believe that the contrary might be true(Morrison & White, 2011). A sad observation is that given the large number of studies conducted on DIF, most of the research papers have focused on developed economies of Latin America, the United States of America (USA), Great Britain, and the European Union (Khundadze, 2009; Hogan & Luther, 2014; Glonti & Vashakmadze, 2018; Alyeksyeyev & Mazur, 2018; Ani & Ogar, 2018).

The current study aims to fill this gap by exploring the various dimensions of the deposit insurance fund in the context of a developing economy, India. There are several grounds for selecting the instance of India. First, India is a bank-reliant economy (Chavali et al., 2019; Sardana et al., 2024a) and has the world's second oldest deposit insurance scheme, created in 1961, with a rapidly expanding banking industry (Sha et al., 2018). As a consequence, the system has withstood the test of time, and the operation of Deposit Insurance and Credit Guarantee Corporation (DICGC) of India has undergone several changes. Second, the Indian

banking system has relied heavily on the deposit insurance fund due to previous cooperative bank failures (Sardana et al., 2024b). Until date, the fund has been able to withstand the failure of cooperative banks in normal times, but its ability to handle the failure of medium and big banks has yet to be proven. The DIF's financial sustainability relies on the health of its banks and the fund's ability to resist systemic banking shocks has not been tested. Third, concerns about fund sufficiency include the fact that unlike other deposit insurers across the world, DICGC's entire net excess is taxed. There have been arguments claiming that since DICGC fulfills a social commitment by defending the interests of small depositors, it should be free from taxes. Such an exemption would not only allow it to develop a greater contingency fund but would also assist banks by lowering premiums.

In India, the deposit insurance fund is an ex-ante fund, which means that premiums are collected from member banks ahead of time. These collections are invested in government securities and treasury bills, and the interest is credited into the fund itself, along with any cash recovery from sale of assets of failed banks. However, premium income and interest income from investments continue to be the major sources of income for the fund. The initial capital of DICGC of Rs. 1 crore was fully subscribed by the Reserve Bank of India (RBI). This was further increased to Rs. 50 crores in the year 1984. Additionally, the fund has a line of credit from the RBI, although Section 26(1) of the DICGC Act 1961 provides that at no single point of time should the total outstanding advances exceed Rs. 5 crores.

The objectives of this study are a) to determine the solvency of the deposit insurance fund of DICGC, b) to analyse share of various incomes contributing to the fund, and c) to examine the factors which impact the premium and investment income of DICGC. While addressing these objectives, this study attempts to provide certain learnings for the DIF of other economies.

This study is structured as follows: Following a brief introduction under section 1, section 2 reviews the literature on deposit insurance fund. Section 3 elaborates on the research methodology employed, while section 4 presents the results from analysis. Section 5 discusses the findings, along with policy implications, and finally section 6 concludes the study.

2. LITERATURE REVIEW

The efficacy of a DIS depends largely on its funding arrangement (Basel Committee on Banking Supervision [BCBS]& IADI, 2009) since a funding inadequacy can adversely affect the credibility of the entire DIS, thereby failing in its objective of promoting banking stability (Talley & Mas, 1990). The type of deposit insurance funding adopted by a country can impact the risk-taking behaviour of the insured banks and can be used as a tool to tackle moral hazard (Dale, 2000). The funding mechanism for the DIS varies across countries, and the contributions can be undertaken through the government aid, premiums on insured deposits, special levies, borrowings, taxation or a combination thereof (Campbell et al., 2009).

2.1 Private versus government funding

The administration and funding of any insurance scheme plays an essential role in determing how successful the scheme shall be in managing the associated risks (Sardana et al., 2023). A deposit insurance scheme funded privately, that is by the participating banks, is considered to be justified since it puts the burden of the cost on the insured banks for the benefit of their customers (Kleftouri, 2015). The participating banks can either be charged a premium ex-ante or can be taxed ex-post as per pre-determined rules.

While such privately funded schemes are found to be more prevalent, Morrison and White (2011) developed a model favouring the funding of the deposit insurer publicly, that is through general taxation, advocating that such a system can be welfare-enhancing (irrespective of whether it is ex-ante or ex-post). They suggest that the provision or enhancement of insurance coverage by imposing the funding cost on the insured banks would reduce their investment capital and returns, but at the same time leads to greater inflow of depositor funds at the prevailing interest rate, and hence the ability to extract better returns from investments. These

two effects would nullify each other, thereby proving to be welfare-neutral. On the other hand, insurance funded through a general tax, imposed on non-depositors and depositors alike, would provide a net positive benefit by encouraging them to save and take part in the banking system.

Deposit insurance schemes which are jointly funded, that is, by the member banks as well as the government, are used by many Asian countries as part of their explicit DIS (Mohammad & Nishiyama, 2019). Such a joint funding boosts the credibility of the scheme.

2.2 Ex-ante versus ex-post funding

An ex-ante DIF requires the in-advance building of the reserve through accumulations as well as contributions, for the purpose of meeting the depositors' claims and maintenance expenses. Ex-ante funding aids in creating a counter-cyclic fund, by encouraging contributions during favourable financial conditions, thereby reducing reliance on the contributors during a financial crunch and unfavourable economic circumstances (BCBS & IADI, 2009; Financial Stability Board[FSB], 2012; Campbell et al., 2009). The prior availability of the fund improves its visibility, reduces uncertainty, boosts the confidence of depositors (Hall, 2002), while at the same time spreading the cost of insurance over a period of time (IADI, 2007). Reimbursement of depositors' claims is prompt and the risk of a bank failure converting into a full-blown banking crisis, through a contagion effect, is small (Cariboni et al., 2008). By putting a charge on all the beneficiaries, the aforesaid funding method ensures equitable and fair contributions from all participating institutions, and not just the surviving ones (Bernet & Walter, 2009). Moreover, an ex-ante fund built through risk-based premiums can reduce the moral hazard on part of insured banks (Garcia, 1996; Cooper & Ross 2002; Chang & Ho, 2017).

An ex-ante funding also poses certain challenges in the form of continuous administration and maintenance of the fund, along with constant follow-ups with the contributors (Kleftouri, 2015). The funding mechanism must be planned in advance, including the possible sources of the fund and investment avenues of the surplus reserves. Furthermore, even if a DIS is pre-funded, one cannot be cent percent sure about its adequacy to deal with a banking crisis.

On the other hand, in an ex-post funded scheme, the collection of funds is triggered by the onset of depositors' claim following a bank failure. The failure of a bank is followed by assessment of depositors' claims, and the surviving banks are required to contribute to fulfil these obligations. The terms of contributions are either laid down in advance or determined on the basis of the extent of the claims to be covered. In simple words, the DIF relies on a mutual agreement among the member banks to contribute to the fund, as and when the need arises (Parker, 2011). Such funding may be less burdensome for contributing institutions and allows them to have more funds at their disposable when instances of bank failures are rare. It also does away with the collection, administrative and supervision costs associated with a pre-funded system(Kleftouri, 2015). It may also prompt the participating banks to engage in inter-bank monitoring, since the malicious activities of one bank would ultimately bring a liability on the remaining insured banks (Liu et al., 2016). Moreover, such a funding mechanism assumes that no prior level of reserves would be adequate to deal with a banking crisis, if it arises (Kleftouri, 2015; Lazarov, 2017).

However, to be successful, the supervisors of an ex-post funded scheme have to ensure an expeditious access to funds from the contributors, without which the credibility and existence of the DIS may be in jeopardy (Bernet & Walter, 2009; BCBS & IADI, 2009). A lack of clarity regarding the pooling of funds among the contributing institutions may further add to the misery, and the failed bank never gets to pay for the respite to its depositors (Garcia, 1999). The system is also criticized for its ill-timing of charging the participating banks, when the banking system may be suffering from a weak spot (Campbell et al., 2009).

Hybrid funds, also known as dual-source funds, are a combination of ex-ante and ex-post DIF, allowing the administrator the flexibility to build the fund in advance and also charge

additional levies on the member banks if the fund falls short. Apart from ensuring a supplementary source of funding, a hybrid fund may prove to be better in stabilizing a situation of banking shock (Liu et al., 2016). As a word of caution, Colaert (2015) suggests that no amount of pre-funding in a DIS may prove to be adequate in case an economy faces the failure of a large insured institution or multiple institutions. Hence, a line of credit from the government may be required in addition to the fund collected ex-ante or ex-post from the member banks of the DIS.

2.3 Target DIF and Adequacy

Many countries with an ex-ante fund have established a target for their DIF, either in absolute terms or as a ratio, also known as reserve ratio (RR). The reserve ratio can be determined on various basis, such as a proportion of the insured deposits or assessable deposits, total deposits and borrowings, and they can be set by the law of the country or established by the administrator of the DIS (IADI, 2018). Table 1 presents the target reserve ratio of the DIS of certain countries, determined as a proportion of the insured deposits.

Authority	Countries	Deposit insurance fund target ratio as a percentage of insured deposits
Target ratio set in law	Hong Kong	0.25%
	Singapore	0.3%
	France	0.5%
	Finland	0.8%
	Hungary	0.8%
	Italy	0.8%
	Slovak Republic	0.8%
	Bulgaria	1%
	Chinese Taipei	2%
	Poland	2.6%
	Libya	3%
	Albania	5%
	Moldova	7%
	Montenegro	10%
	Kyrgyz Republic	15%
Target ratio set by deposit insurer's board or governing body	Brunei	0.5%
	Malaysia	0.6%-0.9%
	Canada	1%
	United States of America	2%
	Philippines	5.5%-8%
	Kosovo	8%-9%
	Jamaica	8%-10%

Table 1: Target Reserve Ratio of Select Countries

Source: Adapted from DIF Target Ratio research paper of IADI, 2018.

Designating the right level of target fund or target RR is a key decision concern. A RR set too high may escalate the costs of the contributors, especially the member banks, who may further increase their lending rates, hurting the credit flow, investments and overall growth of the economy. A RR that is low may result in a deficiency in DIF when most needed. In such situations, the government may have to ultimately step in to make up for the deficit, thereby transferring the burden of claims on the taxpayers (Ho et al., 2014).As per IADI (2018), among the DIS of 44 countries with a target DIF, factors such as the structure and features of the financial system, macro-economic environment, laws of the land, resolution mechanism, disclosure requirements and access to backup funding played a major role in determining the level of the target. The Federal Deposit Insurance Corporation (deposit insurer of the United States of America) further suggests the consideration of factors such as the value-at-risk for the DIF and the stability and extent of premium rate.

The deposit insurance administrators and researchers have also employed econometric models to ascertain a reasonable level of fund that may be considered adequate. For example, in the USA, studies have shown that a DIF equal to 2 percent of the insured deposits would have been sufficient to avoid the fund insolvency during the global financial crisis and the great depression (Ellis, 2013), with similar fund target ratios being suggested by studies in the European Union (Maccaferri et al., 2013; Sitkowska, 2015). Ho et al. (2014) suggests that instead of adopting a fixed target RR, a country shall use a flexible approach and revise its target for the DIF as per its past experiences, growth in deposit base and the changing dynamics of the financial system.

3. RESEARCH METHODOLOGY

To fulfil the aims of the study, we undertake a descriptive analysis of time series data of the DICGC's deposit insurance fund for 24 years, from 1999-2000 to 2022-2023. As per the DICGC Act 1961, the DICGC encompasses 3 funds: the deposit insurance fund , the credit guarantee fund and the general fund . The Act also states that if in any year, one of the first two funds faces a deficit, the other fund's surplus would be used towards adjustment of that deficit. From 1987 onwards, the credit guarantee funds disclosed deficit for multiple years, which was adjusted using the surplus of the deposit insurance fund. It was only in 1997-99 that the credit guarantee fund was able to repay and adjust the amount that it had borrowed from the deposit insurance fund. Hence, before 1999-2000 the amounts in the deposit insurance fund as recorded by RBI is not reflective of the true position of the fund. For this reason, although the data on deposit insurance fund is available from 1981-82, any meaningful analysis is possible only from 1999-2000 onwards. We have relied on secondary data for our analysis and the source of the data is the 'Handbook of Statistics on the Indian Economy' published annually by the RBI.

We study the deposit insurance fund using the following variables:

i) To determine the solvency of the fund, we calculate the reserve ratio, which is defined as:

Reserve ratio for year t =

$$\frac{\text{Amount of deposit insurance fund at the end of year t} * 100}{\text{Amount of total insured deposits at the end of year t}}$$

The reserve ratio is often used as a measure of sufficiency of the fund as it reflects the percentage of total insured deposits that are fully covered by the available reserves.

ii) Since premium income and investment income are the major sources of revenue for the fund, we analyse them to check for any pattern in their respective share in the total income contribution to the fund. For this, we determine the year-by-year percentage share of premium income and investment income from 1999-2000 to 2022-2023.

iii) We further study the factors which impact the premium income of DICGC. Since premium is paid by banks on total assessable deposits, at a fixed rate, the premium is a function of these deposits.

iv) Lastly, we study the factors that impact the investment income of DICGC. The DICGC invests the liquid proceeds of the deposit insurance fund into treasury bills and Central Government dated securities. We add up the investments in these two avenues to find the total investment amount each year. The investment in treasury bills is a very small proportion of the total investment by DICGC. Also, the annual reports of DICGC do not provide any information about the date of investment in treasury bills or the duration of these bills. Because of these two reasons, finding an appropriate yield on treasury bills is neither feasible nor relevant. Hence, we hypothesize that the investment income is majorly influenced by the rate of return on dated securities.

4. RESULTS AND ANALYSIS

The deposit insurance fund is credited with the premium received from the insured banks, interest income arising out of investments of the fund, recoveries of the claims settled for liquidated or merged insured banks, any amount advanced by RBI and any amount transferred to it from the credit guarantee fund or general fund. Further, this fund is to be used for the purpose of settling the claims of depositors of insured banks, paying off the advance received from RBI (if any) and to meet certain expenses as decided by the Board of the Corporation. The size of the DIF has been increasing over the years without a dip in the same (Figure 1). As of 31st March 2023, it stands at Rs. 1696.01 billion. The figure also shows a sudden jump in the fund size from 1997-98. As per the DICGC annual report 1999-2000, since 1987, the credit guarantee fund had been disclosing deficits each year, due to certain amendments made in the actuarial valuation of its liabilities. This deficit was adjusted against the surplus of DIF in the respective years. It was only in 1997-99, that the credit guarantee fund fully paid off the amounts due to the DIF. Hence, the jump in the fund amount from 1997-98 onwards.

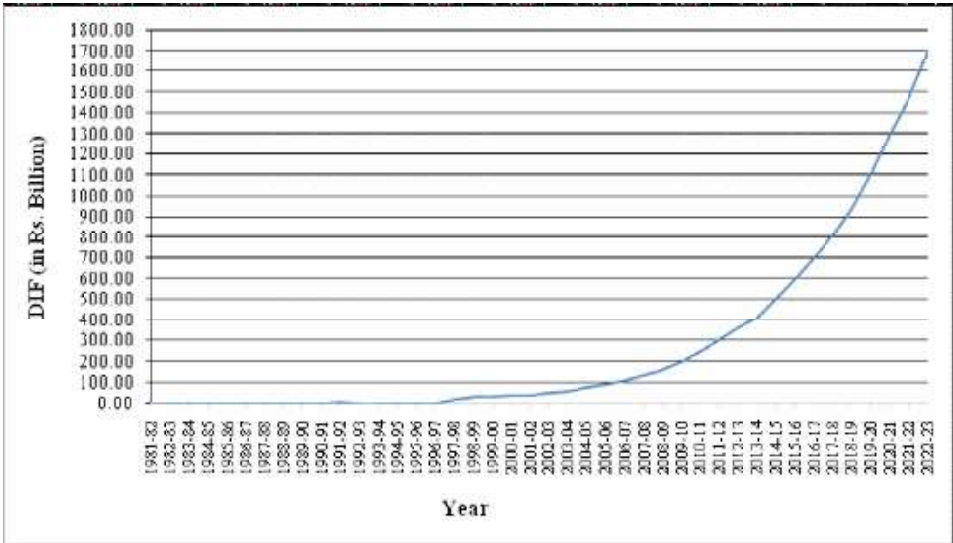


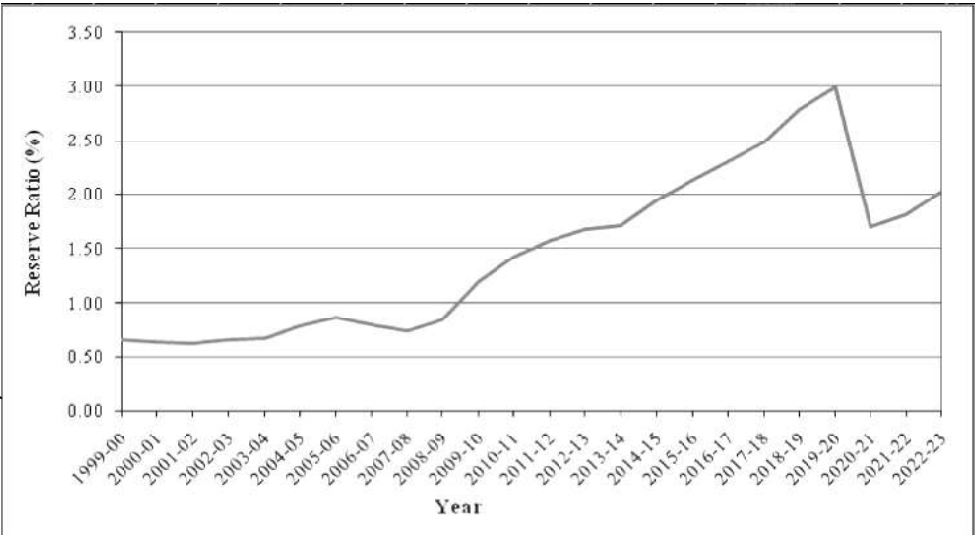
Fig. 1: Size of Deposit Insurance Fund (1981-82 to 2022-23)

Source: Reserve Bank of India

However, simply quantifying the amount of DIF is not sufficient. The reserve ratio, computed as the percentage of the deposit insurance fund to total insured deposits, assesses the fund's adequacy and solvency (Figure 2). In general, the reserve ratio has fallen when reported insured deposits have increased at a faster rate than the DIF, such as in 2007-08 (following an increase in the scope of insured deposits due to a change in the interpretation of the term 'deposits held in the same right and capacity'). Similarly, the increase in premium rates in 2004-05 and 2005-06 resulted in a growth in the fund and RR. The subsequent steep rise in the RR following the global financial crisis is due to the dual effect of a decrease in reported insured deposits (due to a change in return filing format) and an inflow of relatively larger

deposits, resulting in higher premium contributions to the fund and thus a higher RR. The RR has been increasing significantly and positively with time with a CAGR of 2.5% (Sardana & Singhania, 2024).

Fig. 2: Reserve Ratio of India's Deposit Insurance System (1999-2000 to 2022-23)



Source: Reserve Bank of India

As of 2022-23, the DIF of India has an amount equal to about 2.02% of the total insured deposits. While this appears comparable to RR targets set out in certain major countries around the world (Table 1), such comparisons may be misleading if not adjusted for differences in banking system risk. Advanced economies generally exhibit lower bank failure frequency, stronger supervisory enforcement, and more diversified banking structures. In contrast, India's banking landscape includes a significant number of small cooperative banks and historically higher resolution activity. When viewed through a risk-adjusted lens, India's current reserve ratio may represent a thinner protection buffer relative to system risk than similar ratios in more stable jurisdictions. Further, unlike some other countries, neither the DICGC Act 1961, nor any other law in our country specifies any target ratio for the DIF. Although the fund has proved to be more than sufficient in handling normal rate of bank failures, its solvency has not been tested under extreme situations. Keeping this in mind, it would not be a bad idea to specify a target reserve ratio for India's deposit insurance fund as well.

Coming to the components of the DIF, as mentioned before, there are three main sources of income for DICGC that help to build up the DIF, which is further used for the purpose of reimbursing the depositors of liquidated or otherwise de-registered banks. These consists of the premium charged from insured banks, interest on investments made by the Corporation in Central Government securities and the recoveries of depositor reimbursements made by DICGC from the insured banks. The premium is paid in advance by every insured bank for each half year and is calculated on the basis of the total assessable deposits as on the last day of the preceding half year. Figure 3 shows the contribution of each of these sources to the DIF from 1999-2000 to 2022-23.

Comparison of premium income with investment income reveals that although the absolute amount of both incomes, as well as their share in total, were at the same level till 2003-04, but after the increase in the flat rate of premium, the divergence between the two has grown. Further, the sudden inflow of deposits during the global financial crisis has skewed the distribution of the fund's income between premium and investment income, thereby increasing the share of premium income from 50% in 1999-2000 to 71% in 2008-09 (Figure 4).

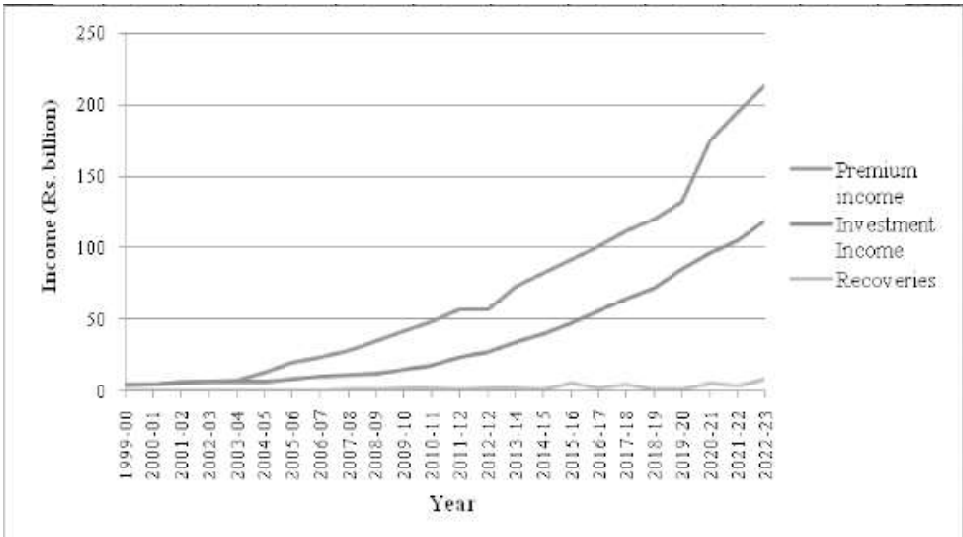


Fig. 3: Contributions to the DIF (1999-2000 to 2022-23)

Source: Reserve Bank of India

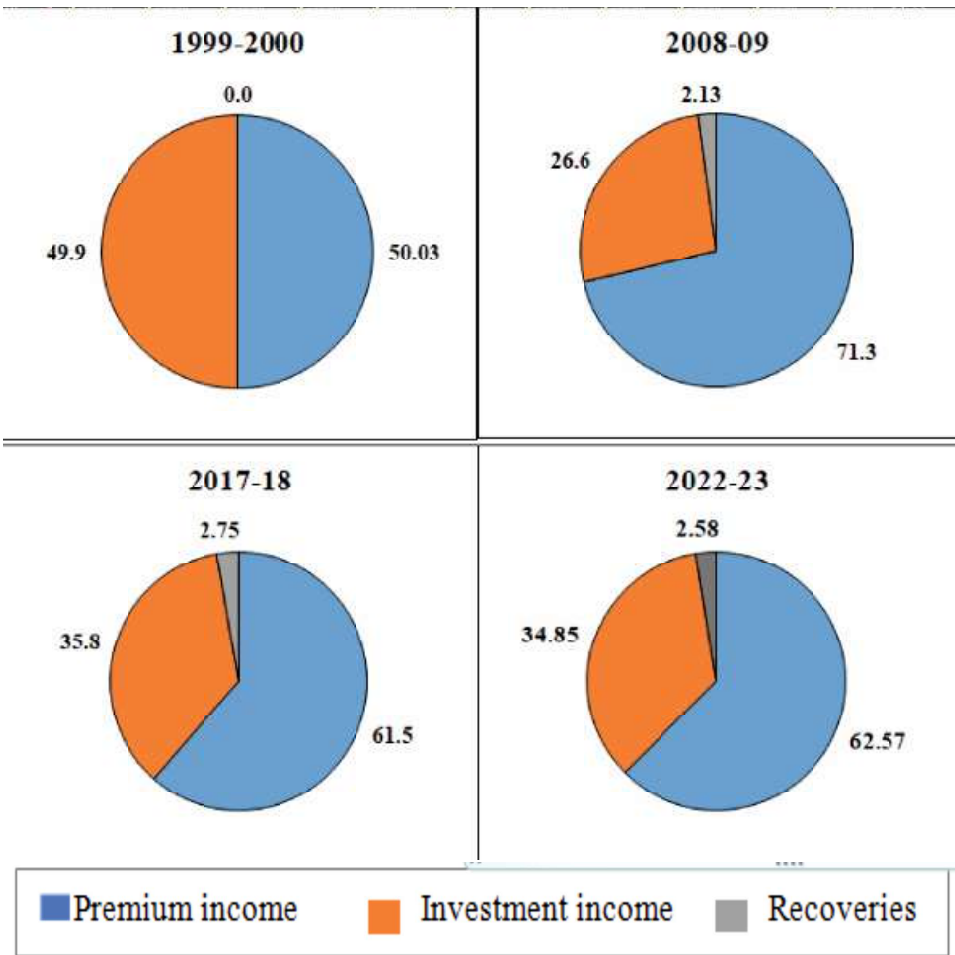


Fig. 4: Share of Various Sources of Income into the DIF (in %)

Source: Reserve Bank of India

The share of premium income in the total income has a parabolic trend, with the share increasing till 2009-10 (with CAGR of 0.72%) and then falling thereafter (with CAGR of 0.2%). The share of investment income, as expected has an opposite, U-shaped trend, with its share falling initially (with CAGR of 12.6%) and then rising (with CAGR of 0.4%). As a result, premium income as a ratio of investment income started from equality, reached a high of 2.75 times (in 2009-10) and currently stands at 1.8 times (Figure 5). The share of recoveries, though rising, remains very small relative to premium or investment income.

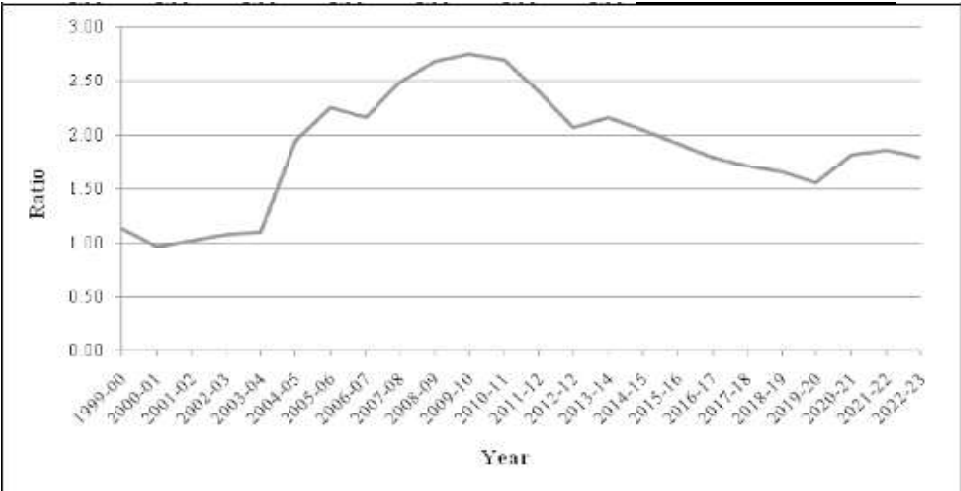


Fig. 5: Premium Income as a Ratio of Investment Income (1999-2000 to 2022-23)

Source: Reserve Bank of India

These results suggest that although premium contributions to the fund have surpassed interest income contributions, the gap between them has been narrowing down over the recent years. High premium contributions may look good for the deposit insurance fund, however, the dependence of premium income on the total assessable deposits can backfire if the depositors, especially the large ones, find stock markets more attractive and hence route their savings to the markets instead of bank deposits. Such a situation can threaten the solvency of the deposit insurance fund, with minimal effect on the amount of insured deposits. Therefore, maintaining a balance between the two major sources of income is a requirement that should be taken care of.

For this purpose, we must determine the factors which impact the two of them separately. The premium is charged from insured banks as a fixed rate on assessable deposits. At the same time, various policy amendments in terms of changes in the fixed rate of premium have led to fluctuations in the amount of premium received by DICGC. To test the relationship between total assessable deposits (TAD) and premium income, we estimate the following multiple regression equation:

$$\log(\text{prem}_t) = \alpha + \beta_1 \cdot \log(\text{TAD}_t) + \beta_2 \cdot \text{dummy_1994} + \beta_3 \cdot \text{dummy_2005} + \beta_4 \cdot \text{dummy_2006} + \beta_5 \cdot t + \varepsilon_t$$

where $\log(\text{prem}_t)$ refers to logarithm of the total premium received by DICGC for the year t . During the period of 1990-91 to 2022-23, the rate of premium was changed four times, in 1993, in 2004, in 2005, and lastly in 2020, and all of these had a positive impact on the premium income.

The estimated coefficient $\beta_1 = 0.46$ ($p < 0.05$), indicating a statistically significant positive contribution of TAD to premium income, with a 1% change in TAD leads to a 0.46% change in premium income of DICGC (after controlling for time trend and policy changes). Hence, premium income is directly impacted by changes in the assessable deposits held by banks,

which is partially controllable by RBI, as well as by changes in premium rates, which is fully under the control of the central bank.

As far as investments of the DICGC are concerned, the DICGC Act requires the Corporation to invest all funds, not required immediately, into the promissory notes and securities of the Central Government. The DICGC has been investing extra resources of the deposit insurance fund into two avenues- treasury bills and dated securities of the Central Government . The absolute amount of investment into the dated securities has been rising and is way higher than the investments into treasury bills (Figure 6 and Figure 7).

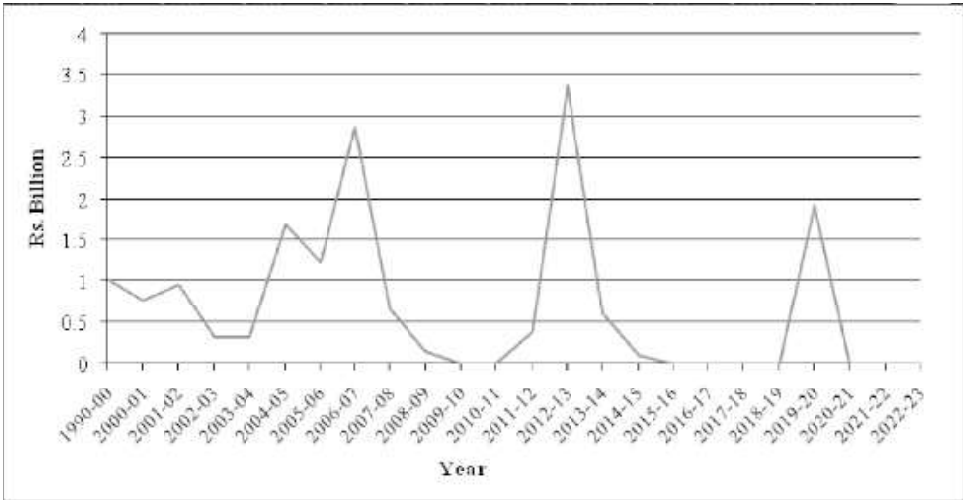


Fig. 6: Investments of the DIF into Treasury Bills (1999-2000 to 2022-23)

Source: Reserve Bank of India

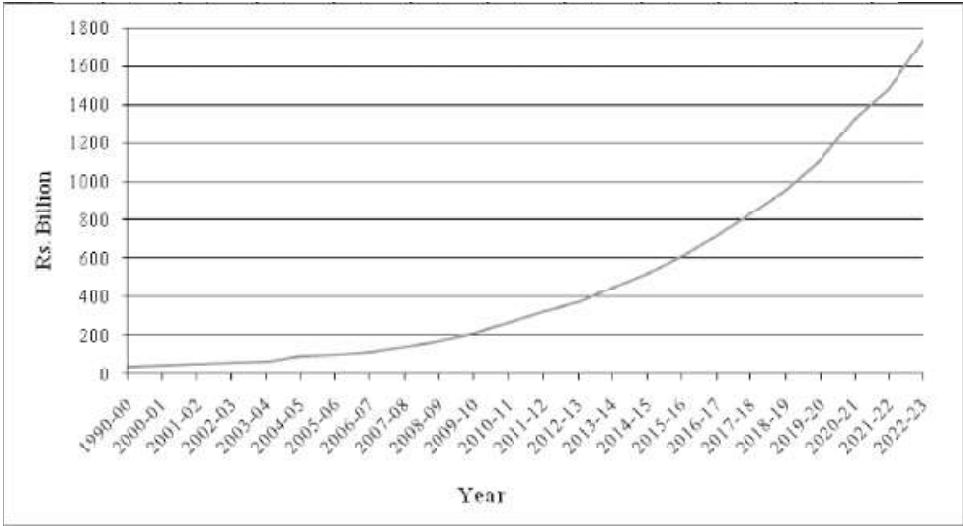


Fig. 7: Investments of the DIF into Dated Securities of Central Government (1999-2000 to 2022-23)

Source: Reserve Bank of India

Further, after controlling for time trend, the investment income in any year is positively influenced by the total amount of investments outstanding in the immediately preceding year as well as the weighted average rate of return on Central Government dated securities in the immediately preceding period. Hence, the investment income can be enhanced by increasing the amount of investments being undertaken, and at the same time, investing proportionately more into high yield securities. The rising share of investment income in the total income of DICGC provides evidence of the DICGC favouring this move. Currently, the surplus of the DIF is subject to income tax. Various other charges such as service tax, Swachh Bharat cess, Krishi kalyan cess and GST are applicable on the transactions of the fund. Relief from some of these charges can free up the funds of the insurer, which can further be used for investments and earning returns. This can go a long way into making the fund self-sufficient rather than relying majorly on the premium income from insured banks.

5. DISCUSSION AND POLICY IMPLICATIONS

The deposit insurance fund, as well as the reserve ratio, have been constantly rising over the years, reflecting the favourable position of the fund. Both of these figures look sufficient, considering the fact that the outstanding amount in DIF for the year ended 2023 is about 30 times the claims paid by DICGC since its inception. The DICGC also has the facility of borrowing from RBI in case of a cash crunch. However, the DIF should be adequate to not only deal with the expected losses, but also to absorb any kind of volatilities or unexpected losses. Hence, many countries have laid down a target level for the fund to ensure the viability of fund at all times. This target, usually expressed as a percentage of insured deposits or total deposits, acts as an indicator to the premium that needs to be reset in response to the depletion or augmentation of the fund. Unlike these countries, in India, no minimum fund amount or target reserve ratio has been specified for the fund. The determination of an optimal fund is an onerous task since bank failures and insurance claims arising out of such failures are not easy to predict. The Report of the Working Group on Reforms in Deposit Insurance in India (Reserve Bank of India, 1999) recommended the maintenance of the DIF equal to 2% of the insured deposits, separately for commercial and co-operative banks. Attempts have also been made to determine a target RR on the basis of historical trend of default rate and loss given default (see Doss, 2017). Hence, DICGC can develop its own models for determining the target reserve ratio or can capitalize upon the experiences of other countries for the same. Once the target is specified, the premium rate can be adjusted upwards or downwards to meet the target, as is followed in the USA.

Our results suggest an unequal distribution of fund revenue from premium income and investment income. In order to maximize the return on its investments, the DICGC shall be empowered to develop its own investment policy for the fund and to invest in instruments other than Central Government securities. Certain countries, including Greece, Hungary, Taiwan, Bulgaria, hold investments in interest bearing securities of the central bank, whereas some other countries, such as Poland and Portugal, even allow insured banks to hold a part of their contributions to the fund with themselves under conditions of safe collateral (Reserve Bank of India, 2008). Since DICGC is a non-profit organisation meant for fulfilling social objectives, the policymakers may also consider exempting the fund from payment of income tax, as is done globally. During 2020-2023, the deposit insurance fund was subject to an effective tax rate of approximately 26% on its surplus, with an average tax payment of approximately Rs. 7127 crores per annum (DICGC Annual Report, 2023). Over the last 3 years, cumulative tax impact reduced fund reserves by nearly Rs. 21,382 crores, delaying the achievement of target reserve ratios. Exemption from income tax would enable the DICGC to build its fund better, leave more funds for investment, provide higher coverage, and may also allow it to pass on the benefits of a stronger fund to the insured banks in terms of reduction in premium.

6. CONCLUSION

This study aimed to examine the deposit insurance fund of DICGC, the deposit insurer of

India, to understand its sufficiency, sources of income and the factors influencing these sources. In the light of historical trends, the size of the fund seems to be sufficient to handle bank claims, though an effort needs to be made to balance out the sources of revenue of the fund.

In situations of a banking panic, the necessity of a lender of last resort or the importance of the prudential solvency and liquidity requirements, cannot be disregarded. But it is important to note that deposit insurance is the strongest instrument for prevention of bank runs (Sardana & Shukla, 2020). For banking stability, thus, it is important for the insurance to have a proper framework (Lazarov, 2017). DIF is a fund that is used to resolve the situations of failed or failing financial bodies by the deposit insurer and for on-time reimbursement of depositors' claims. It is accumulated by collecting premiums from insured financial institutions. (Alyeksyeyev & Mazur, 2018). When there are problems related to late reimbursement to depositors or a delay in resolving the repercussions of bank failures, it is usually because of insufficient funding of the DIS. This has a severe implication on the confidence and authenticity of the institution. (Demirgüç-Kunt & Kane, 2002; Nijskens & Wagner, 2011).

Hence, proper pre-funding and assurance by the Government to provide liquidity to the DIS are essential for the credibility and effectiveness of deposit insurance (Malhotra et al., 2024) because sufficient funding of deposit guarantee scheme would ensure trust in the depositors for Deposit Insurance. (Lazarov, 2017). The features of a banking system (such as the size or structure of the bank) influence the extent to which the failure of a bank strains the members of the DIS and the authorities. Hence, these features can play a crucial role in determining the funding structure for the banks (Financial Stability Board, 2012).

The findings from the study highlight the growth and sustainability of India's deposit insurance fund, focusing on its reserve ratio, sufficiency, and sources of income. Over the years, the reserve ratio of the DIF has steadily increased and, as of 2022-23, stands at 2.02% of total insured deposits. However, there is no specified target reserve ratio in India, and although the fund has been sufficient to handle routine bank failures, its adequacy under severe financial stress remains uncertain. Setting a target reserve ratio could strengthen the fund's resilience. International benchmarking of deposit insurance adequacy should incorporate risk factors such as historical bank failure rates, supervisory strength, and system volatility, rather than relying solely on nominal reserve ratios.

The DIF's income comes primarily from premiums paid by banks, investment returns, and recoveries from liquidated banks. Premium income has shown a declining trend in recent years, while investment income has been steadily rising, narrowing the gap between these two sources. Premium income is influenced by the total deposits in banks and changes in premium rates introduced by policymakers. Investment income, on the other hand, depends on the amount of funds invested and their returns. The study suggests reducing tax burdens on the DIF, which would allow more funds to be reinvested, enhancing returns. This approach could help the fund become more self-reliant and better prepared for future challenges.

The deposit insurance fund lays down a fertile ground for future research in terms of modelling of the fund and studying its sufficiency in the past and future. Moreover, a study of time trend for various variables undertaken in our work is true for the past but may not be true for future due to the limited number of years taken into consideration. There is scope for employing more advanced and sophisticated tools to further explore the various aspects of deposit insurance in India, in order to contribute to the existing pool of literature.

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